LOS ANGELES COUNTY SOURCE REDUCTION AND RECYCLING ELEMENT

VOLUME I - THE ELEMENT

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
WASTE MANAGEMENT DIVISION

AUGUST 1993

SOURCE REDUCTION AND RECYCLING ELEMENT FOR THE UNINCORPORATED PORTIONS OF LOS ANGELES COUNTY

ACKNOWLEDGEMENTS

BOARD OF SUPERVISORS

Edmund D. Edelman, Chairman
Gloria Molina
Yvonne Brathwaite Burke
Deane Dana
Michael D. Antonovich

STAFF CREDITS

DEPARTMENT OF PUBLIC WORKS MANAGEMENT

T. A. Tidemanson, Director of Public Works
Harry Stone, Assistant Director
Jim Noyes, Deputy Director
Jack Michael, Governmental Relations Representative
David Yamahara, Assistant Deputy Director, Project Director
Michael Mohajer, Assistant Division Engineer, Project Manager

STAFF

David M. Smith, Project Engineer
Chukwuemeka Agu
Martins Aiyetiwa
Thomas Brachko
Russell Bukoff
Vicky Clark
Hoorik Davoudian
Ana Gonzales
Burt Kumagawa
Mary Lopez
Eileen Paiz
Carlos Ruiz
Grace Solomon
Alma Sosa
Cynthia Swink
Allen Welbourn

COUNTY COUNSEL

Judith Fries, Deputy County Counsel

CONSULTANTS

EcoSource International, Inc.
Emcon Associates
Al Hearne

DMS:jk
alwp2/bosc

EXECUTIVE SUMMARY

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The County of Los Angeles (County) Source Reduction and Recycling Element (SRRE) has been prepared in response to the California Integrated Waste Management Act of 1989, Assembly Bill 939 (AB 939), as amended, and in accordance with guidelines developed by the California Integrated Waste Management Board (CIWMB).

Every city and county in the State of California is required to prepare an SRRE that identifies how each jurisdiction will meet the mandatory waste diversion goals of 25 percent by 1995 (short-term planning period) and 50 percent by 2000 (medium-term planning period). The following sections provide a summary of each of the components included in the SRRE. Relevant information regarding solid waste generation, funding, and expected diversion rates is also presented. Table ES-1 provides a brief description of selected SRRE programs. It should be noted that solid waste generation and diversion quantities are projected based on 1990 quantities as mandated by state law.

SOLID WASTE GENERATION STUDY AND ANALYSIS COMPONENT

The solid waste generation study and analysis was conducted to quantify and characterize the solid waste generated, diverted, and disposed within the unincorporated portions of the County. Figures S-1, S-2, and S-3 summarize the results of the solid waste generation study.

In 1990, approximately 1,108,000 tons of solid waste were generated in the unincorporated portions of the County. Through eligible existing diversion programs operated by the County and the private sector, 5.9 percent of the solid waste was diverted from disposal.

Beginning with the 1990 data, a solid waste generation data projection was produced for the next 15 years. Based on this data, integrated waste management programs were developed in subsequent components to divert wastes from disposal and expand the existing diversion programs.

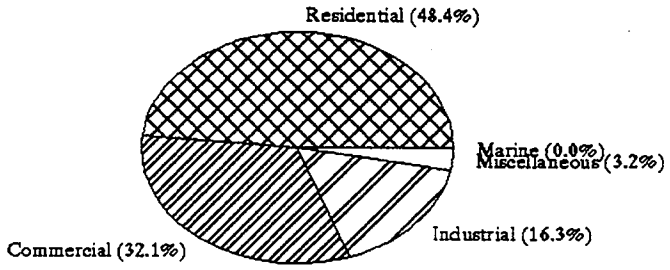
SOURCE REDUCTION COMPONENT

Effective source reduction is integral to a sound integrated waste management program, it is a preventive approach aimed at avoiding the creation of waste through changes in the design, manufacture, purchase, procurement, and use of products or packaging. Furthermore, source reduction encompasses actions that promote increased longevity through reuse, repair, and remanufacture. Total existing diversion as a result of identified source reduction activities is 1.5 percent of the 1990 waste generation.

Figure S–1
SOLID WASTE GENERATION ANALYSIS
UNINCORPORATED COUNTY OF LOS ANGELES

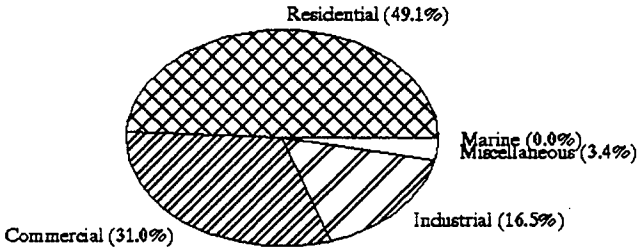
Solid Waste Generation (tons/year)

Residential	536,111
Commercial	355,653
Industrial	180,786
Miscellaneous	35,349
Marine	173
Total	**1,108,072**



Solid Waste Disposal (tons/year)

Residential	511,964
Commercial	323,151
Industrial	172,056
Miscellaneous	35,349
Marine	173
Total	**1,042,693**



Solid Waste Diversion (tons/year)

Residential	24,146
Commercial	32,502
Industrial	8,730
Total	**65,378**
Current diversion rate =	**5.9%**

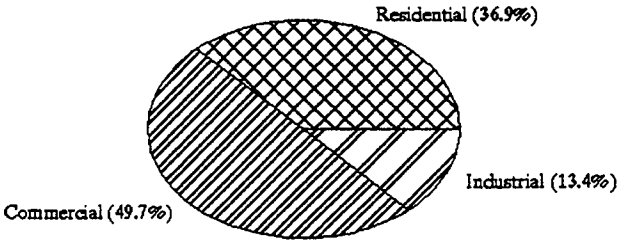
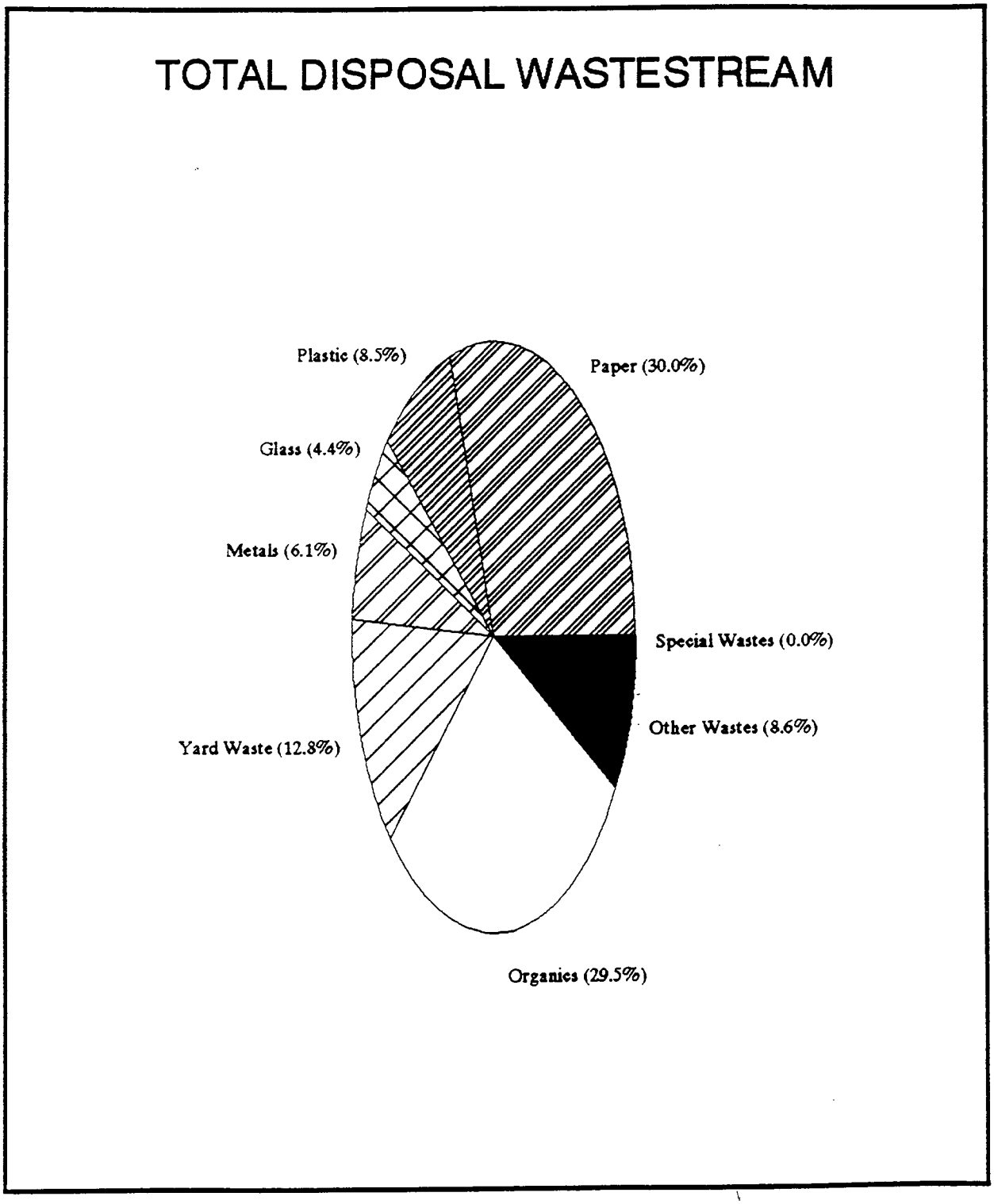
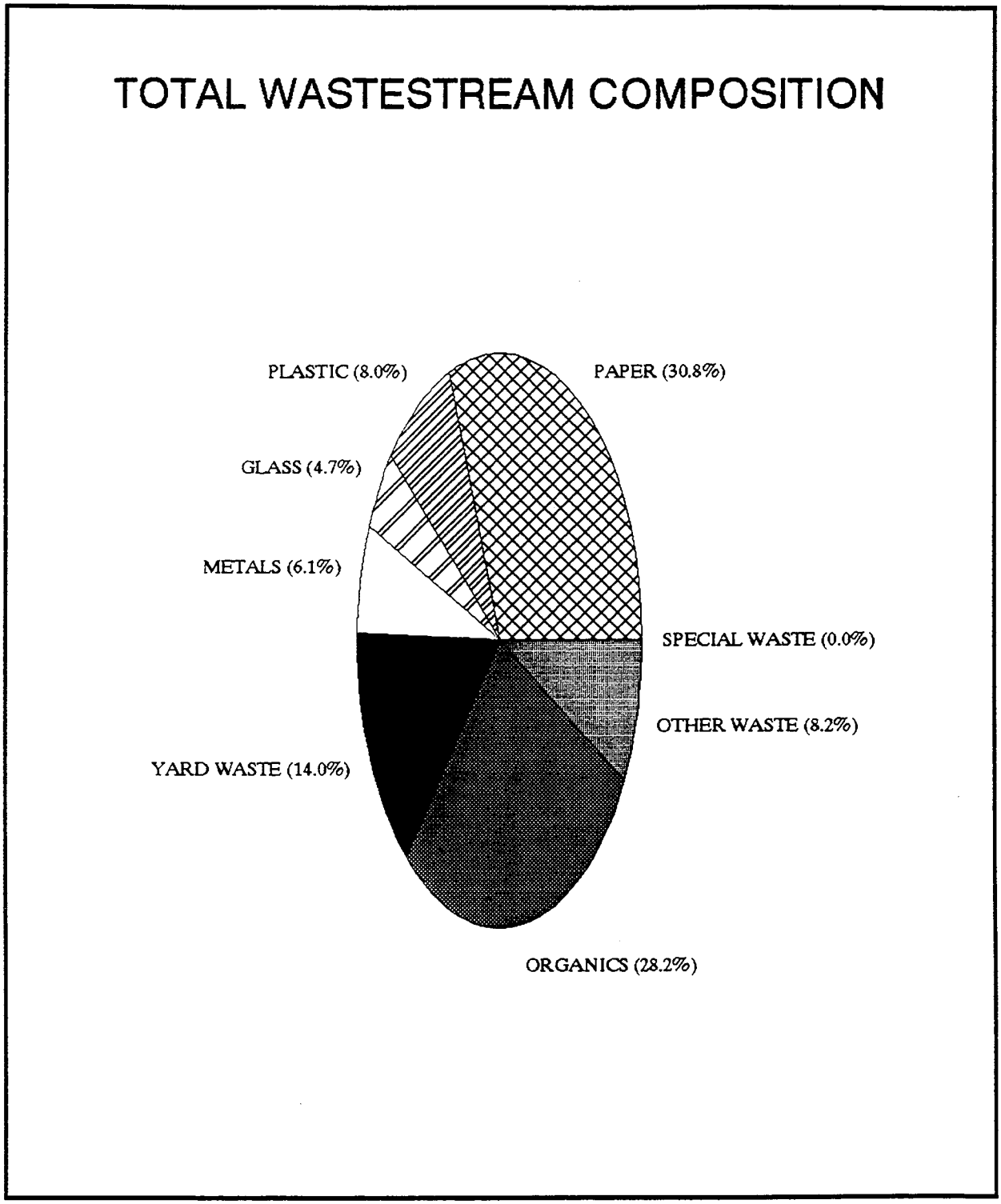


Figure S-2
SOLID WASTE DISPOSAL COMPOSITION
UNINCORPORATED COUNTY OF LOS ANGELES



NOTE: The following waste are included in the indicated categories.
* White Goods - Metals * Tires - Organics * Inert solids - Other wastes

Figure S-3
SOLID WASTE GENERATION COMPOSITION
UNINCORPORATED COUNTY OF LOS ANGELES



NOTE: FIGURE 2-3 SHOWS COMPOSITION OF WASTESTREAM BY SECTOR
The following waste are included in the indicated categories.
* White Goods - Metals * Tires - Organics * Inert solids - Other wastes

Four broad categories of source reduction activities are examined and evaluated, these include: 1) Rate Structure Modifications; 2) Economic Incentives; 3) Technical Assistance and Promotion; and 4) Regulatory Programs. The specific alternatives selected for implementation are shown in Table S-1. Tables S-2 and S-3 show the schedule and tasks necessary to implement the programs. Expansion of source reduction activities will result in a 3.7 percent diversion rate by 1995 and 5.2 percent by 2000.

RECYCLING COMPONENT

The County is actively involved in recycling. As of January 1, 1991, the County implemented curbside collection of recyclable in four unincorporated areas. Through recycling, the County diverts approximately 4.2 percent of the total waste generated in 1990.

A number of new programs will be implemented and existing programs will be expanded to further increase recycling in the County in the short- and medium-term planning periods. These programs, shown in Table S-1, are chosen to address the four steps of municipal recycling: collection, processing, remanufacturing, and purchasing. The schedule and tasks necessary to implement the programs are shown in Tables S-2 and S-3.

The addition of new and expanded programs to augment existing efforts is expected to increase diversion to 24.1 percent by 1995 and 36.1 percent by 2000. It should be noted, however, that these waste diversion goals will only be met if material recovery facilities developed by the private sector can provide adequate processing capacity.

COMPOSTING COMPONENT

Composting is an environmentally sensitive and resourceful means of diverting organic waste from the wastestream. There are no documented composting activities within the County at this time. The County will target, to the maximum extent possible, all yard waste, such as grass, leaves, and prunings, as the wastestream for the prospective composting program. Four selected alternatives will be implemented in the short-term planning period and will continue through the medium-term planning period. These include yard waste pre-processing/reduction, yard waste composting, regulatory measures and policies, and public education and outreach. In addition, financial incentives such as reduced tipping fees for clean green waste at landfills with composting programs, will be implemented in the medium-term planning period.

New programs are expected to divert 1 percent in 1995 and 3 percent in 2000 of waste generation for the short- and medium-term planning periods, respectively. Tables S-2 and S-3 show the schedule and tasks necessary to implement the programs.

SPECIAL WASTE COMPONENT

Special wastes are solid wastes which, because of their source of generation, physical, chemical, or biological characteristics, or unique disposal practices, require special handling. This includes tires, construction and demolition debris, white goods (large appliances), auto bodies, and potentially hazardous wastes such as sewage sludge, asbestos, ash, and auto shredder waste. For the purpose of this document, special waste will be limited to white goods, tires, and construction and demolition wastes.

Diversion of special waste is currently 0.2 percent of the 1990 waste generation. Implementation of the selected programs targeting used tires, white goods, and construction and demolition waste will increase diversion of special wastes to 2.7 percent in 1995 and 7.6 percent in 2000, of waste generation for the short- and medium-term planning periods, respectively. Tables S-2 and S-3 show the schedule and tasks necessary to implement the programs.

EDUCATION AND PUBLIC INFORMATION COMPONENT

Education and public information is essential to the success of all waste diversion/reduction efforts. Discussion of education and public information programs targeting source reduction, recycling, composting, and special waste is presented in this component.

Currently, the Los Angeles County Department of Public Works conducts a public education/public outreach program addressing the overall concepts of reduce, reuse, and recycle. This program will be expanded substantially during the short-term planning period. The Department of Public Works has also set up a toll free "hotline" to answer questions from residents regarding recycling, composting, and source reduction.

Education and information programs established in 1990 will be expanded to target single and multi-family residents, schools and commercial/industrial markets. In addition, technical assistance and waste evaluation programs will be developed. All programs will be implemented in the short-term planning period and will continue into the medium-term planning period.

DISPOSAL FACILITY CAPACITY COMPONENT

An effective integrated waste management program should provide for the environmentally safe disposal of solid waste. This component presents an overview of the existing, planned, and proposed solid waste landfill and transformation facilities available to the various communities in the unincorporated County. Anticipated solid waste facilities to be phased out, closed, planned for expansion, or newly established are also discussed.

The projected 15-year disposal capacity needs for the unincorporated County area are calculated utilizing projected diversion rates for 1995 and 2000. To develop these projections it has been assumed that population will increase by 1 percent per year and per capita waste generation will increase by 1.5 percent per year.

Landfills located in the unincorporated areas of the County have a remaining capacity exceeding the disposal needs for the waste generated in its areas. However, historical usage of these landfills has been for regional waste disposal by all local jurisdictions.

FUNDING COMPONENT

The funding component demonstrates the County's ability to provide necessary funds and resources for implementing the selected programs identified in the components of the SRRE. The component recognizes that the costs for the selected programs exceed the projected revenues. However, it is anticipated that future amendments to AB 939, as proposed by the Board of Supervisors, will be approved and that non-implementation activities (i.e., planning, monitoring, evaluation, reporting, education, and market development) will not be required. This would significantly reduce the cost burden on the County.

Implementation of the SRRE programs will be funded by the Solid Waste Generation Service Charge (SWGSC). The SWGSC is an annual fee imposed on those property owners in the unincorporated areas with improvements on their land. The charge appears on their property tax bill, which is collected by the County Treasurer/Tax Collector.

Implementation costs for the individual components are shown in Table S-4. It should be noted that no capital projects are proposed. It is assumed that needed facilities such as MRFs will be developed by the private sector.

INTEGRATION COMPONENT

This component summarizes the solid waste management techniques and programs proposed by the individual components of the SRRE. It explains how programs will complement each other to jointly achieve source reduction, recycling, composting, and special waste diversion goals for the short- and medium-term planning periods. If waste cannot be diverted, the County will ensure that it is disposed of in an appropriately permitted waste disposal facility in the region.

Diversion goals through implementation of the various program alternatives are summarized by component in Table S-1. The combination of components will divert 31.5 percent of solid waste in the short term and 51.9 percent in the medium term. This satisfies the State-mandated goals for solid waste diversion as set by AB 939. Should these goals not be met, Table S-5 summarizes the contingency programs that will be considered to assist in meeting the State requirements.

TABLE S-1
ALTERNATIVES SELECTED FOR IMPLEMENTATION

PROGRAM	DIVERSION**		
SOURCE REDUCTION	EXISTING (%)	ST (%)	MT (%)
Backyard Composting	0.0	0.1	0.4
Grasscycling	1.5	2.8	3.4
Xeriscaping	0.0	0.1	0.2
Manure Composting	0.0	0.0	0.3
Waste Eval/Tech. Assist.	0.0	0.1	0.1
Procurement Ordinances	0.0	0.6	0.8
Public Education/Outreach	*	*	*
Subtotals	1.5	3.7	5.2
RECYCLING			
Single-Family Curbside Collection	0.7	2.5	3.5
Multi-Family Collection	0.0	0.3	0.4
Buy-Back Program	0.0	0.9	1.1
Drop-Off Program	0.0	0.2	0.3
Materials Recovery Facilities (MRF)	3.5	8.9	16.3
At-Source Separation and/or Processing	0.0	4.5	8.3
Salvaging at Solid Waste Facilities	0.0	0.1	0.2
Green Waste Daily Cover Program	0.0	6.6	5.9
Christmas Tree Recycling	0.0	0.1	0.1
Public Education/Outreach	*	*	*
Subtotals	4.2	24.1	36.1
COMPOSTING			
Green Waste Composting	0.0	1.0	3.0
Preprocessing/Waste Reduction	*	*	*
Regulatory Measures and Policies	*	*	*
Financial Incentives	*	*	*
Public Education/Outreach	*	*	*
Subtotals	0.0	1.0	3.0
SPECIAL WASTE			
Construction and Demolition Waste Program	0.0	1.8	6.5
Used Tire Program	0.2	0.9	1.0
White Goods Program	0.0	0.0	0.1
Public Education/Outreach	*	*	*
Subtotals	0.2	2.7	7.6
EDUCATION			
See Individual Components for Programs Selected	*	*	*
Totals	5.9	31.5	51.9

NOTE

Existing = Base Year - 1990
ST = Short-Term Planning Period (Present to 1995)
MT = Medium-Term Planning Period (1996 to 2000)
* = Denotes Support Program - Diversion not Quantified
** = Percent of the Total Waste Generated

TABLE S-2
WASTE PROGRAM IMPLEMENTATION SCHEDULE

WASTE PROGRAM	IMPLEMENTATION SCHEDULE AND DIVERSION RATES					
	SHORT-TERM 1991-1995			MEDIUM-TERM 1996-2000		
	SCHEDULE	TONS [a] DIVERTED	% OF TOTAL WASTE	SCHEDULE	TONS [a] DIVERTED	% OF TOTAL WASTE
1. Source Reduction						
Backyard Composting	11/91 - 12/95	2,100	0.1	1/96 - 12/2000	5,600	0.4
Grasscycling	1/94 - 12/95	34,800	2.8	1/96 - 12/2000	48,500	3.4
Xeriscaping Guidelines	11/91 - 12/95	700	0.1	1/96 - 12/2000	2,700	0.2
Manure Composting	1/93 - 12/95	0	0.0	1/96 - 12/2000	3,800	0.3
Waste Evaluation/Technical Assistance	1/93 - 12/95	500	0.1	1/96 - 12/2000	1,100	0.1
Procurement Ordinances	1/93 - 12/95	7,900	0.6	1/96 - 12/2000	12,400	0.8
Public Education/Outreach	1/90 - 12/95	b	b	1/96 - 12/2000	b	b
Total Source Reduction		46,000	3.7		74,100	5.2
2. Recycling						
Single-Family Curbside Collection	11/91 - 12/95	31,100	2.5	1/96 - 12/2000	50,000	3.5
Multi-Family Collection	4/91 - 12/95	3,400	0.3	1/96 - 12/2000	5,300	0.4
Buy-Back Program	12/90 - 12/95	11,500	0.9	1/96 - 12/2000	15,800	1.1
Drop-Off Program	1/93 - 12/95	2,600	0.2	1/96 - 12/2000	4,300	0.3
Materials Recovery Facilities	6/93 - 12/95	111,000	8.9	1/96 - 12/2000	232,000	16.3
At-Source Separation and/or Processing	1/93 - 12/95	56,700	4.5	1/96 - 12/2000	117,100	8.3
Salvaging at Solid Waste Facility	1/90 - 12/95	1,700	0.1	1/96 - 12/2000	2,500	0.2
Green Waste Daily Cover Project	1/90 - 12/95	83,200	6.6	1/96 - 12/2000	83,200	5.9
County Christmas Tree Recycling	12/91 - 12/95	600	0.1	1/96 - 12/2000	600	0.1
Education	1/90 - 12/95	b	b	1/96 - 12/2000	b	b
Total Recycling		301,800	24.1		510,800	36.1
3. Composting						
Yard Waste Composting	9/90 - 12/95	c	c	1/96 - 12/2000	c	c
Preprocessing/Waste Reduction	6/93 - 12/95	c	c	1/96 - 12/2000	c	c
Regulatory Measures and Policies	1/93 - 12/95	c	c	1/96 - 12/2000	c	c
Public Education/Outreach	11/91 - 12/95	b	b	1/96 - 12/2000	b	b
Total Composting		12,500	1.0		42,600	3.0
4. Special Waste						
Construction and Demolition	8/93 - 12/95	22,300	1.8	1/96 - 12/2000	92,900	6.5
Used Tire Program	1/93 - 12/95	10,800	0.9	1/96 - 12/2000	14,700	1.0
White Goods Program	1/93 - 12/95	800	0.0	1/96 - 12/2000	1,100	0.1
Public Education/Outreach	1/90 - 12/95	b	b	1/96 - 12/2000	b	b
Total Special Waste		33,900	2.7		108,700	7.6

NOTES:
a) Figures are rounded to the nearest 100 tons.
b) Denotes support program
c) Each part is a step in the total diversion process.

COMMENTS:
Tables S-3 and S-4, Waste Program Implementation Strategy and Tasks, show various tasks required to implement programs indicated in this table.

TABLE S-3
WASTE PROGRAM IMPLEMENTATION TASKS
FOR SHORT-TERM AND MEDIUM-TERM PLANNING PERIODS

COMPONENT	TASK
Source Reduction	**Backyard Composting** • Provide Composting Units, if needed • Education **Grasscycling** • Education **Xeriscaping Guidelines** • Education **Manure Composting** • Education **Waste Evaluation/Technical Assistance** • Solicit/Train Waste Evaluation Volunteers and/or Employees • Education **Procurement Ordinances** • Adoption of County Ordinances requiring County offices to purchase recycled products • Education
Recycling	**Single-Family Curbside Collection** • Develop program • Implement Program • Education **Multi-Family Collection** • Develop program • Implement program • Education **Buy-back Program** • Review feasibility • Conduct siting study • Acquire land • Initiate CEQA and local approvals • Construction • Review opportunities • Implement program • Education **Drop-off Program** • Review opportunities • Program development • Implement program • Education **Material Recovery Facilities** • Cooperate with other jurisdictions • CEQA and local approvals • Encourage private industry • Education **At-Source Separation and/or Processing** • Review existing program • Review hauler agreements • Enact hauler service ordinance • Develop franchise agreement • Education

COMPONENT	TASK
Recycling Cont.	**Salvaging at Solid Waste Facilities** • Review opportunities • Develop program • Implement program • Education **Green Waste Daily Cover Program** • Develop ordinance • Review hauler opportunity • Enact hauler service ordinance • Education **Christmas Tree Recycling** • Design collection system • Education
Composting	**Yard Waste Composting** • Develop programs • Design collection system • Examine diversion patterns • Encourage private sector • Education **Preprocessing/Waste Reduction** • Develop programs • Review processing capacity • Education **Regulatory Measures and Policies** • Conduct market survey • Develop procurement guidelines • Develop product quality standards • Develop incentive rates • Develop/implement technical assistance program • Develop ordinances • Develop business license provisions • Develop/implement yard waste diversion bins • Implement fines for illegal disposal • Develop source separation ordinances • Develop/implement punitive rate • Education
Special Waste	**Construction and Demolition Waste Program** • Contact vendors • Develop educational materials • Review county procurement guidelines • Education **Used Tire Program** • Revise county ordinance • Adopt revised ordinance • Implement new process • Develop permit instructions • Education **White Goods** • Review county procurement guidelines • Contact private haulers • Contact dealers • Schedule collection • Develop educational materials • Advertise collection • Implement program • Education

TABLE S-4
SOURCE REDUCTION AND RECYCLING ELEMENT ALTERNATIVE COSTS

AVERAGE ANNUAL COSTS*

Program	Program Development/ Implementation	Monitoring/ Evaluation	Education/ Public Info.	Total Cost
1. Source Reduction	$ 587,500**	$ 94,000	$ 128,500	$ 810,000
2. Recycling	$ 290,000**	$ 160,000	$ 500,000	$ 950,000
3. Composting	$ 290,000	$ 55,000	$ 65,000	$ 410,000
4. Special Waste	$ 31,000	$ 16,000	$ 13,000	$ 60,000
5. Education	†	$ 70,000	†	$ 70,000
Total	$1,198,500	$ 395,000	$ 706,500	$2,300,000

* Based on three-year average from 1993 - 1995.
** Includes costs for demonstration projects.
† All education and public information costs, except monitoring and evaluating, have been incorporated into, and are part of, each of the other components total costs.

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TABLE S-5
SRRE PROPOSED CONTINGENCY PROGRAMS

Source Reduction Component

- Adopt ordinance(s) requiring waste reduction planning/ implementation measures
- Awards programs
- Local taxes, fees, and fines
- Adopt ordinance to require recycling of wood pallets
- Adopt ordinance to encourage the use of nondisposable diapers

Recycling Component

- Increase local activities to improve markets for recyclables.
- Increase efforts to implement State or Federal programs that will improve markets for recyclables.
- Encourage private sector/businesses to increase participation and also improve markets for recyclables.
- Publish a resource guide to recycled products for distribution Countywide.
- Development of materials recovery facilities

Composting Component

- Identify and remedy facility or equipment related problems or inadequacies.
- Develop strategies to stimulate markets for green waste products such as compost and mulch.

Special Waste Component

- No specific contingency programs have been proposed for the special waste component. However, the programs implemented will be monitored to: a) determine that their target audiences are being reached; and b) identify inadequacies and modify programs, when appropriate.

Education and Public Information Component

Existing programs will be regularly evaluated to ensure that target audiences are being reached with the desired information. Public education programs will be adjusted as to content and frequency in order to reach a larger percentage of the population and to improve the publics' participation.

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Attachment ES-1

DESCRIPTION OF SELECTED SRRE PROGRAMS

Source Reduction Programs

- Assistance with On-site Composting and Mulching Activities. Technical and/or financial assistance can be provided to assist generators of organic waste in implementing on-site composting programs. The County can also promote and assist the mulching of grass clippings and woody debris.

- Grasscycling. The County can promote grasscycling, a procedure of naturally recycling lawn clippings by leaving green waste on the lawn after mowing.

- Waste Evaluations. Waste evaluations are one of the most common forms of government assistance to non-residential generators. Most waste evaluations involve a trained waste auditor who tours businesses and gathers information on the amounts and types of wastes produced; the amounts, types, and quantities of recyclables in the waste stream; and companies' internal waste handling processes. This is usually followed by a recommendation of source reduction and recycling actions.

- Technical Assistance to Business and Industry, and Consumer Organizations. Local government staff would assist businesses and organizations by sharing research findings, experience, and technical knowledge.

- Educational Efforts. The primary mechanism for eliciting source reduction is education and promotion aimed at making changes in the production of goods, packaging design, and consumer buying practices. Consumer awareness programs, school program development, seminars, and public forums are ways in which educational programs can be presented. The targeted audiences are product designers, manufacturers, retailers, and individual and business consumers.

- Non-Procurement Source Reduction Activities. Non-procurement source reduction includes programs such as education of employees, office changes to increase the use of scrap paper, increased use of electronic mail, reduction of junk mail, sharing subscriptions, routing, and increased use of duplex copying.

- Demonstration Programs. Demonstration programs are model source reduction programs that can be observed by the public and private sectors. Displays can demonstrate a variety of source reduction options, from on-site composting operations

to restaurant dishwashing machines. Demonstration programs can be used in support of other source reduction alternatives, including assistance with on-site composting and mulching activities; and technical assistance to businesses, industry, and consumer organizations.

- Government Procurement Ordinances. These measures would include the adoption of ordinances that specify durability, recyclability, and recycled content as purchasing considerations.

- Incentives for Land Use Practices that Promote Source Reduction. To the extent that specific land use practices relate to the generation and disposal of waste, the jurisdiction may promote source reduction through regulations, incentives, education, and technical assistance.

- Product and Packaging Bans. Jurisdictions may consider banning specific products as well as materials to conserve landfill capacity and to encourage the recycling or reuse of these materials.

Recycling Programs

- Single-Family Curbside Collection of Separated Materials. Curbside collection is the scheduled collection of separated recyclable materials that have been set out at single-family residences.

- Multi-Family Collection. This measure would involve the collection of household recyclables from multi-family structures/developments. It is an alternative to curbside collection; trash is placed in common area bins or dumpsters, rather than in individual receptacles for each unit.

- Mobile/Stationary Buy-Back Centers. The buy-back recycling center measure is a commercially located, staffed recycling facility that purchases small amounts of post-consumer secondary materials from the public. Buy-back centers typically buy aluminum cans; they may also handle glass and plastic containers and newspaper.

- Mobile/Stationary Drop-Off Centers. A drop-off center is a recycling collection facility where citizens can voluntarily deliver separated secondary materials, such as newspaper, glass containers, plastic containers, and metal cans.

- Manual Materials Recovery Operations. This measure would involve the separation of marketable recyclable materials, such as newspapers, mixed glass, metal, and plastic containers, and the processing of those materials for sale to

end users. This type of operation is often conducted near a solid waste facility, such as a landfill or transfer station, where the non-recovered material can be cleared for disposal.

- At-Source Separation, and Collection of Recyclables. This program involves recyclable materials that are generated as wastes from non-residential sources and that can be separated and collected for transport to recyclable processing and marketing facilities.

- At-Source Processing. This measure would allow some non-residential generators to ship separated recyclable materials directly to end users or through regional brokers without the need for intermediate off-site processing or special hauler collection routes.

- Salvage at Solid Waste Facilities. This measure involves sorting of specific recyclables from a tipping floor, usually restricted to recyclable rich loads.

- Christmas Tree Recycling. Christmas trees can be collected and chipped for use as mulch. These trees could be collected at the curb by waste haulers or dropped off by County residents at designated collection locations.

- Green Waste Cover Project. Yard wastes would be delivered to one or more sites established to receive these materials.

- Mandatory Materials Separation Ordinance. This measure would require that residential and commercial generators separate their recyclables from their garbage.

- Policy on Scavenging. In this policy's most restrictive form, anything set out at the curb belongs to the jurisdiction, and scavenging is prohibited.

- Zoning Code Practices. Zoning code changes would define the conditions and permit procedures for different types of development within a jurisdiction.

- Building Code Changes. One common barrier to separating recyclables is inconvenience and lack of space. Building codes or guidelines can address this problem at the source, before a building is constructed, to help make recycling behavior and collection mechanisms an integral part of the work or dwelling place. Building codes can be revised to require that new commercial and multi-family developments include space for recycling.

- Mandatory Recycling Service Provided By Hauler. This measure would require haulers to provide recycling collection as a condition of their business licenses or franchise agreements.

- Contracted or Franchised Recycling Service Provision. Through contracts or franchises, a jurisdiction can organize programs and routes. This may be particularly useful in areas that are either under-served or not served at all by private haulers or recycling collectors.

- Cooperative Marketing of Recyclable Materials. This alternative involves joint marketing of aggregate materials from several jurisdictions. Such an arrangement may ensure a better price and a longer-term arrangement than could be secured if individual municipalities marketed their materials separately.

- Recycling Market Development Zones. This alternative involves determining the feasibility of identifying and establishing recycling market development zones within the County unincorporated areas to encourage advances in recycling technology and to stimulate the development of markets for recycled materials.

- Procurement Procedures Promoting Preferential Purchase or Use of Recycled-Content Products. This measure would specify durability, recyclability, reusability, or recycled material content as a purchasing consideration; it would move municipalities toward recycling objectives.

- Educational Outreach and Technical Assistance. Municipalities would conduct workshops for, and give technical assistance to, haulers, businesses, and recycling companies.

Composting

- Yard Waste Composting. Under this measure, yard waste composting involves the composting of organic materials derived from landscape maintenance, land clearing, and other activities involving the trimming or removal of herbaceous plants. Because of the high carbon-nitrogen ratio in these wastes, decomposition occurs slowly and can take up to 24 months to complete.

- Promotion and Education. This program would educate consumers about the merits of recycling household products and the proper management of these products.

- Regulatory Provisions for Commercial Haulers Regarding Collection of Separated Yard Wastes and Other Organic Materials. Under this measure, local haulers of refuse, or local recycling haulers, may be required to provide collection of source-separated yard wastes to residential or commercial accounts.

- Local, Regional, and/or Financial Incentives for Market Development/Marketing of Products Derived From Yard Wastes and Other Organic Materials. This alternative could include tax breaks or subsidies to businesses producing compost from organic waste materials.

- At-Source Collection. This measure would allow for pick up of specified yard waste types by municipal crews or contracted haulers.

- Decentralized Pre-Processing and Materials Storage. Under this measure, yard wastes are delivered to one of several remote sites for volume reduction and/or densification. After the materials have been reduced in size or densified, they may either be stored temporarily or shipped directly for final processing (composting) or other beneficial use.

Special Waste Programs

- Construction and Demolition Waste Program. The inert solids of construction and demolition waste would be the focus of this special waste program. As part of this alternative, each applicant for construction and demolition permits would be required to prepare a plan describing how inert solid wastes generated during the project would be segregated and recycled.

- Used Tire Program. This program would require the development of County programs to increase the recycling of used tires. Service stations and tire stores would be requested to provide used tires for resale and to participate in tire recapping and retreading, by separating useable tires.

- White Goods Program. This alternative would divert large appliances from disposal, by providing alternative collection and repair options to residents. The program consists of offering periodic collection of bulky items; then separating white goods for donation to charity, for repair and reuse, or for recycling.

Public Education and Information Programs

- Residential Promotional Campaign. A multi-lingual promotional campaign would be developed to publicize the SRRE. This residential-sector campaign would be initiated in the short term, and would publicize all applicable diversion programs stemming from the SRRE. The campaign would be developed using innovative approaches to promote awareness of, and participation in, diversion programs, including recognition of individual and neighborhood achievements, contests, and behavioral modification techniques.

- Residential Education and Information Program. This alternative would focus on developing multi-lingual educational and informational materials. Plans are to develop such materials in conjunction with cities that have similar SRRE programs and demographics, to reduce costs.

- School Program Development. This alternative would provide encouragement for school authorities to develop programs that educate students about source reduction, recycling, composting, and special wastes in the short term. School authorities may rely on programs already developed by other Cities, Counties, or States.

- Non-Residential Promotional Campaign. This is development of a promotional campaign that targets large waste generators and non-residents (tourists and visitors), and encourages them to implement diversion programs or to participate in such efforts that help to meet diversion targets.

- Non-Residential Education and Information Program. This alternative is the development of educational and promotional materials concerning SRRE diversion programs that target the non-residential sector. These materials will be distributed to those non-residential generators targeted by diversion programs.

- Representative Waste Evaluation. This is a plan to select one business and to conduct a waste evaluation of that selected business' waste stream to demonstrate how the evaluation is done. Results of waste evaluations will be publicized to all businesses.

- SRRE Representative Training Program. This is a program developed to train interested non-residential generators to become SRRE representatives who can provide information and assistance on diversion methods, waste evaluations, and other information, to other non-residential generators.

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LIST OF ACRONYMS

AB 939	California Integrated Waste Management Act of 1989 (Assembly Bill No. 939 and subsequent amendments.
ADF	Advanced Disposal Fee
CAO	Chief Administrative Officer
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CIWMB	California Integrated Waste Management Board
CoHWMC	County Hazardous Waste Management Committee
CoIWMP	County Integrated Waste Management Plan
CoSWMC	County Solid Waste Management Committee
CoSWMP	County Solid Waste Management Plan
County	Los Angeles County
CPO	Computer Print Out
CSD	County Sanitation District of Los Angeles County
DPW	Department of Public Works
EPA	Environmental Protection Agency
GF	General Fund
HDPE	High Density Polyethylene Plastic Milk and Juice Containers
HHW	Household Hazardous Waste
HHWE	Household Hazardous Waste Element
ICI	Industrial, Commercial, Institutional
IPC	Intermediate Processing Center
LACDPW	Los Angeles County Department of Public Works

MRF	Material Recovery Facility
MT	Medium Term (1996 to 2000)
MSW	Municipal Solid Waste consists of residential, commercial, and institutional solid waste
PET	Polyethylene Terephthalate Plastic. Type of plastic from which 2-liter soda and liquor bottles are made.
RWQCB	Regional Water Quality Control Board
RDF	Refuse Derived Fuel
RFR	Revenue from Recyclables
RPS	Revenue Producing Source
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SRRE	Source Reduction and Recycling Element
ST	Short Term (1991 to 1995)
SWF	Solid Waste Facility: includes landfills, transformation facilities, and transfer stations
SWMAP	Solid Waste Management Action Plan
SWGS	Solid Waste Generation Study
SWGSC	Solid Waste Generation Service Charge

GLOSSARY OF TERMS

Action Plan
Los Angeles County Solid Waste Management Action Plan was adopted by the Los Angeles County Board of Supervisors on April 5, 1988. It provides policies for the integrated management of solid wastes in the County. Refer to Appendix F.

Agricultural waste[1]
"Agricultural wastes" means solid wastes of plant and animal origin, which result from the production and processing of farm or agricultural products, including manures, orchard and vineyard prunings, and crop residues, which are removed from the site of generation for solid waste management. Agricultural refers to SIC Codes 011 though 0291.

Aluminum can or aluminum container[1]
"Aluminum can or aluminum container" means any food or beverage container that is composed of at least 94 percent aluminum.

Asbestos[1]
"Asbestos" means fibrous forms of various hydrated minerals, including chrysotile (fibrous serpentine), crocidolite (fibrous reibecktite), amosite (fibrous cummingtonite-grunerite), fibrous tremolite, fibrous actinolite, and fibrous anthophyllite.

Ash[1]
"Ash" or "ashes" means the residue from the combustion of any solid or liquid material.

Backyard Composting
The biodegradation of leaves, grass clippings and/or other organic wastes on the site where they are generated.

Bimetal container[1]
"Bimetal container" means any metal container composed of at least two different types of metals, such as a steel container with an aluminum top.

Best readily available and applicable data or representative data[1]
"Best readily available and applicable data" or "representative data" means information that is available to a jurisdiction from published sources, field sampling, or other identifiable entities which is the most current data and which addresses the situation being examined.

Board
Los Angeles County Board of Supervisors

Buy-back recycling center[1]
"Buy-back recycling center" means a facility which pays a fee for the delivery and transfer of ownership to the facility of source separated materials, for the purpose of recycling or composting.

Capital costs[1]
"Capital costs" means those direct costs incurred in order to acquire real property assets such as land, buildings and building additions, site improvements, machinery, and equipment.

Commercial solid wastes[1]
"Commercial solid waste" means solid waste originating from stores, business offices, commercial warehouses, hospitals, educational, health care, military, and correctional institutions, nonprofit research organizations, and government offices. Commercial solid waste refers to SIC Codes 401 though 4939, 4961, and 4971 (transportation, communications and certain utilities), 501 through 5999 (wholesale and retail trade), 601 through 6799 (finance, insurance and real estate), 701 through 8748 (public and private service industries such as hospitals and hotels), and 911 through 9721 (public administration). Commercial solid wastes do not include construction and demolition waste.

Commercial unit[1]
"Commercial unit" means a site zoned for a commercial business and which generates commercial solid wastes.

Composition[1]
"Composition" means a set of identified solid waste materials, categorized into waste categories and waste types pursuant to Sections 18722(i) and (j) of Article 6.1 of the California Code of Regulations.

Composting[1]
"Composting" means a solid waste management method whereby the organic component of the solid waste stream is biologically decomposed under controlled conditions.

Composting facility[1]
"Composting facility" means a permitted solid waste facility at which composting is conducted and which produces a product meeting the definition of "compost" in Public Resources Code Section 40116.

Construction and demolition waste[1]
"Construction and demolition waste" includes solid wastes, such as building materials; and packaging and rubble resulting from construction, remodeling, repair and demolition operations on pavements, houses, commercial buildings, and other structures. Construction refers to SIC Codes 152 through 1794, 1796, and 1799. Demolition refers to SIC Code 1795.

Corrugated container[1]
"Corrugated container" means a paperboard container fabricated from two layers of kraft linerboard sandwiched around a corrugating medium. Kraft linerboard means paperboard made from wood pulp produced by a modified sulfate pulping process, with basis weight ranging from 18 to 200 pounds, manufactured for use as facing material for corrugated or solid fiber containers. Linerboard also may mean that material which is made from reclaimed paper stock. Corrugating medium means paperboard made from chemical or semichemical wood pulps, straw or reclaimed paper stock, and folded to form permanent corrugations. Corrugated container refers to SIC Code 2653.

Cost-effective[1]
"Cost-effective" means a measurement of cost compared to an unvalued output (e.g., the cost per ton of solid waste collected) such that the lower the cost, the more cost-effective the action.

Disposal[1]
"Disposal" means a measurement of solid waste through landfilling or transformation at permitted solid waste facilities.

Disposal capacity[1]
"Disposal capacity" means the capacity, expressed in either weight in tons or its volumetric equivalent in cubic yards, which is either currently available at a permitted solid waste landfill, or will be needed for the disposal of solid waste generated within the jurisdiction over a specified period of time.

Diversion alternative[1]
"Diversion alternative" means any activity, existing or occurring in the future, which has been, is, or will be implemented by a jurisdiction which could result in or promote the diversion of solid waste, through source reduction, recycling or composting, from solid waste landfills and transformation facilities.

Drop-off recycling center[1]
"Drop-off recycling center" means a facility which accepts delivery or transfer of ownership of source separated materials for the purpose of recycling or composting, without paying a fee. Donation of materials to collection organizations, such as charitable groups, is included in this definition.

Duplex capacity
"Duplex capacity" means the ability of a copy machine to make two-sided copies.

Durability[1]
"Durability" means the ability of a product to be used for its intended purpose for a period greater than the mean useful product life span of similar products.

End market or end use[1]
"End market" or "end use" means the use or uses of a diverted material or product which has been returned to the economic mainstream, whether or not this return is through sale of the material or product. The material or product can have a value which is less than the solid waste disposal cost.

Feasible[1]
"Feasible" means that a specified program, method, or other activity can, on the basis of cost, technical requirements, and time frame for accomplishment, be undertaken to achieve the objectives and tasks identified by a jurisdiction in a Countywide Integrated Waste Management Plan.

Ferrous metals[1]
"Ferrous metals" means any iron or steel scrap which has an iron content sufficient for magnetic separation.

Food waste[1]
"Food waste" means all animal and vegetable solid wastes generated by food facilities, as defined in California Health and Safety Code Section 27521, or from residences, that result from the storage, preparation, cooking, or handling of food.

Grasscycling
The practice of leaving grass clippings in the lawn when cut rather than collecting them for composting or disposal. Grasscycling is a form of yard waste reduction. Grasscycling is sometimes referred to as "mulching", especially in the context of "mulching mowers", lawn mowers with special cutting blades that shoot grass back into the turf.

Green Waste
"Green Waste" means "yard waste" as defined in page XXXV of this Glossary of Terms.

Green Waste Cover
"Green Waste Cover" means shredded yard waste used as daily cover material in landfills.

Hazard[1]
"Hazard" means having one or more of the characteristics that cause a substance or combination of substances to qualify as a hazardous material, as defined by Section 66084 of Title 22 of the California Code of Regulations.

Household hazardous waste[1]
"Household hazardous wastes" are those wastes resulting from products purchased by the general public for household use which, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial known or potential hazard to human health or the environment when improperly treated, disposed, or otherwise managed.

Household hazardous waste collection[1]
"Household hazardous waste collection" means a program activity in which household hazardous wastes are brought to a designated collection point where the household hazardous wastes are separated for temporary storage and ultimate recycling, treatment, or disposal.

Implementation[1]
"Implementation" means the accomplishment of the program tasks as identified in each component required by Section 18733 of the California Code of Regulations.

Industrial solid waste[1]
"Industrial solid waste" means solid waste originating from mechanized manufacturing facilities, factories, refineries, construction and demolition projects, and publicly operated treatment works, and/or solid wastes placed in debris boxes.

Industrial unit[1]
"Industrial unit" means a site zoned for an industrial business and which generates industrial solid wastes.

Inert solids or inert waste[1]
"Inert solids" or "inert waste" means a non-liquid solid waste including, but not limited to, soil and concrete, that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional water board pursuant to Division 7 (commencing with Section 13000) of the California Water Code and does not contain significant quantities of decomposable solid waste.

Jurisdiction[1]
"Jurisdiction" means either city or county responsible for preparing any one or all of the following: the Countywide Integrated Waste Management Plan, or the Countywide Siting Element, or the Source Reduction and Recycling Element.

Klee and Caruth Method
"Klee and Caruth Method" means a statistical method used to determine sample size.

Ledger
"Ledger" means white or colored paper common in the office wastestream.

Manure Composting
The practice of allowing certain types of animal waste to decompose in a controlled biological process producing a product known as manure compost.

Marine wastes[1]
"Marine wastes" means solid wastes generated from marine vessels and ocean work platforms, solid wastes washed onto ocean beaches, and litter discarded on ocean beaches.

Market development[1]
"Market development" means a method of increasing the demand for recovered materials so that end markets for the materials are established, improved, or stabilized and thereby, become more reliable.

Materials recovery facility[1]
"Materials recovery facility" means a permitted solid waste facility where solid wastes or recyclable materials are sorted or separated, by hand or by use of machinery, for the purposes of recycling or composting.

Medium-term planning period[1]
"Medium-term planning period" means a period beginning in the year 1996 and ending in the year 2000.

Mixed paper[1]
"Mixed paper" means a waste type which is 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 wastes.

Model component format[1]
"Model component format" means that format described in Sections 18733.1 through 18733.6 of Article 6.2 of the California Code of Regulations, which shall be used for preparation of several of the individual components of a Source Reduction and Recycling Element.

Municipal solid waste or MSW[1]
"Municipal solid waste" or "MSW" means all solid wastes generated by residential, commercial, and industrial sources, and all solid waste generated at construction and demolition sites, at food-processing facilities, and at treatment works for water and waste water, which are collected and transported under the authorization of a jurisdiction or are self-hauled. Municipal solid waste does not include agricultural crop residues (SIC Codes 071 through 0724, 0751), animal manures (SIC Code 0751), mining waste and fuel extraction waste (SIC Codes 101 through 1499), forestry wastes (SIC Codes 081 through 0851, 2411 and 2421), and ash from industrial boilers, furnaces, and incinerators.

Nonferrous metals[1]
"Nonferrous metals" means any metal scraps that have value and that are derived from metals other than iron and its alloys in steel, such as aluminum, copper, brass, bronze, lead, zinc, and other metals, and to which a magnet will not adhere.

Nonrecyclable paper[1]
"Nonrecyclable paper" means discarded paper which has no market value because of its physical or chemical or biological characteristics or properties.

Nonrenewable resource[1]
"Nonrenewable resource" means a resource which cannot be replenished, such as those resources derived from fossil fuels.

Normally disposed of[1]
"Normally disposed of" refers to those waste categories and/or waste types which (1) have been demonstrated by the Solid Waste Generation Study, conducted pursuant to Section 18722 of the California Code of Regulations to constitute at least 0.001 percent of the total weight of solid wastes disposed in a solid wastestream attributed to the jurisdiction as of January 1, 1990, (2) which are deposited at permitted solid waste landfills or transformation facilities subsequent to any recycling or composting activities at those solid waste facilities, and (3) which are allowed to be considered in the establishment of the base amount of solid waste from which source reduction, recycling, and composting levels shall be calculated, pursuant to the limitations listed in Public Resources Code Section 41781(b).

Old newspaper[1]
"Old newspaper" means any newsprint which is separated from other types of solid waste or collected separately from other types of solid waste and made available for reuse and which may be used as a raw material in the manufacture of a new paper product.

Operational costs[1]
"Operational costs" means those direct costs incurred in maintaining the ongoing operation of a program or facility. Operational costs do not include capital costs.

Organic waste[1]
"Organic waste" means solid wastes originated from living organisms and their metabolic waste products, and from petroleum, which contain naturally produced organic compounds, and which are biologically decomposable by microbial and fungal action into the constituent compounds of water, carbon dioxide, and other simpler organic compounds.

Other plastics[1]
"Other plastics" means all waste plastics except polyethylene terephthalate (PET) containers, film plastics, and high density polyethylene (HDPE) containers.

Permitted capacity[1]
"Permitted capacity" means that volume in cubic yards or weight in tons which a solid waste facility is allowed to receive, on a periodic basis, under the terms and conditions of that solid waste facility's current Solid Waste Facilities Permit issued by the Local Enforcement Agency and concurred in by the California Integrated Waste Management Board.

Permitted landfill[1]
"Permitted landfill" means a solid waste landfill for which there exists a current Solid Waste Facilities Permit issued by the Local Enforcement Agency and concurred in by the California Integrated Waste Management Board, or which is permitted under the regulatory scheme of another state.

Permitted solid waste facility[1]
"Permitted solid waste facility" means a solid waste facility for which there exists a Solid Waste Facilities Permit issued by the Local Enforcement Agency and concurred in by the California Integrated Waste Management Board, or which is permitted under the regulatory scheme of another state.

Plan or Countywide Integrated Waste Management Plan[1]
"Plan" or "Countywide Integrated Waste Management Plan" means the Countywide Integrated Waste Management Plan as defined in Section 41750 of the Public Resources Code.

Polystyrene
"Polystyrene" means a type of brittle plastic used for spoons, forks, cassette cases, cups, etc. Also appears in the form of styrofoam.

Program[1]
"Program" means the full range of source reduction, recycling, composting, special waste, or household hazardous waste activities undertaken by or in the jurisdiction or relating to management of the jurisdiction's wastestream to achieve the objectives identified in the Source Reduction, Recycling, Composting, Special Waste, and Household Hazardous Waste components, respectively.

Purchase preference[1]
"Purchase preference" means a preference provided to a wholesale or retail commodity dealer which is based upon the percentage amount that the costs of products made from recycled materials may exceed that of similar nonrecycled products and still be deemed the lowest bid.

Rate structure[1]
"Rate structure" means that set of prices established by a jurisdiction, special district (as defined in Government Code Section 56036), or other rate-setting authority to compensate the jurisdiction, special district or rate-setting authority for the partial or full costs of the collection, processing, recycling, composting, and/or transformation or landfill disposal of solid wastes.

Recovered material[1]
"Recovered material" means material which has been retrieved or diverted from disposal or transformation for the purpose of recycling, reuse or composting. "Recovered material" does not include those materials generated from and reused on-site for manufacturing purposes.

Recycling
"Recycling" is the process of collecting, sorting, cleansing, treating, or reconstituting materials that would otherwise become solid waste, and returning them to a beneficial use either directly or in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.

Region[1]
"Region" means the combined geographic area of two or more incorporated areas, two or more unincorporated areas, or any combination of incorporated and unincorporated areas.

Repairability[1]
"Repairability" means the ability of a product or package to be restored to a working or usable state at a cost which is less than the replacement cost of the product or package.

Residential solid waste[1]
"Residential solid waste" means solid waste originating from single-family or multiple-family dwellings.

Residential unit[1]
"Residential unit" means a site occupied by a building which is zoned for residential occupation and whose occupants generate residential solid wastes.

Reusability[1]
"Reusability" means the ability of a product or package to be used more than once in its same form.

Reuse[1]
"Reuse" means the use, in the same form as it was produced, of a material which might otherwise be discarded.

Rubber[1]
"Rubber" means an amorphous polymer of isoprene from natural latex of certain tropical plants or from petroleum.

Salvage[1]
"Salvage" means the controlled removal of solid waste materials at a permitted solid waste facility for recycling, reuse, composting, or transformation.

Seasonal[1]
"Seasonal" means those periods of time during the calendar year which are identifiable by distinct cyclical patterns of local climate, demography, trade, or commerce.

Sewage sludge[1]
"Sewage sludge" means residual solids and semisolids resulting from the treatment of waste water, but does not include waste water effluent discharged from such treatment processes.

Short-term planning period[1]
"Short-term planning period" means a period beginning in the year 1991 and ending in the year 1995.

SIC Code[1]
"SIC Code" means the standards published in the U.S. Standard Industrial Classification Manual (1987), which is herein incorporated by reference.

Sludge[1]
"Sludge" means residual solids and semisolids resulting from the treatment of water, waste water, and/or other liquids. Sludge includes sewage sludge and sludge derived from industrial processes, but does not include effluent discharged from such treatment processes.

Solid Waste Generation Study[1]
"Solid Waste Generation Study" means the study undertaken by a jurisdiction to characterize its solid wastestream and comply with all the requirements of Section 18722 of the California Code of Regulations.

Sort
"Sort" means a waste sorting event.

Source reduction
"Source reduction" is the design, manufacture, acquisition, and reuse of materials so as to reduce the quantity and toxicity of waste produced at the place of origin. Source reduction is also achieved by careful buying.

Source Reduction and Recycling Element or SRRE[1]
"Source Reduction and Recycling Element" or "SRRE" means the Source Reduction and Recycling Element required pursuant to Public Resources Code Sections 41000 and 41300.

Source separated[1]
"Source separated" describes the segregation, by the generator, of materials designated for separate collection for some form of materials recovery or special handling.

Special waste[1]
"Special waste" means any hazardous waste listed in Section 66740 of Title 22 of the California Code of Regulations, or any waste which has been classified as a special waste pursuant to Section 66744 of Title 22 of the California Code of Regulations, or which has been granted a variance for the purpose of storage, transportation, treatment, or disposal by the Department of Health Services pursuant to Section 66310 of Title 22 of the California Code of Regulations. Special waste also includes any solid waste which, 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.

State
"State" means the State of California.

Statistically representative[1]
"Statistically representative" means those representative and random samples of units that are taken from a population sample, pursuant to the procedures given in Appendix 1 of Article 6.1, Chapter 9, Division 7, Title 14 of the California Code of Regulations. For the purposes of this definition, population sample includes, but is not limited to, a sample from a population of solid waste generation sites, solid waste facilities and recycling facilities, or a population of items of materials and solid wastes in a refuse vehicle load of solid waste.

Tin can or tin container[1]
"Tin can or tin container" means any food or beverage container that is composed of steel with a tin coating.

Ton[1]
"Ton" means a unit of weight in the U.S. Customary System of Measurement, an avoirdupois unit equal to 2,000 pounds. Also called short ton or net ton.

Transfer station
"Transfer station" is a permanent facility where wastes are collected for transport by truck, railroad, or barge to final disposal. Recycling and some processing may also take place at transfer stations.

Transformation facility[1]
"Transformation facility" means a facility whose principal function is to convert, combust, or otherwise process solid waste by incineration, pyrolysis, destructive distillation, or gasification, or to chemically or biologically process solid wastes, for the purpose of volume reduction, synthetic fuel production, or energy recovery. Transformation facility does not include a composting facility.

Volume[1]
"Volume" means a three dimensional measurement of the capacity of a region of space or a container. Volume is commonly expressed in terms of cubic yards or cubic meters. Volume is not expressed in terms of mass or weight.

Waste categories[1]
"Waste categories" means the groupings of solid wastes with similar properties into major solid waste classes, such as grouping together office, corrugated, and newspaper as a paper waste category, as identified by the solid waste classification system contained in Section 18722 of Article 6.1 of the California Code of Regulations, except where a component-specific requirement provides alternative means of classification (see page XI).

Waste diversion[1]
"Waste diversion" means to divert solid waste, in accordance with all applicable Federal, State and local requirements, from disposal at solid waste landfills or transformation facilities through source reduction, recycling, or composting.

Waste generator[1]
"Waste generator" means any person, as defined by Section 40170 of the Public Resources Code, whose act or process produces solid waste as defined in Public Resources Code Section 40191, or whose act first causes solid waste to become subject to regulation.

Wastestream
"Wastestream" means the total flow of solid waste from homes, businesses, institutions, and manufacturing plants that must be recycled, burned, or disposed of in landfill; or any segment thereof, such as the "residential wastestream" or the "recyclable wastestream."

Waste type[1]
"Waste type" means identified wastes having the features of a group or class of wastes which are distinguishable from any other waste type, as identified by the waste classification system contained in Section 18722 of Article 6.1 of the California Code of Regulations, except where a component-specific requirement provides alternative means of classification (see page XI).

White goods[1]
"White goods" means discarded, enamel-coated major appliances, such as washing machines, clothes dryers, hot water heaters, stoves, and refrigerators.

Wood waste[1]
"Wood waste" means solid waste consisting of wood pieces or particles which are generated from the manufacturing or production of wood products, harvesting, processing, or storage of raw wood materials, or construction and demolition activities.

Xeriscaping
"Xeriscaping" is landscaping practices appropriate to a dry climate. This includes efficient irrigation, limiting turf areas, the use of water-efficient plants, and the use of mulches. Xeriscaping generally relies on slower growing or otherwise less waste-producing landscape practices.

Yard waste[1]
"Yard waste" means any waste generated from the maintenance or alteration of public, commercial or residential landscapes including, but not limited to, yard clippings, leaves, tree trimmings, prunings, brush, and weeds.

Yardwaste Composting
Any wastes generated from the maintenance or alteration of public, commercial or residential landscapes including, but not limited to, yard clippings, leaves, tree trimmings, prunings, brush and weeds that are allowed to decompose in a controlled biological process producing a product known as yardwaste compost.

[1]Source: Section 18720 of the California Code of Regulations, Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans.

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DESCRIPTION OF WASTE TYPES

WASTE TYPE	DESCRIPTION
1. PAPER	
A. Corrugated Containers	cardboard boxes
B. Kraft	brown paper grocery bags
C. Mixed Paper	catalogues clean paper plates envelopes junk mail magazines phone books (see definitions in AB 939 regulations)
D. Newspaper	
E. High-Grade Ledger Paper	bond paper computer printout paper copy paper (from photocopying machines) white and colored ledger paper stationary
F. Other Paper	all other blueprint paper carbon paper cereal boxes chipboard coated stock and containers fast food wrappers NCR paper onion skin paper sepia paper thermal paper (FAX) vellum
2. PLASTIC	
A. HDPE - High Density Polyethylene containers (matte surface)	dairy crates detergent/shampoo bottles flexible plastic buckets ketchup bottles margarine tubs pails plastic check-out grocery bags six-pack rings soap bottles

WASTE TYPE	DESCRIPTION
	soft plastic bottle caps and lids (flexible) sunscreen bottles trash cans white or colored aspirin bottles cloudy plastic milk and water jugs (not clear)
B. PET - Polyethylene Terephthalate Containers (PET has a bottle nipple on bottom, shows no stress marks if squeezed)	clear plastic water bottles plastic soda-pop bottles
C. Film Plastics (less than 12 mil)	film Saran Wrap/cellophane polyethylene bags (baggies, tear-off produce, trash)
D. PVC - Polyvinyl Chloride (shows stress marks if squeezed, vinyl smile on bottom)	carpet paddings clear plastic aspirin bottles clear scotch tape computer diskettes cottage cheese, deli and salsa containers (not cloudy) Crisco Oil bottles Evian bottles (small size) flexible plastic soda bottle labels hard plastic soda-pop bottle caps light diffusers luggage microwavable trays nylon stockings pen and pencil barrels phonograph records photographic film pipe fittings pipes plastic circuit breaker switches plastic cookie trays plastic cottage cheese & yogurt tubs plastic faucets plastic mats and notebooks plastic telephones plastic toys safety helmets vinyls

WASTE TYPE	DESCRIPTION
E. Polystyrene (a.k.a. Styrofoam)	clear sandwich containers foam meat trays lids for Styrofoam cups plastic utensils Styrofoam
F. Other Plastics	blistered packing sheets
3. GLASS	
A. Refillable Glass Beverage Containers	refillable Coca-Cola bottles
B. CA Redemption Value Glass	any glass beverage container that has CA Redemption value on it
C. Other Recyclable Glass	any glass food container baby food containers coffee jars jam jars juice bottles mayonnaise jars peanut butter jars wine bottles
D. Other Non-Recyclable Glass	any plate glass automobile windows bulletproof glass Corningware lab ware lead crystal light bulbs house windows mirrors Pyrex cooking pots and pans television screens
4. METALS	
A. Aluminum cans	beer cans juice cans soda-pop cans
B. Bimetal Containers	steel sides, aluminum ends, Foster's lager can

WASTE TYPE	DESCRIPTION
C. Ferrous Metals and Tin Cans	any metal that sticks to a magnet iron steel
D. Non-Ferrous Metals	any metal that does NOT stick to a magnet brass lead
E. Aluminum	aluminum foil appliances manufactured items made of aluminum
5. YARD WASTE	
A. Leaves, Grass	grass clippings leaves weeds
B. Prunings	branches tree trimmings
C. Problem Yard Waste	palm fronds eucalyptus leaves
6. OTHER ORGANICS	
A. Food Waste	food banana peels or any food skins meat or poultry bones manure
B. Tires and Rubber Products	elastics rubber hoses shredded tires
C. Wood Wastes	any wood product that is not yard waste honeycomb wood lumber Masonite plywood pressboard wood pallets 2 X 4's

WASTE TYPE	DESCRIPTION
D. Agricultural Crop Residues	
E. Textiles and leather	blankets carpets clothing leather sheets shoes towels
F. Other Miscellaneous Organics	fines hemp rope
7. OTHER WASTES	
A. Inert Solids, Including Rock, Concrete, Brick, Asphalt, Sand, Soil Fines, Stoneware	brick cement cinder blocks ceramic (pottery) concrete gypsum
B. Household Hazardous Waste Containers With or Without HHW Materials. Household Hazardous Waste. Aerosol Cans (only with product inside)	discarded HHW materials containers antifreeze batteries fireworks gasoline herbicides household cleaners insecticides oil solvents paint paint thinner pharmaceuticals
C. Aseptic Packaging	box-like juice containers
D. Disposable Diapers	adult diapers baby diapers sanitary pads
8. SPECIAL WASTES	
A. Ash	
B. Sewer Sludge	

WASTE TYPE	DESCRIPTION
C. Industrial Sludge	
D. Asbestos	
E. Auto Shredder Waste	
F. Auto Bodies	
G. Other Special Wastes	

9. MISCELLANEOUS

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CHAPTER 1

INTRODUCTION

CHAPTER 1
INTRODUCTION

1.1 BACKGROUND

Los Angeles County enjoys a high standard of living. This characteristic can be attributed to a strong, diversified economic base which includes a myriad of industries, manufacturing plants, and commercial businesses. This economic base provides many of the positive aspects of the "Southern California Lifestyle" but also contributes to negative environmental aspects such as the voluminous amounts of waste generated that is both expensive and inconvenient to discard.

The citizens of Los Angeles County are currently disposing of approximately 51,000 tons (1990 average daily disposal - six days/week) of solid waste per day. Countywide, approximately 43,245 tons of this waste are disposed of in 19 permitted Class III landfills, 1,000 tons are managed by two waste-to-energy facilities (does not include the 500 tons of residual ash which is landfilled), and the remaining inert waste are disposed of at the permitted unclassified landfills. This amount is equivalent to 12 pounds of solid waste disposed per person per day. This complex waste management system involves, private and public operation of solid waste facilities, multi-agency regulations, and regional versus local considerations. In recent years, waste management has become increasingly difficult due to the implementation of stringent regulations for landfill operations, public resistance to waste incineration and land disposal facilities, escalating solid waste management costs, and dwindling landfill capacity.

Solid waste needs to be properly managed in order to address the challenge of increased disposal volumes and decreasing landfill capacity in Los Angeles County. The purpose of this Source Reduction and Recycling Element (SRRE) is to present a detailed analysis of the integrated waste management issues facing Los Angeles County and meet the requirements of the California Integrated Waste Management Act of 1989.

The Act established a hierarchy for the management of solid waste, requiring jurisdictions to divert, through source reduction, recycling, and composting 25 percent of the solid waste from landfills and incineration by 1995 and 50 percent by 2000. Each city in Los Angeles County and the County for the unincorporated areas must prepare, adopt, and implement an SRRE and Household Hazardous Waste Element (HHWE). In addition, the County must prepare the

Countywide Siting Element (CSE) and the Countywide Integrated Waste Management Plan (CoIWMP). The CoIWMP will incorporate the County's and Cities' SRREs and HHWEs and the CSE.

1.1.1 Definition

Solid or nonhazardous waste is typically composed of paper, plastic, food waste, metal, glass, fabric, and yard waste. Inert material, nondecomposable or nonwater soluble material, such as concrete, rock, and certain construction or demolition materials, are also considered solid waste.

Solid waste is generated from residential, commercial, institutional, and industrial sources. Most of it is disposed of in landfills located throughout the County. Landfills are disposal sites employing an engineered method for disposing solid wastes on the land that minimizes environmental hazards. The wastes are spread in layers, compacted to the smallest practical volume, and covered with soil at the end of each day. Of the waste produced and distributed to landfills, 49 percent is from residential sources, 31 percent from commercial sources, 17 percent from industrial origin, and 3 percent from other sources including marine waste.

1.1.2 Community Profile

The Department of Public Works is responsible for advising the Los Angeles County Board of Supervisors on waste management issues. The preparation and administration of the SRRE for the unincorporated areas of the County is the responsibility of the Department of Public Works.

There are 78 unincorporated communities scattered throughout the County and each diverse in population, ethnicity, and geography (See Fig. 1-1). There are 927,000 residents which are a part of a total County population of about 9,000,000. The unincorporated area covers 2,712 square miles and is more than half of the total area of Los Angeles County's 4,083 square miles.

The unincorporated areas of the County contain land uses including, but not limited to, residential, commercial, industrial, agricultural, open space, and significant ecological areas.

There are 263,300 residential units; 218,000 units are single and duplex family dwellings, 36,900 multi-family dwellings, and 7,800 are mobile homes. There are 22,400 businesses operating in the unincorporated areas.

The major portion of unincorporated territory is located in the north area of the County, which includes the Antelope and Santa Clarita Valleys. A substantial uninhabited mountainous area is controlled by the Federal Government; the Angeles National Forest spans the San Gabriel Mountains from the west-to-east borders of the County. The Santa Monica Mountains National Recreation Area is located in the western part of the County area.

Unincorporated communities that are adjacent to or surrounded by incorporated city boundaries are small in area but have substantial population. These are Athens, Bassett, Charter Oak, East La Mirada, La Crescenta, Ladera Heights, Lennox, Marina del Rey, Northwest Whittier, Rowland Heights, Valinda, West Carson, West Whittier, and Willowbrook. Many of these communities are of the same characteristics as their adjacent cities. Often, the City/County boundary is located along the centerline of a neighborhood street. The ethnicity ranges from predominantly Caucasian in the Antelope Valley, La Crescenta, and Marina del Rey, to Afro-Americans in Florence and West Willowbrook, and Hispanic in East Los Angeles.

These communities encompass mainly residential development and includes some medium to high density clusters. There are three major industrial clusters in the County that overlap with several cities: (1) Los Angeles Harbor area including West Compton and Rancho Dominguez; (2) Los Angeles - Santa Fe Springs Corridor including small areas of Florence and East Los Angeles; and the (3) City of Industry Corridor. These areas consist of manufacturing and extensive use of industrial suppliers and warehouse distribution centers.

1.1.3 Waste Management Policy

Existing solid waste management regulation is set by the United States Environmental Protection Agency (EPA) which sets national standards for solid waste management facilities through the Resource Conservation and Recovery Act (RCRA), Subtitle D. Owners of such facilities must also comply with State and local agency controls. The State enforcement agencies issuing the Solid Waste

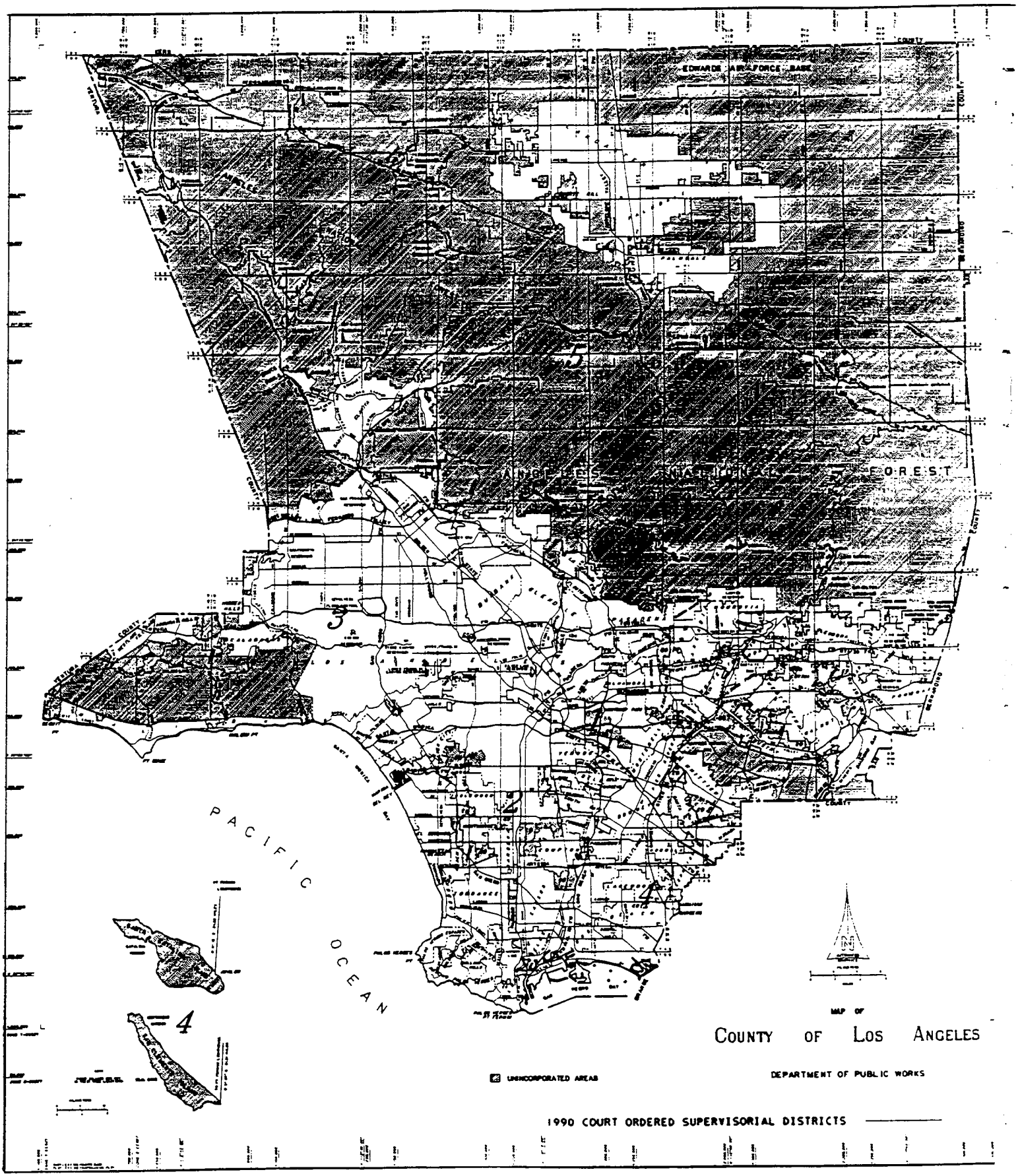


Figure 1-1. County of Los Angeles
Unincorporated Areas (As shaded)

Facility Permit allowing facility operation are: (1) the California Integrated Waste Management Board (CIWMB); (2) the California Air Resources Board; (3) the State Water Resources Control Board.

As a regional agency, the South Coast Air Quality Management District (SCAQMD) issues a permit to construct and operate a facility. Another regional agency, the Los Angeles Regional Water Quality Control Board (RWQCB) issues a waste discharge requirement permit. Three local agencies issue permits: (1) County of Los Angeles Regional Planning Department issues a Conditional Use Permit for the unincorporated County area; (2) County of Los Angeles Department of Health Services for a Solid Waste Facility Permit; and (3) Los Angeles County Integrated Waste Management Task Force for a Finding of Conformance.

The California Integrated Waste Management Act of 1989 designates the California Integrated Waste Management Board as the State Agency responsible for the overall condition of solid waste management in California. The Act identifies responsibility for solid waste management as a shared responsibility between the State and local governments. The State shall exercise its legal authority in a manner that ensures an effective and coordinated approach to the safe management of all solid waste generated within the State. It shall also oversee the design and implementation of local integrated waste management plans through enabling legislation in the form of the Public Resources Code and Health and Safety Code of the State of California.

Local policy is set by the Los Angeles County Board of Supervisors. The Solid Waste Management Action Plan, adopted April 5, 1988, is the County's policy toward providing 50 years of permitted landfill capacity to be held in public ownership and with appropriate land use protection. The Director of Public Works (DPW), along with the Chief Administrative Officer (CAO), and the Chief Engineer and General Manager of the Sanitation Districts (CSD) were authorized to conduct studies in reference to providing alternate landfill sites. The CSD supports the Action Plan and participates equally with the County in the cost of feasibility studies. These plans are intended to coordinate waste management efforts on a Countywide basis and to offer a means for effective service for residents with the existence of waste management facilities and programs.

The goals of the Action Plan include the adoption of a policy providing for 50 years of permitted landfill capacity; support of Countywide recycling, composting, and household hazardous waste collection programs; and the implementation of Statewide public education and awareness programs regarding solid waste issues.

This SRRE is consistent with Public Resources Code Section 40000 et. seq., and Chapter 9, Title 14 of the California Code of Regulations (CCR), entitled "Planning Guidelines for Preparing, Revising, and Amending Countywide Integrated Waste Management Plans", January 23, 1991. These draft regulations were in effect during the development of this element.

Additionally, on February 27, 1990, the Board of Supervisors designated the existing County Solid Waste Management Committee as the new County Integrated Waste Management Task Force. The Task Force membership was approved by 77 cities, representing 96 percent of the County population. The Task Force is responsible for coordinating the development of SRRE's and HHWE's and will guide preparation of the CSE and CoIWMP.

1.1.4 Refuse Collection

Residential, commercial, and industrial trash collection in the unincorporated areas of Los Angeles County is handled through the free-enterprise system using private haulers except for six garbage disposal districts. These districts provide for a contract hauler to collect wastes from residential, commercial, and industrial customers within the Athens, Belvedere, Firestone, Malibu, Mesa Heights, and Walnut Park Garbage Disposal Districts. Waste collection, transportation and disposal costs for the unincorporated County area are estimated over $100 million annually.

1.1.5 Disposal

The method of disposal includes waste taken to any of the nine large-volume transfer stations, or numerous smaller facilities located throughout the County. The transfer stations serve as regional centers for economical movement to intermediate collection centers for disposal at landfills or incinerators.

The County has experienced seven major landfills closing in the past several years. No new landfills were opened due to strong opposition from residents and environmentalists. Management of waste at incineration facilities has also faced public opposition, heightened by concern and controversy about air emissions.

1.1.6 Chapter 2 - 10 Synopsis

The Los Angeles County Source Reduction and Recycling Element is organized according to AB 939 legislation. The regulatory reference for each component is cited in Table 1-1.

Chapter 2. The waste characterization component identifies constituent materials which compose solid waste generated in defined areas. Waste shall be identified by volume, percentage in weight or its volumetric equivalent, material type, and source of generation, including residential, commercial, and other sources.

Chapter 3. The source reduction component describes objectives and targeted materials of this particular type of diversion. Existing conditions as well as alternative programs are discussed. Diversion estimates are tracked for short-term and medium-term planning periods by program in Table 3-8. Program monitoring and evaluation are addressed in the final pages of the component.

Chapter 4. The recycling component describes overall objectives and market development objectives as well as targeted materials. The component specifies existing conditions and alternative programs. Actual waste diverted, including estimates for short-term and medium-term planning periods are addressed in Tables 4-10 and 4-11. Monitoring and evaluation of programs as well as contingencies are also discussed.

Chapter 5. The composting component discusses only objectives and alternatives. There are no existing programs for composting. Diversions are tracked for both short-term and medium-term planning periods in Table 5-4. Also addressed in the component are monitoring and evaluation of programs.

TABLE 1-1

SOURCE REDUCTION AND RECYCLING ELEMENT ORGANIZATION

SRRE Section	AB 939 - CIWMB Regulatory Reference
2 - Solid Waste Generation Study and Analysis	Article 6.1 and Section 18732
3 - Source Reduction Component	Section 18734
4 - Recycling Component	Section 18735
5 - Composting Component	Section 18736
6 - Special Waste Component	Section 18737
7 - Education and Public Information Component	Section 18740
8 - Disposal Facility Capacity Component	Section 18744
9 - Funding Component	Section 18746
10 - Integration Component	Section 18748

Chapter 6. The special waste component describes existing waste handling and disposal practices for special wastes, identifying current and proposed programs to ensure proper handling, reuse, and long-term disposal of special wastes. This component also tracks diversion goals in Table 6-2 and 6-3. Monitoring and evaluation, including contingency measures are discussed.

Chapter 7. The education and public information component describes how the County will increase public awareness of and participation in source reduction, recycling, and composting programs. Objectives and existing conditions are addressed at length. There are no diversion estimates because, as previously mentioned, this component is designed to increase awareness and participation in the other programs (source reduction, recycling, and composting). Discussions on monitoring and evaluation are also included.

Chapter 8. The disposal facility capacity component discusses existing conditions as well as projections of the amount of disposal capacity needed to accommodate waste generated for a 15-year period, 1991-2005.

Chapter 9. The funding component identifies and describes projected costs, revenues, and revenue sources to implement all components of the source reduction and recycling element.

Chapter 10. The integration component describes program components to meet SRRE objectives and establishes an integration plan schedule.

1.2 TARGET ACHIEVEMENT

The purpose of this section is to present the goals and objectives for the SRRE. The goals are the target to reach source reduction and recycling to conform to AB 939. Objectives are interim activities enabling achievement of final goals. These goals and objectives include both short-term and medium-term planning periods.

1.2.1 Goals

The County's policies, goals, and objectives for solid waste management are described in the following comments: (1) Los Angeles County Solid Waste Management Plan, dated March 1984, and Revision A, dated August 1986; (2) Solid Waste Management Action Plan adopted by the Board of Supervisors on April 5, 1988; and (3) Los Angeles County Solid Waste Recycling Options, Analysis Report, dated March 1989. The documents provide for a multifaceted system for management of solid waste on a Countywide basis. The system provides for development and implementation of source reduction, recycling, and composting programs of solid waste while recognizing that landfills will remain as an integral part of the system for the foreseeable future.

In order to meet the SRRE mandates required by AB 939, the following programs in Table 1-2 will be implemented along with expected diversion percentages for short-term and medium-term planning:

TABLE 1-2

DIVERSION GOALS FOR COMPONENT PROGRAMS

PROGRAM	EXPECTED DIVERSION	
	Short Term % 1995	Medium-Term % 2000
1. Source Reduction	3.7	5.2
2. Recycling	24.1	36.1
3. Composting	1.0	3.0
4. Special Waste	2.7	7.6
TOTAL DIVERSION	31.5	51.9

1.2.1.1 Comprehensive Plan

It shall be the goal of the County to establish a comprehensive plan for the integrated waste management of solid waste in the County in accordance with the provisions of the California Administrative Code, the California Health and Safety Code, and the California Public Resources Code and to coordinate its implementation through the Los Angeles County Integrated Waste Management Task Force by cities, governmental agencies, special districts, and private enterprise.

1.2.1.2 Progressive Planning

It shall be the goal to increase diversion from landfills to 25 percent by 1995 and 50 percent by the year 2000 promoting source reduction and material recovery, recycling, and reuse programs. Additionally, the DPW will continuously plan for the future, incorporating a degree of flexibility for advanced technology when feasible.

1.2.1.3 Cooperation

The County will work with local cities, other agencies, neighboring counties, and private enterprise in solving solid waste management problems which are regional in nature. This region will include Los Angeles, Kern, Orange, San Bernardino, and Ventura counties. The management of solid waste within Los Angeles County will continue to be handled by both the public and private sectors.

1.2.1.4 Public Relations

Informing the public about plans and efforts for solid waste management including public education programs in schools to encourage participation and support is a key to achieving the County's goals.

1.2.2 Objectives

The objective of the SRRE is to provide interim steps for achievement of the overall plan goals.

Each objective is supported by respective plan programs and projects presented in the Implementation Schedule. The objectives are as follows:

1.2.2.1 Standard Development

Provide guidelines for short-term and medium-term source reduction, recycling, composting, and special waste programs identifying existing activities, program alternatives, implementation, monitoring, and evaluation.

1.2.2.2 Program Development

Develop source reduction, recycling, composting, and special waste programs, identifying existing waste activities, alternatives, implementation, monitoring, and evaluation. Determine the funding and allocation of resources, program cost estimates, revenue, and contingency funding. Encourage the development of resource recovery, utilizing both small- and large-scale facilities, and low- and high-technology resource recovery projects. Promote research, development, demonstration, and application of new methods and processes.

1.2.2.3 Monitoring

Each component program will contain an explanation of how the program is to be monitored and evaluated. The methods to quantify achievement of objectives will be identified including diversion from solid waste landfills and transformation facilities and reduction of waste hazards. The evaluation methods will provide the criteria for evaluating each program's effectiveness. The responsible party is identified for monitoring, evaluating, and identifying funding requirements, revenues and revenue resources.

1.2.2.4 Public Education

The SRRE promotes the conservation of raw materials, open space, and energy by encouraging reduction in the generation of solid waste and using recoverable wastes by recycling and composting. It will also detail the remaining wastes and how they will be managed by environmentally safe transformation or disposal in environmentally safe landfills. The public education programs will target schools, single- and multi-family residences along with commercial and industrial waste generators.

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CHAPTER 2
WASTE CHARACTERIZATION COMPONENT

CHAPTER 2

SOLID WASTE GENERATION STUDY AND ANALYSIS

2.1 Background

In accordance with Assembly Bill 939 (AB 939), the Integrated Waste Management Act of 1989, and subsequent amendments, the objective of this Solid Waste Generation Study (SWGS) is to identify materials that are currently being, or potentially could be targeted for municipal solid waste (MSW) diversion programs. AB 939 mandates diversion of 25% by 1995 and 50% by 2000 for all MSW generated within a jurisdiction. The Source Reduction and Recycling Element (SRRE), based on this SWGS, will utilize the calculated tonnages to select programs designed to meet these diversion goals during the short- and medium-term planning periods.

For the purpose of this SWGS and SRRE, the various communities comprising the unincorporated areas of Los Angeles County is divided into six groups. This is because these unincorporated areas are in scattered locations throughout the County. These groups are:

1. North Unincorporated Areas
2. Northwest Unincorporated Areas
3. South Bay Unincorporated Areas
4. East San Gabriel Valley Unincorporated Areas
5. Southeast Unincorporated Areas
6. Other Unincorporated Areas

Table 2-1, Integrated Waste Management Working Groups for the Unincorporated Areas of Los Angeles County, shows the communities which comprise each group.

For ease of conducting the SWGS for the specified areas, a SWGS was conducted for each group in Table 2-1, except Group 6 which has available existing data. This component contains a summary of the solid waste generation studies conducted for the various groups of the unincorporated Los Angeles County and presents an analysis of the quantities, types, and sources of materials currently being disposed and diverted. It also includes a 15-year projection of the amount and types of waste expected to be generated, disposed, and diverted from disposal under the current conditions and what's expected to be realized after the County implements the SRRE.

For ease of review, the results of the combined solid waste generation study are presented at the beginning of this section (Section 2.2). Following the results, more detailed information is presented on each of the components of the combined solid waste generation study, namely, waste disposal (Section 2.3) and waste diversion (Section 2.4). The results of the waste disposal and waste diversion studies were combined with population and economic forecasts to develop the 15-year solid waste generation projections presented in Section 2.5.

2.2 Solid Waste Generation Study Results Summary

The total solid waste generated by the unincorporated County can be expressed as the following equation:

Generation = Disposal + Diversion

Solid waste generation cannot be directly measured effectively. Therefore, the solid waste generation study was conducted on two parts: 1) a waste disposal study, and 2) a waste diversion study. Both the quantity and composition of the solid waste were evaluated in each part.

The quantity of solid waste generated, disposed, and diverted by the unincorporated County in 1990 is presented in Figure 2-1 and Table 2-3.

The composition of waste generated in the unincorporated County is presented in Table 2-2 and the disposal composition is graphically illustrated in Figure 2-2. The single largest component of the waste disposal stream is paper (30.1%). The second largest component is other organics (29.5%).

Figure 2-3 and Figure 2-4 illustrates the composition of waste generated in unincorporated Los Angeles County. Section 2.3 describes the sampling methodology and presents detailed breakdowns of the waste stream composition by waste generation source, waste category, and waste type.

TABLE 2-1
INTEGRATED WASTE MANAGEMENT WORKING GROUPS FOR THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY

1. NORTH INTEGRATED WASTE MANAGEMENT WORKING GROUP

Community Name	Population	Average Persons Per Household
W. Antelope Valley	3,693	2.59
Quartz Hill	17,810	2.85
E. Antelope Valley	13,766	3.24
S. Antelope Valley	17,890	2.98
Little Rock/Pr. Blsm.	12,483	3.00
Acton-Mint Canyon	8,327	3.04
E. Canyon Country	9,898	3.55
Castaic-Val Verde	16,370	3.41
W. Canyon Country	12,225	3.01
W. Santa Clarita Valley	2,811	3.03
TOTAL	115,273	

2. NORTHWEST INTEGRATED WASTE MANAGEMENT WORKING GROUP

Community Name	Population	Average Persons Per Household
Triunfo Canyon	799	3.11
Calabasas	2,899	2.88
Topanga Canyon	6,430	2.81
W. Chatsworth	1,986	2.64
Malibu West	3,201	2.48
Malibu East	3,052	2.36
TOTAL	18,367	

3. SOUTH BAY AREA INTEGRATED WASTE MANAGEMENT WORKING GROUP

Community Name	Population	Average Persons Per Household
Ladera Heights	6,371	2.44
VW Prk - Wind Hills	12,676	2.67
Channel Islands	286	2.63
West Carson	21,690	2.93
La Rambla	2,174	2.91
Westmont - W. Athens	39,815	3.32
E. Alondra Park	4,820	2.84
Lennox	19,717	3.98
Del Aire	8,501	2.94
W. Alondra Park	9,659	2.88
Westfield	1,863	2.21
Marina Del Rey	6,241	1.35
TOTAL	133,813	

4. EAST SAN GABRIEL VALLEY INTEGRATED WASTE MANAGEMENT WORKING GROUP

Community Name	Population	Average Persons Per Household
E. Azusa Islands	12,675	3.41
Glendora Islands	1,016	3.22
Covina Islands	15,718	3.17
Charter Oak Islands	11,959	2.88
N. El Monte Islands	3,770	3.02
Whittier Narrows	1,664	4.14
S. Monrovia Islands	11,091	3.05
N. E. San Dimas	1,353	3.40
N. Claremont	2,365	2.88
W. Pomona Islands	1,743	3.30
W. Puente Valley	20,097	4.29
Avocado Heights-Basset	14,421	3.79
Hacienda Heights	55,225	3.40
Valinda	16,814	3.86
S. San Jose Hills	16,199	4.24
Rowland Heights	44,900	3.16
S. San Gabriel	8,195	3.57
TOTAL	239,205	

5. SOUTHEAST AREA INTEGRATED WASTE MANAGEMENT WORKING GROUP

Community Name	Population	Average Persons Per Household
City Terrace	42,055	3.94
Belvedere Gardens	56,830	3.74
Bandini Islands	333	5.55
Eastmont	12,470	3.26
Florence	34,707	4.45
Graham	21,650	3.94
Walnut Park	14,042	3.89
W. Whittier/L. Nieto	22,497	3.39
South Whittier	42,941	3.16
East La Mirada	9,112	2.75
Lynwood Islands	226	4.57
East Compton	10,797	4.26
Willowbrook	35,504	3.83
West Compton	5,834	3.65
East Carson	783	1.55
Long Beach Islands	1,413	2.86
Norwalk-Cerritos Island	536	3.69
Sunshine Acres	4,256	4.02
N. W. Whittier	7,875	3.60
N. E. Whittier	1,676	4.96
TOTAL	325,537	

6. OTHER INTEGRATED WASTE MANAGEMENT WORKING GROUP

Community Name	Population	Average Persons Per Household
Oat Mountain	972	2.02
La Crescenta/Montrose	18,143	2.63
W. Arcadia Island	1,979	2.83
S. Slope - SG Mountains	2,429	2.29
San Pasqual	1,897	2.18
Altadena	43,851	2.92
Kinneloa Mesa	1,253	2.88
East Pasadena	5,762	2.63
E. San Gabriel	17,310	2.54
Franklin Canyon	2	2.00
Universal Island	2	1.00
Sawtelle VA CTR	817	1.88
TOTAL	94,417	

Source: "Los Angeles County Department of Regional Planning, Research Section - Bulletin No. 156, Parts 1 and 3", January 1, 1990

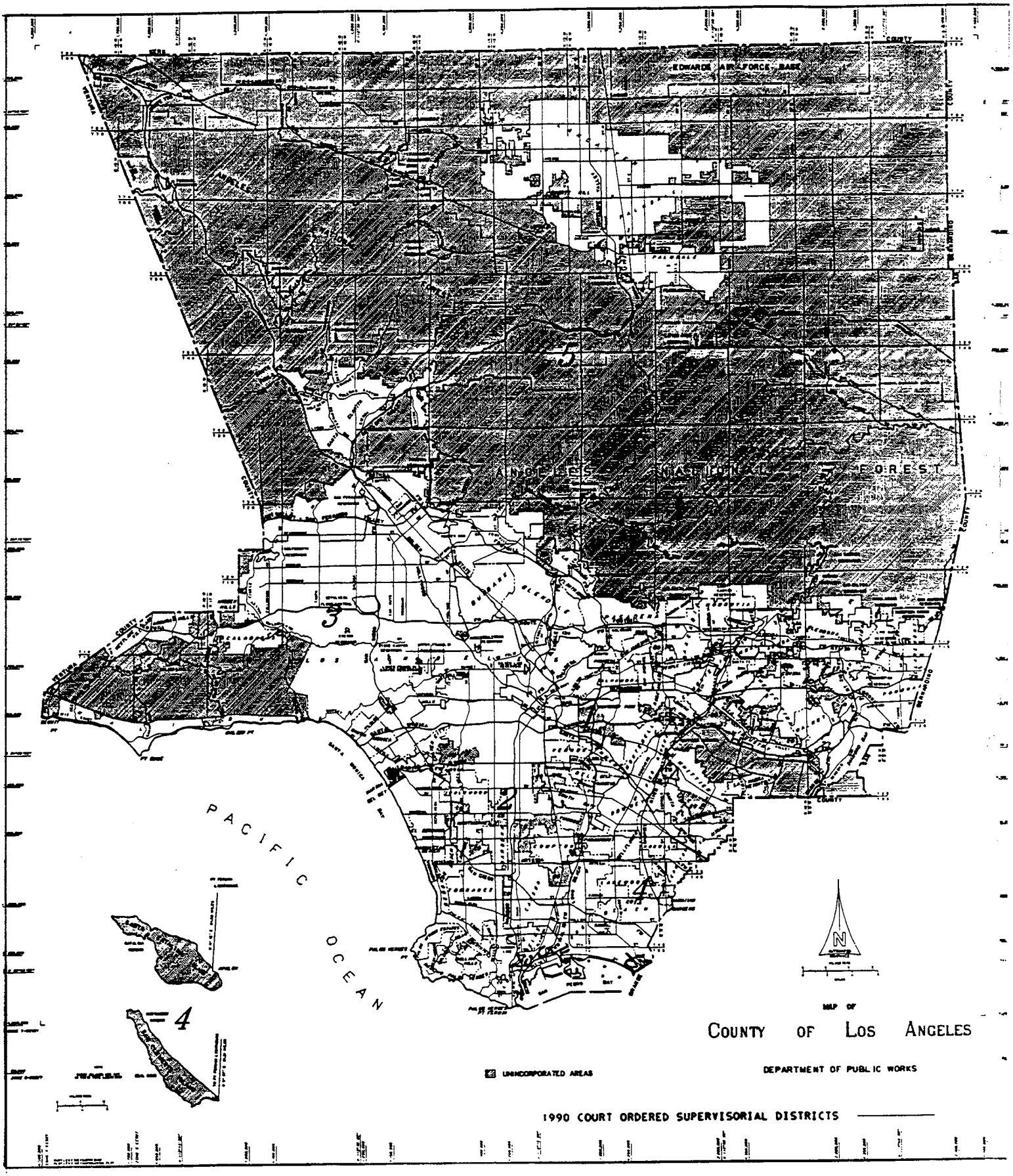

EDWARDS AIR FORCE BASE
ANGELES NATIONAL FOREST
PACIFIC OCEAN
4
UNINCORPORATED AREAS
MAP OF
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
1990 COURT ORDERED SUPERVISORIAL DISTRICTS

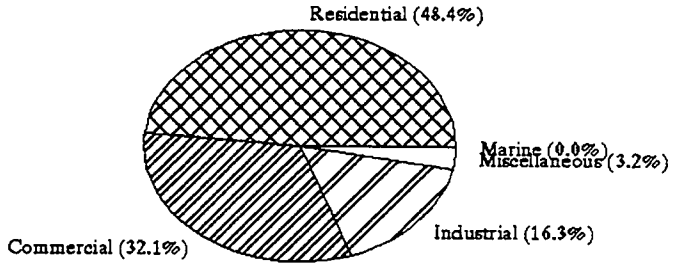
Table 2-2
WASTE GENERATION SUMMARY
UNINCORPORATED COUNTY OF LOS ANGELES

WASTE TYPE	Res Waste Average Annual Tons	Com Waste Average Annual Tons	Ind Waste Average Annual Tons	Oth Waste Average Annual Tons	Mar Waste Average Annual Tons	**Total Waste Stream Annual Tons**	**PERCENT COMPOSITION BY WEIGHT**
PAPER							
Corrugated Containers	19181	46537	20090	1909	12	87729	7.9%
Mixed Paper	42037	31637	12038	5620	29	91362	8.2%
Newspaper	36669	13018	5630	3252	13	58583	5.3%
High Grade Ledger	4288	20660	4659	247	0	29855	2.7%
Computer Printouts	0	0	0	0	0	0	0.0%
Other Paper	39666	26782	5115	2651	17	74231	6.7%
SUBTOTAL	141841	138635	47533	13680	71	341760	30.8%
PLASTIC							
PVC	0	5494	1204	636	2	7337	0.7%
PET Container	1678	662	180	177	0	2697	0.2%
HDPE Container	5691	3555	1032	1202	3	11483	1.0%
Film Plastics	13823	14865	4646	1520	7	34861	3.1%
Polystyrene	10751	7433	6882	283	2	25351	2.3%
Other Plastics	6680	2	689	0	0	7371	0.7%
SUBTOTAL	38624	32010	14633	3818	15	89100	8.0%
GLASS							
Refillable Glass	0	0	0	0	0	0	0.0%
CA Redemption Glass	9995	2713	748	2934	25	16415	1.5%
Other Recyclable Glass	17503	2921	1824	3288	29	25564	2.3%
Non-recyclable Glass	3072	3232	2581	778	0	9662	0.9%
SUBTOTAL	30570	8866	5152	6999	53	51640	4.7%
METALS							
Aluminum Cans	2475	1379	385	71	0	4310	0.4%
Tin Cans	5120	3233	1721	283	0	10357	0.9%
Ferrous Metals	9784	15577	6491	495	1	32349	2.9%
Non-ferrous Metals	1779	1532	1410	106	0	4827	0.4%
White Goods	793	0	0	212	0	1005	0.1%
Other Metals	4217	8079	1893	283	0	14471	1.3%
SUBTOTAL	24168	29800	11899	1449	2	67318	6.1%
YARD WASTE							
Yard Waste	111661	31237	10689	1944	6	155536	14.0%
SUBTOTAL	111661	31237	10689	1944	6	155536	14.0%
ORGANICS							
Food Waste	78331	45805	3441	2581	10	130167	11.7%
Wood Waste	13939	25618	30059	424	1	70041	6.3%
Tires and Rubber	5345	5873	5514	106	1	16839	1.5%
Crop Residues	0	0	0	0	0	0	0.0%
Manure	1536	2585	0	0	0	4121	0.4%
Diapers	24001	1616	0	1591	8	27216	2.5%
Textiles and Leather	17459	18743	4646	707	5	41559	3.8%
Other organics	13311	7109	1893	0	0	22313	2.0%
SUBTOTAL	153922	107350	45552	5408	24	312255	28.2%
OTHER WASTES							
Inert Solids	30718	5494	43778	1414	0	81404	7.3%
Hazardous Waste	4608	2262	1549	636	3	9058	0.8%
SUBTOTAL	35326	7756	45327	2050	3	90461	8.2%
SPECIAL WASTE							
Ash	0	0	0	0	0	0	0.0%
Industrial Sludge	0	0	0	0	0	0	0.0%
Sewage Sludge	0	0	0	0	0	0	0.0%
Asbestos	0	0	0	0	0	0	0.0%
Auto Shredder	0	0	0	0	0	0	0.0%
Auto Bodies	0	0	0	0	0	0	0.0%
Other Special Waste	0	0	0	0	0	0	0.0%
SUBTOTAL	0	0	0	0	0	0	0.0%
TOTAL WASTE (tons)	536110	355653	180786	35349	173	**1108071**	**100.0%**

Figure 2–1
SOLID WASTE GENERATION ANALYSIS
UNINCORPORATED COUNTY OF LOS ANGELES

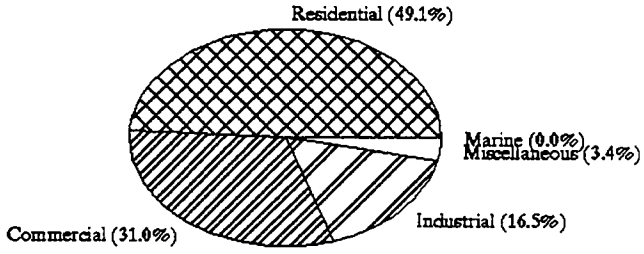
Solid Waste Generation (tons/year)

Residential	536,111
Commercial	355,653
Industrial	180,786
Miscellaneous	35,349
Marine	173
Total	**1,108,072**



Solid Waste Disposal (tons/year)

Residential	511,964
Commercial	323,151
Industrial	172,056
Miscellaneous	35,349
Marine	173
Total	**1,042,693**



Solid Waste Diversion (tons/year)

Residential	24,146
Commercial	32,502
Industrial	8,730
Total	**65,378**
Current diversion rate =	**5.9%**

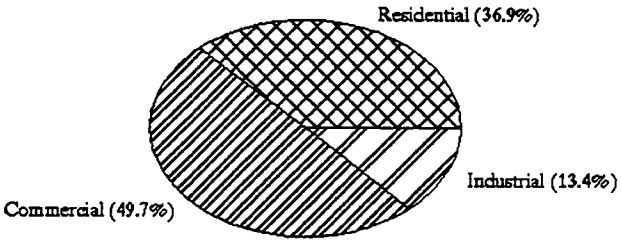


Table 2-3

1990 WASTE GENERATION
COUNTY OF LOS ANGELES – UNINCORPORATED AREAS

WASTE TYPE	Disposal (tons)	Diversion (tons)	Generation (tons)	Diversion (Percent)
PAPER				
Corrugated Containers	79920	10232	90152	11.3 %
Mixed Paper	85803	3136	88939	3.5 %
Newspaper	48541	10041	58582	17.1 %
Ledger	24802	5053	29855	16.9 %
Computer Printouts	0	0	0	0.0 %
Other Paper	73577	654	74231	0.9 %
SUBTOTAL	312643	29116	341759	8.5 %
PLASTIC				
PVC	7334	0	7334	0.0 %
PET Container	2531	166	2697	6.2 %
HDPE Container	11423	60	11483	0.5 %
Film Plastics	34861	0	34861	0.0 %
Polystyrene	25351	0	25351	0.0 %
Other Plastics	7346	27	7373	0.4 %
SUBTOTAL	88846	253	89099	0.3 %
GLASS				
Refillable Glass	0	0	0	0.0 %
CA Redemption Glass	13400	3015	16415	18.4 %
Other Recyclable Glass	23304	2260	25564	8.8 %
Non-recyclable Glass	9662	0	9662	0.0 %
SUBTOTAL	46365	5275	51640	10.2 %
METALS				
Aluminum Cans	2732	1578	4310	36.6 %
Tin Cans	10355	3	10358	0.0 %
Ferrous Metals	31756	592	32348	1.8 %
Non-ferrous Metals	4139	688	4827	14.3 %
Bi-metal Containers	0	0	0	0 %
White Goods	724	281	1005	28.0 %
Other Metals	14350	121	14471	0.8 %
SUBTOTAL	64056	3263	67319	4.8 %
YARD WASTE				
Yard Waste	133409	22128	155537	14.2 %
SUBTOTAL	133409	22128	155537	14.2 %
ORGANICS				
Food Waste	129926	241	130167	0.2 %
Wood Waste	68166	1875	70041	2.7 %
Tires and Rubber	15047	1792	16839	10.6 %
Crop Residues	0	0	0	0.0 %
Manure	4121	0	4121	0.0 %
Diapers	26253	963	27216	3.5 %
Textiles and Leather	41507	52	41559	0.1 %
Other organics	22313	0	22313	0.0 %
SUBTOTAL	307332	4923	312255	1.6 %
OTHER WASTES				
Inert Solids	80984	420	81404	0.5 %
Hazardous Waste	9058	0	9058	0.0 %
SUBTOTAL	90041	420	90461	0.5 %
SPECIAL WASTES				
Ash	0	0	0	0.0 %
Industrial Sludge	0	0	0	0.0 %
Sewage Sludge	0	0	0	0.0 %
Asbestos	0	0	0	0.0 %
Auto Shredder	0	0	0	0.0 %
Auto Bodies	0	0	0	0.0 %
Other Special Waste	0	0	0	0.0 %
SUBTOTAL	0	0	0	0.0 %
TOTAL WASTE	1042692	65378	1108070	5.9 %

Figure 2-2
SOLID WASTE DISPOSAL COMPOSITION
UNINCORPORATED COUNTY OF LOS ANGELES

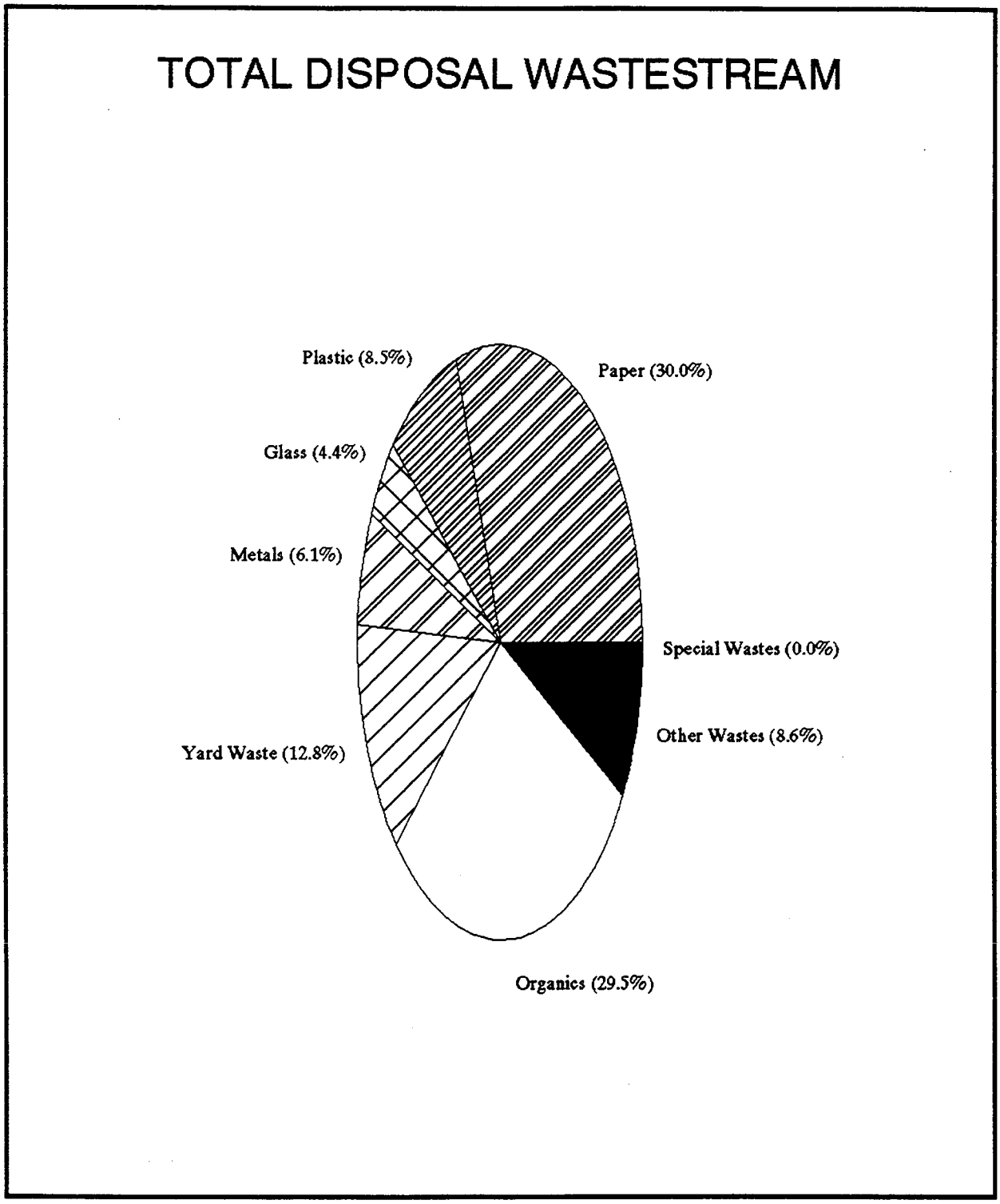


FIGURE 2-3
COMPOSITION OF SOLID WASTE GENERATED
BY SECTOR IN THE
UNINCORPORATED COUNTY OF LOS ANGELES

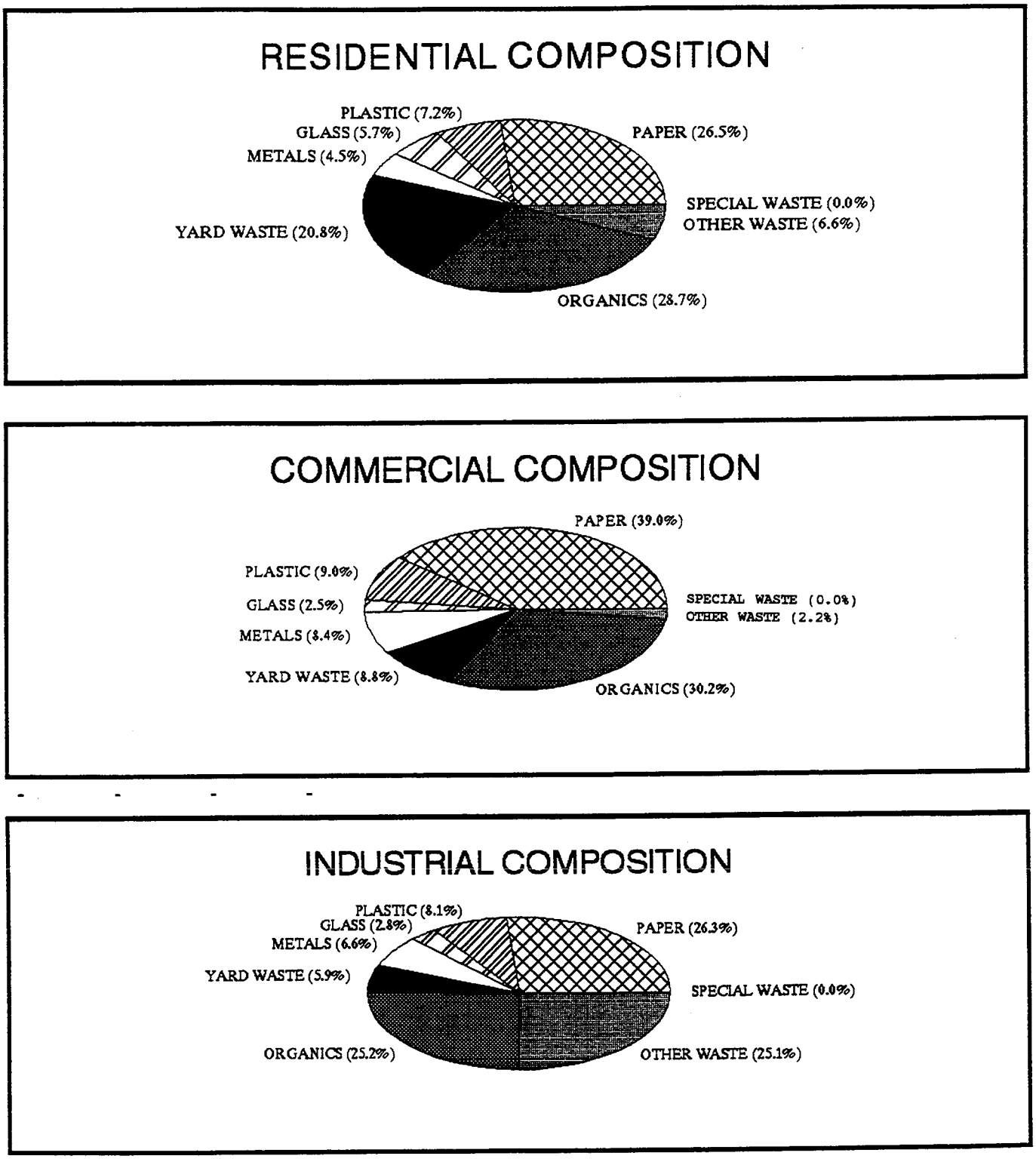
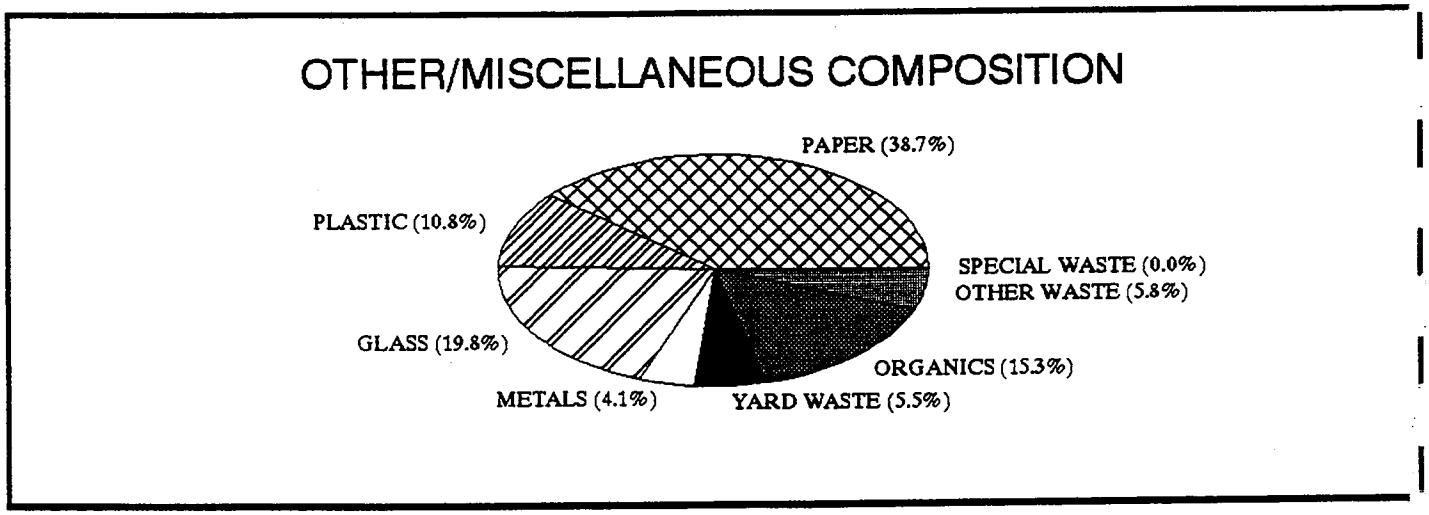


Figure 2–3 (CONT'D)
COMPOSITION OF SOLID WASTE GENERATED
IN THE
UNINCORPORATED COUNTY OF LOS ANGELES



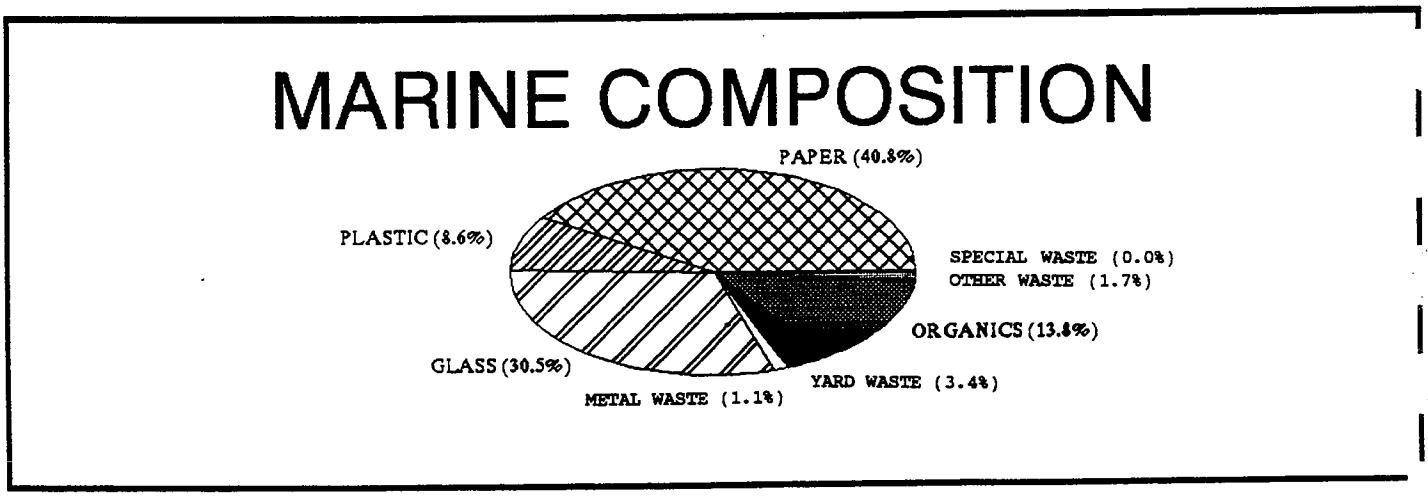
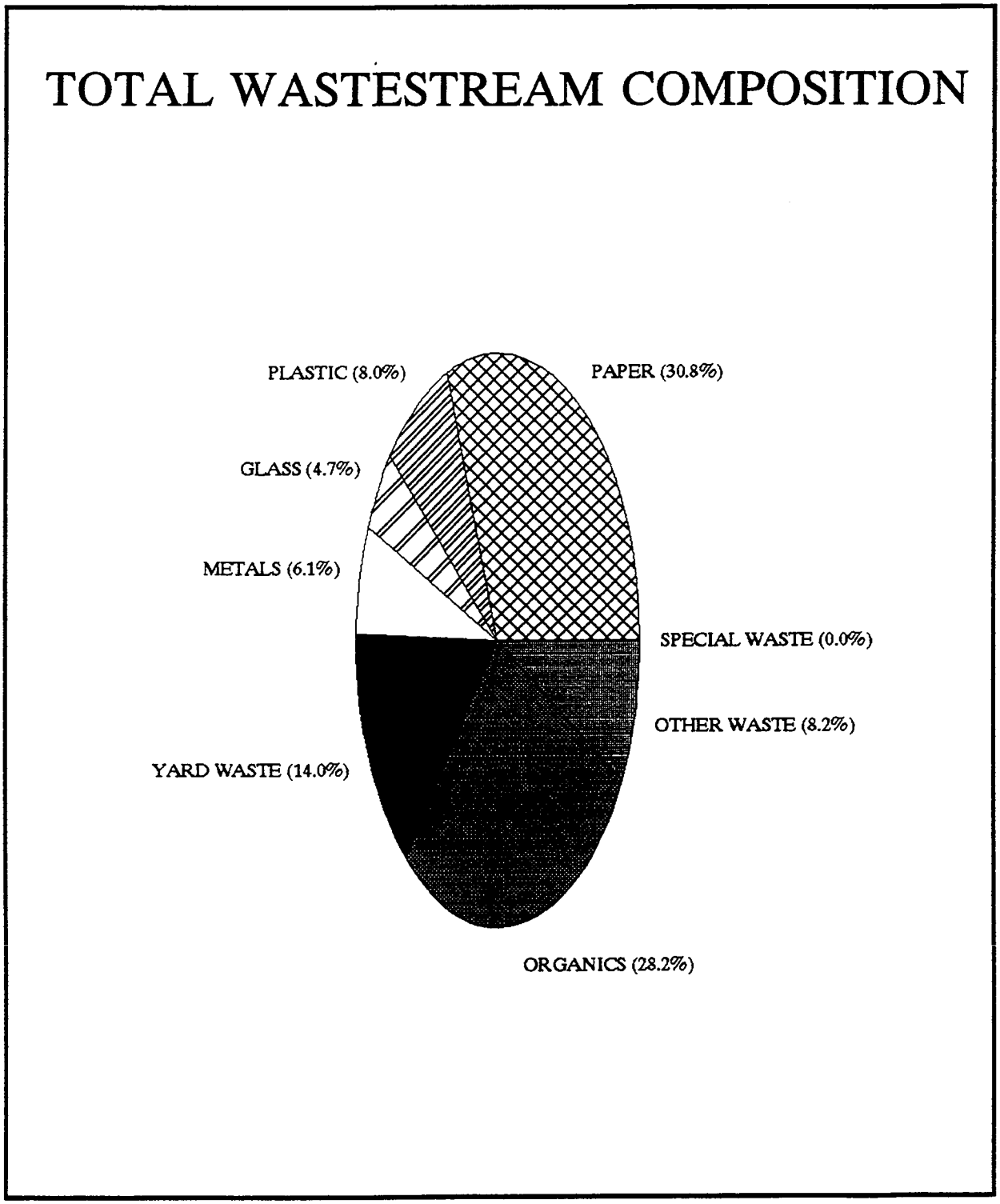


Figure 2–4
SOLID WASTE GENERATION COMPOSITION
UNINCORPORATED COUNTY OF LOS ANGELES



NOTE: FIGURE 2-3 SHOWS COMPOSITION OF WASTESTREAM BY SECTOR

2.3 Solid Waste Disposal Characterization Study

The combined solid waste disposal characterization study was designed to characterize both the quantity and type of wastes that are currently being disposed by generators within the unincorporated County. The study methodology was developed based on a review of demographic, economic, and waste collection and disposal information available to the County and other sources.

2.3.1 Solid Waste Disposal Quantities

To determine the quantities and sources of waste currently being disposed by generators in the unincorporated County, the solid waste collection and disposal practices were evaluated. Currently, solid waste is collected in the County unincorporated areas by about 240 private haulers. The County also operates public refuse collection vehicles for collection of waste from the harbors and near Hermosa Beach and Manhattan Beach. A brief description of the disposal practices is provided below.

2.3.1.1 Private Services

The County primarily uses the free enterprise system for waste collection in the unincorporated areas. Any company that wants to provide waste collection services must obtain a permit from the Los Angeles County Department of Health Services. They are then free to operate in any of the unincorporated areas of the County.

There are about 240 haulers currently permitted to collect residential, commercial and industrial waste in the unincorporated areas. A list of some of the 240 haulers is provided in Table 2-4.

To determine the amount of solid waste being collected by the private haulers, a questionnaire (Appendix B-2) was distributed to each hauler. The questionnaire requested information about the number and type of accounts (residential, commercial, industrial, or marine), the quantity collected from each type of account, the extent of any recycling services they provide to their clients, and disposal site used. The haulers were assured that their responses would be reported only in aggregate to preserve the confidentiality of the data. Follow-up telephone calls were made to the haulers to confirm the information.

Table 2-4
Major Private Haulers Operating in the Unincorporated County of Los Angeles

CMD Refuse Removal	S & P Rubbish Company
A & B Disposal	A & G Disposal Service
Athens Disposal, Inc.	General Waste Disposal
Western Disposal Company	Arrow Disposal
Websters Refuse Disposal	Rolling Disposal
Consolidated Disposal Service, Inc.	Major Refuse
Newco Waste Systems, Inc.	Moderate Service Co.
John's Rubbish Company	Jackson's Disposal
Metropolitan Waste Disposal	Rancho Disposal Service
United Nottingham Disposal	Recycling Resources
Duran & Sons	Art's Disposal
Covina Disposal	Master Disposal
M & A Disposal	Serv-Well Disposal Service
Peerless Disposal Service	S. El Monte Disposal, Inc.
Joe and Edward's Disposal	Triangle Disposal
Western Waste Industries	American Waste Removal
Pioneer Disposal Company, Inc.	

In the South Bay unincorporated area, 11 of the 50 haulers responded to the survey. In the East San Gabriel Valley unincorporated area, 14 of the 33 haulers responded. Despite repeated attempts to contact haulers by phone and by mail, many haulers failed to respond to the survey.

In the Southeast area, sixty-four solid waste haulers were identified by the County as having active accounts. Written surveys were sent to each hauler, which were followed up by several phone calls to collect and confirm data. Out of 64 haulers sent surveys, 50 returned completed surveys, or approximately 94% of the haulers operating in the study area. The four haulers not responding to the survey had very few accounts, and hauled relatively small tonnages. As a result, the survey data was deemed to be representative.

An estimate of the quantities of waste collected by the haulers was calculated based on the results of the survey conducted by Integrated Waste Management Working Group 3, Group 4, and Group 5. The results are presented in Table 2-5.

Table 2-5

Private Hauler Solid Waste Disposal Estimates
for the Unincorporated Los Angeles County

Waste Source	Weight (Tons per year)	Percent
Residential	370,569	53.8
Commercial	181,755	26.4
Industrial	136,707	19.8
Total	689,031	100.0

The haulers reported using a variety of transfer station facilities in the County. The transfer station facilities are identified and described in Table 2-6.

The waste disposed at these transfer stations and recycling centers is ultimately disposed at various landfills in Los Angeles County.

Table 2-7

Other Solid Waste Disposal Estimates in
the Unincorporated Los Angeles County

Waste Source	Weight (Tons per year)	Percent*
Residential	141,395	40
Commercial	141,395	40
Industrial	35,349	10
Other	35,349	10
Total	353,488	100

Note: * Percentage distribution was based on information provided by the waste sorting crew.

Table 2-6
MAJOR TRANSFER STATIONS/MATERIAL RECOVERY FACILITIES OPERATING IN LOS ANGELES COUNTY

	NAME	OPERATING HOURS	PERMITTED TONNAGE (tons/day)	AVERAGE TONS RECEIVED (tons/day)	TYPE	LANDFILL USED	PERCENTAGE RECYCLED
1.	Action 1449 West Rosecrans Avenue Gardena, CA 90249 (213) 532-6283	Monday-Saturday 4:00 a.m. - 7:00 p.m.	225	112	private open to public	Puente Hills, BKK, Spadra	10%
2.	Advance (BFI) R&T Station 2509 West Rosecrans Avenue Compton, CA 90059 (213) 327-8461	Monday-Saturday 6:00 a.m. - 6:00 p.m.	1500	1000	private open to public	Puente Hills, Chiquita Canyon	10%
3.	Bel-Art 2495 East 68th Street Long Beach, CA 90805 (310) 531-2670	Monday-Saturday 5:00 a.m. - 4:00 p.m.	1000	550	private open to public	Puente Hills, Spadra	N/A
4.	Central L.A. R&T Station 2201 East Washington Boulevard Los Angeles, CA 90021 (213) 746-9700	Monday-Saturday 2:00 a.m. - 8:00 p.m. Sunday 5:00 a.m. - 6:00 p.m.	4025	1840	private open to public	Bradley West, Chiquita Canyon	5%
5.	Community Recycling and Resource Recovery Transfer Station 9147 DeGarmo Avenue Sun Valley, CA 90744 (818) 767-7511	7 days/week 24 hours/day	1200	867	private	Chiquita Canyon	25%
6.	Falcon Disposal 3031 East "I" Street Wilmington, CA 90744 (213) 590-8531	Monday-Saturday 6:00 a.m. - 6:00 p.m.	1850	1000	private	BKK	N/A
7.	General Recycling Services MRF/Transfer Station 2474 Porter Street Los Angeles, CA 90021	Monday-Saturday 1:00 a.m. - 9:00 p.m.	650	110	private	BKK, Bradley West	75%
8.	Paramount Resources Recovery Facility 7230 Petterson Lane Paramount, CA (310) 602-6505	Monday-Saturday 5:00 a.m. - 7:00 p.m.	550	288	private	BKK, Puente Hills, Spadra	2%

MAJOR TRANSFER STATIONS/MATERIAL RECOVERY FACILITIES OPERATING IN LOS ANGELES COUNTY

	NAME	OPERATING HOURS	PERMITTED TONNAGE (tons/day)	AVERAGE TONS RECEIVED (tons/day)	TYPE	LANDFILL USED	PERCENTAGE RECYCLED
9.	Perdomo and Sons 1512 North Bonnie Beach Place Los Angeles, CA 90063 (213) 260-7066	Monday-Saturday 5:00 a.m. - 10:00 p.m.	120	30	private DeGarmo	BKK, SERRF, Puente Hills, Bradley West	30%
10.	Southern California Disposal Company Recycling/Transfer Station 1908 Frank Street Santa Monica, CA 90404 (213) 828-6444	Monday-Saturday 5:00 a.m. - 7:00 p.m.	1056	450	private	BKK, Calabasas Puente Hills, Spadra	3.5%
11.	South Gate Transfer Station 9530 South Garfield Avenue South Gate, CA 90280 (818) 928-4616	Monday-Saturday 6:00 a.m. - 5:00 p.m.	1000	454	public	Puente Hills, CREF	0
12.	Waste Transfer and Recycling Station 840 South Mission Road Los Angeles, CA 90028 (213) 262-9699	7 days/week 24 hours/days	1500	1200	private	Bradley West	4%
13.	Western Waste Industries (A.K.A. Carson Transfer Station) 321 West Francisco Street Carson, CA 90745 (213) 830-7100	Monday-Saturday 6:00 a.m. - 6:00 p.m. Sunday 8:00 a.m. - 4:00 p.m.	2800	2600	private	BKK, Puente Hills, Chiquita	
	Total		19,826	11,614			

NOTE: A major transfer station and/or Material Recovery facility processes 100 or more tons per day of municipal solid waste.
A Material Recovery Facilities means a transfer station which is designed to, and, as a condition of its permits, shall recover for reuse or recycling at least 15 percent of the total volume of materials received by the facility.

SOURCE: Los Angeles County Department of Public Works, May 1992.

2.3.1.2 Other Disposal

Surveys of generators, waste haulers and landfills were unsuccessful in documenting reliable quantities of material disposed in the Integrated Waste Management Working Group 1, Group 2, and Group 6. These groups are the North, Northwest, and Other, respective areas of unincorporated Los Angeles County as defined in Table 2-1.

Lacking reliable data from these sources, the waste disposal quantities for these areas were derived based on published existing per capita waste disposal rate (Appendix B-12) and population data (Table 2-1). These figures are given in Table 2-7, Other Solid Waste Disposal Estimates in the Unincorporated Los Angeles County.

2.3.1.3 Marine Waste Disposal

According to the Los Angeles County Department of Beaches and Harbors, an average of 172.6 tons per year of marine waste is collected from the beaches and harbors of Manhattan Beach and Hermosa Beach.

2.3.1.4 Street Sweeping

Street sweepings comprise another source of waste collected in the County unincorporated areas. According to the Los Angeles County Department of Public Works, Road Maintenance Division, an average of 18,481 tons per year of street sweeping debris is collected from County roads. Collection of these wastes is provided by County crews. In order to avoid double-counting materials, this waste is not included in Table 2-8, because the County uses contract private haulers to dispose of the waste.

2.3.1.5 Summary of Waste Disposal Quantity

Based on the information presented above, the overall quantity of waste disposed from residential, commercial, industrial, and marine waste sources in the unincorporated County is estimated to be 1,042,692 tons per year. A breakdown by waste source is provided in Table 2-8. The composition of waste disposal is discussed in Section 2.3.3.

Table 2-8

Total Quantity of Municipal Solid Waste Disposal for the Unincorporated Los Angeles County

Waste Source	Weight (Tons per year)	Percent*
Residential	511,964	49.1
Commercial	323,150	31.0
Industrial	172,056	16.5
Marine	173	0.002
Other	35,349	3.4
Total	1,042,692	100

2.3.2 Seasonal Variations

Monthly disposal data for a five-year period (1986-1990) from two Los Angeles County landfills, Spadra and Puente Hills, were examined to determine if there were any significant variations in disposal activity on a seasonal basis. The data indicated decreases occurring every February and November.

It should be noted that a variety of factors impact tonnages at the various landfills, including tipping fees (disposal rates), patterns of landfill ownership, limits on wastesheds (restrictions on where wastes are generated that can be accepted at a facility), and tonnage limitations at a landfill established on a daily or weekly basis; also variations in the generator sectors, including employment, construction, and agricultural activity, a prolonged period of drought, and reductions resulting from source reduction, recycling and other diversion programs impact tonnages at the landfills.

Various other explanations have been advanced for the February downturn, including rainy periods and the fact that it is the shortest month of the year. However, no seasonal variation could be quantified based on this review of disposal data.

In addition, the haulers operating in the County unincorporated areas of the Southeast Working Group 5 were surveyed to evaluate the seasonal variations in waste disposal and were asked to state any change in tonnage due to climatic factors, tourism, trade or commerce, or other reasons. A moderate increase in waste generation rates (10 to 15 percent) during the summer months, due to increased collection of green waste, was identified by some of the haulers.

It also should be noted that no major seasonal variations in employment or tourism are evident in the County unincorporated areas. In conclusion, there is only a moderate seasonal variation in generation rate of the residential wastestream.

The Los Angeles County Department of Beaches and Harbors reported an increase of waste during the summer months because of increased patronage at the beaches and harbors. The difference between the two seasons was not quantified.

2.3.3 Solid Waste Composition

Field sampling programs were designed to characterize the composition of solid waste currently being disposed by waste generators within the unincorporated County.

Field data for the unincorporated County, with the exception of marine waste, was comprised of data from a group of cities in the working groups that are similar in demographics and land use. A common solid waste composition was undertaken for all of the cities/county in the working groups and the Azusa SWGS.

The solid waste composition study was designed to take advantage of the similarities in the characteristics of the unincorporated County areas and the adjacent cities in the working groups. The contiguous nature and common geographic, cultural, and demographic features of these jurisdictions provided a sound basis for this approach.

An average of the aggregate data from these cities was used to produce the composition of residential, commercial, and industrial sources for the unincorporated County. These data sheets are presented in Appendix B.

Marine waste composition was comprised of two samples, one taken from a harbor and another taken from the beach. This data sheet is presented in Appendix B.

2.3.4 Field Sampling Procedures

Sampling procedures used to obtain the aggregate data for each of the working groups are described in Appendix C.

2.3.5 Data Analysis

All field data was compiled and analyzed to calculate the total sample weight, the total amount of material of each type that was sorted, and the percent of the total material sorted represented by each type. The composition data resulting from the field sampling for the working groups is summarized in Table 2-9 through Table 2-13. More detailed data sheets from the field samplings are included in Appendix C.

2.3.6 Summary of Results

The waste composition data were combined with the waste quantity data shown in Table 2-7 to obtain an overall waste disposal composition profile (based on weight) for residential, commercial, industrial generators in the unincorporated County, and marine waste. The overall waste disposal quantity and composition data are presented in Tables 2-14 and 2-15.

2.4 Solid Waste Diversion Study

A solid waste diversion study was conducted for the unincorporated County to characterize the quantity and types of waste that are currently being diverted from disposal by generators within the jurisdiction. The study relied on written and telephone survey data provided by local recyclers and waste haulers.

2.4.1 Diversion Study Approach

The waste diversion study was designed to target the three main sources of waste generation within the County unincorporated areas: residential, commercial, and industrial. The method used to quantify existing diversion from these sources involved identifying all existing source reduction, recycling, and composting programs in the County unincorporated areas and surrounding cities. Once the existing diversion programs had been identified, separate survey forms were developed for each type of program to collect written data about waste quantities and types being diverted. Surveys also asked for information about generation source, and to avoid double-counting materials, the purchasers of materials. These surveys were mailed to all program operators in the County unincorporated areas and the surrounding cities. Phone surveys were also conducted to

Table 2-9

RESIDENTIAL WASTE DISPOSAL COMPOSITION BASED ON FIELD SORTING DATA IN THE UNINCORPORATED COUNTY OF LOS ANGELES

WASTE TYPE	WEIGHT (tons) AVERAGE WEIGHT	COMPOSITION (%) AVERAGE PERCENT
PAPER		
Corrugated Containers	18430.7	3.6
Kraft Bags	1023.9	0.2
Mixed Paper	40445.2	7.9
Newspaper	28158.0	5.5
Ledger	4095.7	0.8
Computer Printouts	0.0	0.0
Other Paper	39421.2	7.7
SUBTOTAL	131574.7	25.7
PLASTIC		
HDPE Containers	5631.6	1.1
PET Container	1535.9	0.3
Film Plastics	13823.0	2.7
Polystyrene	10751.2	2.1
PVC	0.0	0.0
Other Plastics	6143.6	1.2
Other Containers	512.0	0.1
SUBTOTAL	38397.3	7.5
GLASS		
Refillable Glass	0.0	0.0
CA Redemption Glass	7167.5	1.4
Other Recyclable Glass	15358.9	3.0
Non-recyclable Glass	3071.8	0.6
SUBTOTAL	25598.2	5.0
METALS		
Aluminum Cans	1023.9	0.2
Bi-metal Containers	0.0	0.0
Ferrous Metals	9727.3	1.9
Tin	5119.6	1.0
Non-ferrous Metals	1535.9	0.3
White Goods	512.0	0.1
Other Metals	4095.7	0.8
SUBTOTAL	22014.5	4.3
YARD WASTE		
Grass and Leaves	84986.0	16.6
Prunings	22014.5	4.3
SUBTOTAL	107000.5	20.9
ORGANICS		
Food Waste	78330.5	15.3
Tires and Rubber	4607.7	0.9
Wood Waste	13823.0	2.7
Crop Residues	0.0	0.0
Manure	1535.9	0.3
Diapers	23038.4	4.5
Textiles and Leather	17406.8	3.4
Other organics	13311.1	2.6
SUBTOTAL	152053.3	29.7
OTHER WASTES		
Inert Solids	30717.8	6.0
Hazardous Waste	2047.9	0.4
Fines	2559.8	0.5
Miscellaneous	0.0	0
SUBTOTAL	35325.5	6.9
SPECIAL WASTE		
Ash	0.0	0.0
Industrial Sludge	0.0	0.0
Sewage Sludge	0.0	0.0
Asbestos	0.0	0.0
Auto Shredder	0.0	0.0
Auto Bodies	0.0	0.0
Other Special Waste	0.0	0.0
Dead Animals	0.0	0.0
SUBTOTAL	0.0	0.0
TOTAL WASTE	511964	100.00

Table 2-10

COMMERCIAL WASTE DISPOSAL COMPOSITION BASED ON FIELD SORTING DATA IN THE UNINCORPORATED COUNTY OF LOS ANGELES

WASTE TYPE	WEIGHT (tons) AVERAGE WEIGHT	COMPOSITION (%) AVERAGE PERCENT
PAPER		
Corrugated Containers	39424.3	12.2
Kraft Bags	1292.6	0.4
Mixed Paper	28114.1	8.7
Newspaper	11956.6	3.7
Ledger	16157.5	5.0
Computer Printouts	0.0	0.0
Other Paper	26498.3	8.2
SUBTOTAL	123443.3	38.2
PLASTIC		
HDPE Containers	3554.7	1.1
PET Container	646.3	0.2
Film Plastics	14864.9	4.6
Polystyrene	7432.5	2.3
PVC	5493.6	1.7
Other Plastics	0.0	0.0
Other Containers	0.0	0.0
SUBTOTAL	31991.9	9.9
GLASS		
Refillable Glass	0.0	0.0
CA Redemption Glass	2585.2	0.8
Other Recyclable Glass	2908.4	0.9
Non-recyclable Glass	3231.5	1.0
SUBTOTAL	8725.1	2.7
METALS		
Aluminum Cans	1292.6	0.4
Bi-metal Containers	0.0	0.0
Ferrous Metals	15511.2	4.8
Tin	3231.5	1.0
Non-ferrous Metals	1292.6	0.4
White Goods	0.0	0.0
Other Metals	8078.8	2.5
SUBTOTAL	29406.7	9.1
YARD WASTE		
Grass and Leaves	9371.4	2.9
Prunings	6139.9	1.9
SUBTOTAL	15511.2	4.8
ORGANICS		
Food Waste	45564.2	14.1
Tires and Rubber	5170.4	1.6
Wood Waste	25528.9	7.9
Crop Residues	0.0	0.0
Manure	2585.2	0.8
Diapers	1615.8	0.5
Textiles and Leather	18742.7	5.8
Other organics	7109.3	2.2
SUBTOTAL	106316.4	32.9
OTHER WASTES		
Inert Solids	5493.6	1.7
Hazardous Waste	1292.6	0.4
Fines	969.5	0.3
Miscellaneous	0.0	0.0
SUBTOTAL	7755.6	2.4
SPECIAL WASTES		
Ash	0.0	0.0
Industrial Sludge	0.0	0.0
Sewage Sludge	0.0	0.0
Asbestos	0.0	0.0
Auto Shredder	0.0	0.0
Auto Bodies	0.0	0.0
Other Special Waste	0.0	0.0
Dead Animals	0.0	0.0
SUBTOTAL	0.0	0.0
TOTAL WASTE	323150	100.00

Table 2-11

INDUSTRIAL WASTE DISPOSAL COMPOSITION BASED ON FIELD SORTING DATA IN THE UNINCORPORATED COUNTY OF LOS ANGELES

WASTE TYPE	WEIGHT (tons) AVERAGE WEIGHT	COMPOSITION (%) AVERAGE PERCENT
PAPER		
Corrugated Containers	17721.8	10.3
Kraft Bags	0.0	0
Mixed Paper	11699.8	6.8
Newspaper	5161.7	3.0
Ledger	4301.4	2.5
Computer Printouts	0.0	0.0
Other Paper	4989.6	2.9
SUBTOTAL	43874.3	25.5
PLASTIC		
HDPE Containers	1032.3	0.6
PET Containers	172.1	0.1
Film Plastics	4645.5	2.7
Polystyrene	6882.2	4.0
PVC	1204.4	0.7
Other Plastics	0.0	0.0
Other Containers	688.2	0.4
SUBTOTAL	14624.8	8.5
GLASS		
Refillable Glass	0.0	0.0
CA Redemption Glass	688.2	0.4
Other Recyclable Glass	1720.6	1.0
Non-recyclable Glass	2580.8	1.5
SUBTOTAL	4989.6	2.9
METALS		
Aluminum Cans	344.1	0.2
Bi-metal Containers	0.0	0.0
Ferrous Metals	6022.0	3.5
Tin	1720.6	1.0
Non-ferrous Metals	1204.4	0.7
White Goods	0.0	0.0
Other Metals	1892.6	1.1
SUBTOTAL	11183.6	6.5
YARD WASTE		
Grass and Leaves	7742.5	4.5
Prunings	1204.4	0.7
SUBTOTAL	8946.9	5.2
ORGANICS		
Food Waste	3441.1	2.0
Tires and Rubber	5161.7	3.0
Wood Waste	28389.2	16.5
Crop Residues	0.0	0.0
Manure	0.0	0.0
Diapers	0.0	0.0
Textiles and Leather	4645.5	2.7
Other organics	1892.6	1.1
SUBTOTAL	43530.2	25.3
OTHER WASTES		
Inert Solids	43358.1	25.2
Hazardous Waste	172.1	0.1
Fines	172.1	0.1
Miscellaneous	1204.4	0.7
SUBTOTAL	44906.6	26.1
SPECIAL WASTES		
Ash	0.0	0.0
Industrial Sludge	0.0	0.0
Sewage Sludge	0.0	0.0
Asbestos	0.0	0.0
Auto Shredder	0.0	0.0
Auto Bodies	0.0	0.0
Other Special Waste	0.0	0.0
Dead Animals	0.0	0.0
SUBTOTAL	0.0	0.0
TOTAL WASTE	172056	100.00

Table 2-12

MISCELLANEOUS/OTHER DISPOSAL COMPOSITION
BASED ON FIELD SORTING DATA IN THE
UNINCORPORATED COUNTY OF LOS ANGELES

WASTE TYPE	WEIGHT (tons) AVERAGE WEIGHT	COMPOSITION (%) AVERAGE PERCENT
PAPER		
Corrugated Containers	1908.8	5.4
Kraft Bags	106.0	0.3
Mixed Paper	5514.4	15.6
Newspaper	3252.1	9.2
Ledger	247.4	0.7
Computer Printouts	0.0	0.0
Other Paper	2851.2	7.5
SUBTOTAL	13680.1	38.7
PLASTIC		
HDPE Containers	1201.9	3.4
PET Containers	176.7	0.5
Film Plastics	1520.0	4.3
Polystyrene	282.8	0.8
PVC	636.3	1.8
Other Plastics	0.0	0.0
Other Containers	0.0	0.0
SUBTOTAL	3817.7	10.8
GLASS		
Refillable Glass	0.0	0.0
CA Redemption Glass	2934.0	8.3
Other Recyclable Glass	3287.5	9.3
Non-recyclable Glass	777.7	2.2
SUBTOTAL	6999.1	19.8
METALS		
Aluminum Cans	70.7	0.2
Bi-metal Containers	0.0	0.0
Ferrous Metals	494.9	1.4
Tin	282.8	0.8
Non-ferrous Metals	106.0	0.3
White Goods	212.1	0.6
Other Metals	282.8	0.8
SUBTOTAL	1449.3	4.1
YARD WASTE		
Grass and Leaves	1237.2	3.5
Prunings	707.0	2.0
SUBTOTAL	1944.2	5.5
ORGANICS		
Food Waste	2580.5	7.3
Tires and Rubber	106.0	0.3
Wood Waste	424.2	1.2
Crop Residues	0.0	0.0
Manure	0.0	0.0
Diapers	1590.7	4.5
Textiles and Leather	707.0	2.0
Other organics	0.0	0.0
SUBTOTAL	5408.4	15.3
OTHER WASTES		
Inert Solids	1414.0	4.0
Hazardous Waste	424.2	1.2
Fines	0.0	0
Miscellaneous	212.1	0.6
SUBTOTAL	2050.2	5.8
SPECIAL WASTES		
Ash	0.0	0.0
Industrial Sludge	0.0	0.0
Sewage Sludge	0.0	0.0
Asbestos	0.0	0.0
Auto Shredder	0.0	0.0
Auto Bodies	0.0	0.0
Other Special Waste	0.0	0.0
Dead Animals	0.0	0.0
SUBTOTAL	0.0	0.0
Miscellaneous	0.0	0.0
TOTAL WASTE	35349	100.00

Table 2-13

MARINE WASTE DISPOSAL COMPOSITION BASED ON FIELD SORTING DATA IN THE UNINCORPORATED COUNTY OF LOS ANGELES

WASTE TYPE	WEIGHT (tons) AVERAGE WEIGHT	COMPOSITION (%) AVERAGE PERCENT
PAPER		
Corrugated Containers	11.9	6.9
Kraft Bags	0.0	0
Mixed Paper	29.2	16.9
Newspaper	13.0	7.5
Ledger	0.0	0.0
Computer Printouts	0.0	0.0
Other Paper	16.6	9.6
SUBTOTAL	70.8	40.9
PLASTIC		
HDPE Containers	2.9	1.7
PET Containers	0.3	0.2
Film Plastics	7.4	4.3
Polystyrene	1.9	1.1
PVC	0.0	0.0
Other Plastics	2.4	1.4
Other Containers	0.0	0.0
SUBTOTAL	15.1	8.7
GLASS		
Refillable Glass	0.0	0.0
CA Redemption Glass	24.6	14.2
Other Recyclable Glass	28.5	16.5
Non-recyclable Glass	0.0	0.0
SUBTOTAL	53.1	30.7
METALS		
Aluminum Cans	0.3	0.2
Bi-metal Containers	0.0	0.0
Ferrous Metals	1.0	0.6
Tin	0.0	0.0
Non-ferrous Metals	0.2	0.1
White Goods	0.0	0.0
Other Metals	0.0	0.0
SUBTOTAL	1.6	0.9
YARD WASTE		
Grass and Leaves	5.7	3.3
Prunings	0.0	0.0
SUBTOTAL	5.7	3.3
ORGANICS		
Food Waste	9.5	5.5
Tires and Rubber	0.9	0.5
Wood Waste	0.5	0.3
Crop Residues	0.0	0.0
Manure	0.0	0.0
Diapers	8.3	4.8
Textiles and Leather	4.5	2.6
Other organics	0.0	0.0
SUBTOTAL	23.7	13.7
OTHER WASTES		
Inert Solids	0.0	0.0
Hazardous Waste	3.1	1.8
Fines	0.0	0
Miscellaneous	0.0	0
SUBTOTAL	3.1	1.8
SPECIAL WASTES		
Ash	0.0	0.0
Industrial Sludge	0.0	0.0
Sewage Sludge	0.0	0.0
Asbestos	0.0	0.0
Auto Shredder	0.0	0.0
Auto Bodies	0.0	0.0
Other Special Waste	0.0	0.0
Dead Animals	0.0	0.0
SUBTOTAL	0.0	0.0
Miscellaneous	0.0	0
TOTAL WASTE	173	100.00

TABLE 2-14
SOLID WASTE DISPOSAL QUANTITIES
BY WASTE TYPES AND SOURCES FOR THE
COUNTY OF LOS ANGELES – UNINCORPORATED AREA

WASTE TYPE	TOTAL ANNUAL (tons)	Res Waste AVERAGE (tons/yr)	Com Waste: AVERAGE (tons/yr)	Ind Waste: AVERAGE (tons/yr)	Oth Waste: AVERAGE (tons/yr)	Mar Waste AVERAGE (tons/yr)
PAPER						
Corrugated Containers	77497.5	18430.7	39424.3	17721.8	1908.8	11.9
Kraft Bags	2422.5	1023.9	1292.6	0.0	106.0	0.0
Mixed Paper	85802.7	40445.2	28114.1	11699.8	5514.4	29.2
Newspaper	48541.4	28158.0	11956.6	5161.7	3252.1	13.0
Ledger	24802.0	4095.7	16157.5	4301.4	247.4	0.0
Computer Printouts	0.0	0.0	0.0	0.0	0.0	0.0
Other Paper	73576.9	39421.2	26498.3	4989.6	2651.2	16.6
SUBTOTAL	312643.0	131574.7	123443.4	43874.3	13679.9	70.7
PLASTIC						
HDPE Container	11423.4	5631.6	3554.7	1032.3	1201.9	2.9
PET Container	2531.3	1535.9	646.3	172.1	176.7	0.3
Film Plastics	34860.8	13823.0	14864.9	4645.5	1520.0	7.4
Polystyrene	25350.6	10751.2	7432.5	6882.2	282.8	1.9
PVC	7334.3	0.0	5493.6	1204.4	636.3	0.0
Other Plastics	6146.0	6143.6	0.0	0.0	0.0	2.4
Other Containers	1200.2	512.0	0.0	688.2	0.0	0.0
SUBTOTAL	88846.6	38397.3	31992.0	14624.7	3817.7	14.9
GLASS						
Refillable Glass	0.0	0.0	0.0	0.0	0.0	0.0
CA Redemption Glass	13399.5	7167.5	2585.2	688.2	2934.0	24.6
Other Recyclable Glass	23303.9	15358.9	2908.4	1720.6	3287.5	28.5
Non-recyclable Glass	9661.8	3071.8	3231.5	2580.8	777.7	0.0
SUBTOTAL	46365.2	25598.2	8725.1	4989.6	6999.2	53.1
METALS						
Aluminum Cans	2731.6	1023.9	1292.6	344.1	70.7	0.3
Bi-metal Containers	0.0	0.0	0.0	0.0	0.0	0.0
Ferrous Metals	31756.4	9727.3	15511.2	6022.0	494.9	1.0
Tin	10354.5	5119.6	3231.5	1720.6	282.8	0.0
Non-ferrous Metals	4139.1	1535.9	1292.6	1204.4	106.0	0.2
White Goods	724.1	512.0	0.0	0.0	212.1	0.0
Other Metals	14349.9	4095.7	8078.8	1892.6	282.8	0.0
SUBTOTAL	64055.6	22014.4	29406.7	11183.7	1449.3	1.5
YARD WASTE						
Grass and Leaves	103342.8	84986.0	9371.4	7742.5	1237.2	5.7
Prunnings	30065.8	22014.5	6139.9	1204.4	707.0	0.0
SUBTOTAL	133408.6	107000.5	15511.3	8946.9	1944.2	5.7
ORGANICS						
Food Waste	129925.8	78330.5	45564.2	3441.1	2580.5	9.5
Tires and Rubber	15046.7	4607.7	5170.4	5161.7	106.0	0.9
Wood Waste	68165.8	13823.0	25528.9	28389.2	424.2	0.5
Crop Residues	0.0	0.0	0.0	0.0	0.0	0.0
Manure	4121.1	1535.9	2585.2	0.0	0.0	0.0
Diapers	26253.2	23038.4	1615.8	0.0	1590.7	8.3
Textiles and Leather	41506.5	17406.8	18742.7	4645.5	707.0	4.5
Other organics	22313.0	13311.1	7109.3	1892.6	0.0	0.0
SUBTOTAL	307332.1	152053.4	106316.5	43530.1	5408.4	23.7
OTHER WASTES						
Inert Solids	80983.5	30717.8	5493.6	43358.1	1414.0	0.0
Hazardous Waste	3939.9	2047.9	1292.6	172.1	424.2	3.1
Fines	3701.4	2559.8	969.5	172.1	0.0	0.0
Miscellaneous	1416.5	0.0	0.0	1204.4	212.1	0.0
SUBTOTAL	90041.3	35325.5	7755.7	44906.7	2050.3	3.1
SPECIAL WASTE						
Ash	0.0	0.0	0.0	0.0	0.0	0.0
Industrial Sludge	0.0	0.0	0.0	0.0	0.0	0.0
Sewage Sludge	0.0	0.0	0.0	0.0	0.0	0.0
Asbestos	0.0	0.0	0.0	0.0	0.0	0.0
Auto Shredder	0.0	0.0	0.0	0.0	0.0	0.0
Auto Bodies	0.0	0.0	0.0	0.0	0.0	0.0
Other Special Waste	0.0	0.0	0.0	0.0	0.0	0.0
Dead Animals	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL WASTE (tons)	1042692	511964	323151	172056	35349	173
EQUIVALENT VOLUME (c.y.)	1737821	853273.3	538584.5	286760	58915	287.8333

Table 2-15
DISPOSAL COMPOSITION
ANNUAL SOLID WASTE DISPOSAL QUANTITIES
AND COMPOSITION FOR THE
COUNTY OF LOS ANGELES – UNINCORPORATED AREA

WASTE TYPE	TOTAL ANNUAL VOLUME	TOTAL ANNUAL TONS	PERCENT COMPOSITION BY WEIGHT
PAPER			
Corrugated Containers	110710.7	77497.5	7.4 %
Kraft Bags	3460.7	2422.5	0.2 %
Mixed Paper	122575.3	85802.7	8.2 %
Newspaper	69344.9	48541.4	4.7 %
Ledger	35431.4	24802.0	2.4 %
Computer Printouts	0.0	0.0	0.0 %
Other Paper	105109.9	73576.9	7.1 %
SUBTOTAL	446632.9	312643.0	30.0 %
PLASTIC			
HDPE Container	16319.1	11423.4	1.1 %
PET Container	3616.1	2531.3	0.2 %
Film Plastics	49801.1	34860.8	3.3 %
Polystyrene	36215.1	25350.6	2.4 %
PVC	10477.6	7334.3	0.7 %
Other Plastics	8780.0	6146.0	0.6 %
Other Containers	1714.6	1200.2	0.1 %
SUBTOTAL	126923.7	88846.6	8.5 %
GLASS			
Refillable Glass	0.0	0.0	0.0 %
CA Redemption Glass	19142.1	13399.5	1.3 %
Other Recyclable Glass	33291.3	23303.9	2.2 %
Non-recyclable Glass	13802.6	9661.8	0.9 %
SUBTOTAL	66236.0	46365.2	4.4 %
METALS			
Aluminum Cans	3902.3	2731.6	0.3 %
Bi-metal Containers	0.0	0.0	0.0 %
Ferrous Metals	45366.3	31756.4	3.0 %
Tin	14792.1	10354.5	1.0 %
Non-ferrous Metals	5913.0	4139.1	0.4 %
White Goods	1034.4	724.1	0.1 %
Other Metals	20499.9	14349.9	1.4 %
SUBTOTAL	91508.0	64055.6	6.1 %
YARD WASTE			
Grass and Leaves	147632.6	103342.8	9.9 %
Prunnings	42951.1	30065.8	2.9 %
SUBTOTAL	190583.7	133408.6	12.8 %
ORGANICS			
Food Waste	185608.3	129925.8	12.5 %
Tires and Rubber	21495.3	15046.7	1.4 %
Wood Waste	97379.7	68165.8	6.5 %
Crop Residues	0.0	0.0	0.0 %
Manure	5887.3	4121.1	0.4 %
Diapers	37504.6	26253.2	2.5 %
Textiles and Leather	59295.0	41506.5	4.0 %
Other organics	31875.7	22313.0	2.1 %
SUBTOTAL	439045.9	307332.1	29.5 %
OTHER WASTES			
Inert Solids	115690.7	80983.5	7.8 %
Hazardous Waste	5628.4	3939.9	0.4 %
Fines	5287.7	3701.4	0.4 %
Miscellaneous	2023.6	1416.5	0.1 %
SUBTOTAL	128630.4	90041.3	8.6 %
TOTAL OTHER WASTES			
Ash	0.0	0.0	0.0 %
Industrial Sludge	0.0	0.0	0.0 %
Sewage Sludge	0.0	0.0	0.0 %
Asbestos	0.0	0.0	0.0 %
Auto Shredder	0.0	0.0	0.0 %
Auto Bodies	0.0	0.0	0.0 %
Other Special Waste	0.0	0.0	0.0 %
Dead Animals	0.0	0.0	0.0 %
SUBTOTAL	0.0	0.0	0.0 %
TOTAL WASTE	1489561	1042692	100 %

collect diversion data to verify and confirm written responses. Following is a master list of all the programs from which existing programs in the County unincorporated areas were identified.

- County curbside recycling programs
- County offices recycling programs
- Commercial recyclers
- California certified redemption centers
- Scrap metal dealers
- Paper brokers and packers
- Waste haulers
- Transfer stations
- Landfills
- Tire recyclers
- Wood and green waste processors
- Landscaping and tree service companies
- County Public Works Department (street tree, median and park landscape maintenance, street maintenance)
- Garden clubs
- Major shopping centers and malls, grocery chains and major retailers
- Schools, colleges, and universities
- Newspaper publishers
- Diaper services
- Non-profits

Allocation of Data. Many recycling and composting facilities in the County unincorporated areas cover materials from other cities as well. To comply with AB 939, only those materials generated in the County unincorporated areas were counted towards the County's diversion mandates. Each recycling or composting facility contacted was asked to estimate the quantity and type of waste generated in the County unincorporated areas based on existing records and accounts. However, some recycling and composting facilities were unable to provide such information. In these cases, aggregate data was allocated based on the County unincorporated areas' proximity to the recycling facility and the relative population of the County unincorporated areas compared to that of other cities also utilizing the facility. A two-mile radius was considered proximal based on interviews with local recycling centers, unless otherwise specified by facility manager. Below is an equation expressing this methodology and a sample calculation.

Diversion for CUA* = (Total Tons Diverted at Recycling Facility) X (Population of CUA as a percent of total population of cities within a two-mile radius of facility)

If the total tonnage being diverted equals 100 tons, and the CUA has 25 percent of the total population of those cities within a two-mile radius of the facility then,

(100 tons) x (25%) = 25 tons

*CUA = County Unincorporated Areas

On two occasions, customer surveys were conducted to exactly determine the generation source of the material being diverted. Both surveys were conducted over two-week time periods. The first such survey was conducted by the Los Angeles County Sanitation Districts at their buy-back recycling center in Whittier. For two weeks in January, each customer was asked to state their jurisdiction of origin. Out of a total of 280 customers surveyed, a percentage was figured for each jurisdiction from which residents were coming. This percentage was then applied to the total tonnage received at the facility throughout the year. The number of customers that recycled at the center from jurisdictions in the working group appears in Appendix B.

A second survey was conducted by United Pacific Corporation, a large green waste processor also located in the southeast area. During one week in both February and March, each vehicle utilizing the facility was weighed and asked to state the city of origin of their load. A percentage of the total waste entering the facility was figured for each city using the facility. Applying this percentage to the total annual tonnage received at the facility results in the total attributed to the County unincorporated areas. The tonnage received at the facility during the survey period from participating jurisdictions appears in Appendix B.

The waste diversion study targeted waste being diverted by residential, commercial, and industrial sources through recyclers or haulers. To obtain information about existing diversion, haulers and recyclers were contacted by surveys, which are described in Section 2.4.2. Existing residential, commercial, and industrial diversion programs are described in the following sections.

2.4.1.1 Existing Residential Diversion Program

In April 1989, the Los Angeles County Board of Supervisors approved the implementation of a recycling program for all single-family residences in five targeted communities within the unincorporated areas of Los Angeles County. These areas are Lennox, Hacienda Heights, La Crescenta, Montrose, and Altadena. Other communities such as East Pasadena, Topanga Canyon, and Marina Del Rey were subsequently included in the recycling program.

As of March 1, 1990, the haulers in the identified areas must provide recycling services in order to compete for residential refuse collection. They can either conduct the program themselves, or subcontract it to another vendor. Each hauler, or his designated vendor, must collect, at a minimum, the same recyclable materials, glass bottles and jars, newspapers, and aluminum and tin cans. In addition, containers must be provided to each single-family residence; however, the haulers are free to choose different types and number of containers.

The quantities and materials that are diverted through this program are shown in Table 2-16. The total quantities of materials diverted through this program is 6,777 tons. Also, several programs currently exist within the unincorporated County that encourage residential diversion of solid waste. Several area buy-back centers provide opportunities for residents to recycle materials. In addition, area repair shops and stores selling used goods provide source reduction opportunities. The County is in the process of implementing a green waste collection program.

Table 2-16

Quantities of Waste Materials Diverted Through Existing Residential Recycling Programs in the Unincorporated Los Angeles County (July 1990 - June 1991)

COMMUNITY NAME	NEWSPAPER (lbs)	GLASS (lbs)	METALS (lbs)	PLASTICS (lbs)	TOTAL DIVERSION	RESIDENTS PARTICIPATION RATE (Average)
Altadena	2,576,960	1,039,019	49,138	505	3,665,622	45.6%
East Pasadena	1,895,436	594,503	107,245	25,808	2,622,992	38.3%
Hacienda Heights	3,452,705	949,097	33,308	6,368	4,441,478	36.8%
La Crescenta/ Montrose	1,752,108	631,983	34,404	390	2,418,885	62.0%
Lennox	2,700	12,796	644	688	16,828	N/A
Marina Del Rey	122,980	28,016	3,909	4,125	159,030	N/A
Topanga Canyon	139,764	66,548	13,697	10,321	230,330	N/A
TOTALS: (lbs)	9,942,653	3,321,962	242,345	48,205	13,555,165	N/A
TOTALS: (tons)	4,971	1,661	121	24	6,777	N/A

Source: Los Angeles County Department of Public Works, Waste Management Division, August 1991.

2.4.1.2 Other Residential/Business Recycling and Source Reduction Data

There are source reduction and recycling activities in other areas of the unincorporated Los Angeles County. A survey of these areas determined that approximately 5,879 tons of materials were diverted each year by residents and businesses.

A summary of the responses regarding waste quantity and type is provided in Table 2-17.

Table 2-17

Source Reduction and Recycling Diversion Summary
Unincorporated County of Los Angeles
(Pounds Per Year)

Waste Type	Residential	Commercial	Industrial	Total
Corrugated Containers	58,791	1,613,132	344,286	2,016,209
Mixed Paper	155,297	626,323	77,994	859,614
Newspaper	325,755	53,241	0	378,996
Ledger	0	151,959	6,685	158,644
Other Paper	62,119	26,990	0	89,109
HDPE Containers	17,748	0	0	17,748
PET Containers	41,782	0	0	41,782
CA Redemption Glass	693,292	370	0	693,662
Other Recyclable	134,961	0	31,197	166,158
Aluminum Cans	430,026	2,218	4,457	436,701
Ferrous Metals	8,504	19,596	146,702	174,802
Nonferrous Metals	75,060	73,946	64,252	213,258
White Goods	208,800	0	0	208,800
Yard Waste	4,660,000	532,411	124,790	5,317,201
Food Waste	0	7,395	0	7,395
Tires and Rubber	219,265	219,250	110,305	548,820
Wood	208,800	370	115,133	324,303
Textiles and Leather	104,400	0	0	104,400
Total (lbs/year)	7,404,600	3,327,201	1,025,801	11,757,602
Total (tons/year)*	3,702	1,664	513	5,879

Note: * 2,000 lbs is equivalent to a ton

Source: East San Gabriel Valley Integrated Waste Management Working Group, EMCON Associates, August 1991.

2.4.1.3 Existing Commercial and Industrial Diversion Programs

The commercial/industrial sector in the unincorporated County is also participating in diversion activities. Many businesses sell materials to area buy-back centers.

The quantities and materials that are diverted through this program are discussed in Section 2.4.2.

2.4.2 Waste Diversion Surveys

Two survey forms were used to evaluate the quantity and type of solid waste currently being diverted from the unincorporated areas. The survey forms used are listed below and copies of the forms are provided in Appendix B.

- Hauler Survey

- Recycler Survey

The hauler survey was sent to each of the 240 permitted waste haulers who are currently operating within the unincorporated County. The haulers were asked about the number and type of accounts in the unincorporated County; the amount, source, and destination of the collected wastes; and the extent of any recycling activities they provide to their customers. Haulers were assured that their individual responses to the survey would be kept confidential. Hauler responses for the East San Gabriel Valley are 14 out of 33, for the South Bay area they are 11 out of 50, and for the Southeast area the responses received were 60 out of 64.

The recycler survey was sent to area recyclers, which reported diverting wastes from sources within the unincorporated County.

In addition, a telephone survey was conducted to estimate the quantity and type of materials being diverted through other source reduction activities. Local thrift stores, tire stores, diaper services, and golf courses were contacted in regard to the materials originating in the County, which are repaired, resold, or reused.

2.4.3 Survey Results

The responses to the surveys, along with the data provided by the County's private haulers, were tabulated and analyzed to evaluate the type and quantity of waste being diverted from each of the three waste generation sources. The results are discussed below.

2.4.3.1 Hauler Survey

The haulers reported diverting 3,086 tons per year of materials through the recycling activities they provide. Only those waste diversion quantities which were broken down by waste type and source were included in this total.

Waste quantities and types reported as being recycled by private haulers are listed in Table 2-18.

Table 2-18
Private Haulers Recycling Summary
Los Angeles County Unincorporated Areas
(pounds per year)

Waste Type	Residential	Industrial	Total
Newspaper	4,509,840	0	4,509,840
CA Redemption Glass	1,044,560	0	1,044,560
Other Recyclable Glass	48,000	0	48,000
Aluminum Cans	83,740	0	83,740
HPDE Containers	5,680	0	5,680
PET Containers	3,400	0	3,400
Ferrous Metals and Tin Cans	56,680	0	56,680
Inert Solids	0	420,000	420,000
Total (lbs/yr)*	5,751,900	420,000	6,171,900
Total (tons/yr)*	2,876	210	3,086

Note: *2,000 lbs per ton is used as conversion factor.

2.4.3.2 Recycler Survey

Few surveys were received from private recyclers in the unincorporated area. Total diversion quantities reported by source are summarized below.

- residential waste - 7,287 tons per year

- commercial waste - 16,820 tons per year

- industrial waste - 8,007 tons per year
  - Total - 32,113 tons per year

A summary of the summary responses regarding waste quantities and types is provided in Table 2-19.

2.4.3.3 Telephone Survey

Source reduction telephone survey data included both the quantity and weights of items, repaired, resold, or reused. Source reduction diversion from these surveys was determined to be 17,523 tons per year. This entire diversion amount originated from residential sources and grasscycling activities by area businesses within the County. The diversion quantities are summarized in Table 2-20.

A telephone survey was conducted to estimate quantities of materials source-reduced by businesses and residents in the unincorporated County. The survey was not intended to be a random or representative sampling of the entire County, and was not used as such. The results of the telephone survey were not extrapolated to the entire County.

A given amount of time was allotted for calls to thrift shops, diaper services, tire recapping businesses, and appliance repair shops. Business representatives were asked to estimate the type and quantity of materials repaired or reused per week or per month. Because every business in the County was not contacted by telephone, the diversion quantities identified most likely fell short of the total quantities of material diverted by these types of businesses.

Appliances were purchased from second hand stores and reused by County residents. The conversion factors used for these appliances were from mail order catalogs. Recapped tires were also purchased and used. Conversion factors were from the National Recycling Coalition and from EMCON In-House Values (Appendix B-11).

Only one diaper service could be documented as serving the unincorporated areas. The company was able to provide a number of accounts for the area. This number was divided among the area on a population-percentage basis. The diaper service stated the average number of diapers used per week per account is 80. The conversion factor of 0.4 pounds per diaper was used (Recycling Today, 1989).

Table 2-20
Telephone Survey Source Reduction Diversion Summary
Unincorporated County of Los Angeles
(Pounds Per Year)

Waste Type	Residential
White Goods	352,600
Tire Rubber	69,000
Cloth Diapers	1,925,800
Backyard Composting (yard waste)	4,660,000
Yard Waste (grasscycling)	28,038,800
Total (lbs/yr)*	35,045,800
Total (tons)*	17,523

Note: *2,000 lbs is equivalent to a ton

TABLE 2-19

WASTE DIVERTED BY COMMERCIAL RECYCLERS
UNINCORPORATED COUNTY OF LOS ANGELES
(POUNDS PER YEAR)

COMMODITY	Residential	Commercial	Industrial	Total
Corrugated cardboard	1442220	12613080	4392320	18447620
Mixed paper	979680	3834980	598480	5413140
Newspaper	2243920	2070120	937000	5251040
High grade ledger	384060	8853540	709380	9946980
Other paper	428280	540620	250800	1219700
PET containers	238360	32240	16200	286800
CA redemption glass	3918000	255460	119020	4292480
Food waste	0	475000	0	475000
Wood waste	24000	178000	3224000	3426000
Aluminum cans	2389157	170490	76500	2636147
Ferrous metals	48260	112480	792160	952900
Other glass containers	782320	25740	175520	983580
HDPE	96080	20	0	96100
Non-ferrous metals	410500	405200	346300	1162000
Tires	1186000	1186000	594000	2966000
Inert solids	0	0	420000	420000
Yard waste	0	2880000	3360000	6240000
Other plastics	1320	3880	1300	6500
Bi-metals containers	1620	2780	920	5320
TOTAL (lbs/yr)	14573777	33639630	16013900	64227307
TOTAL (tons/yr)	7286.8885	16819.815	8006.95	32113.654

2.4.4 Summary of Diversion Quantities

The results from the three surveys and existing residential recycling programs were combined to determine the total amount of waste currently diverted from disposal. The total quantities of waste currently being diverted from disposal is 65,378 tons per year. The results are summarized in Table 2-21.

2.4.5 Future Data Collection

The County is currently considering developing reporting procedures for area waste haulers, recyclers and composters to facilitate the collection of diversion data in subsequent years. Recycling and composting facilities could regularly survey customers to determine the community of origin and weight of recyclables, or weigh in every vehicle utilizing a facility to obtain more precise records. Many local recycling and composting facilities interviewed expressed a desire to work with jurisdictions in developing such procedures. The end result for the County would be readily available, precise diversion data applicable towards the required annual review of the SWGS.

As required by CCR Section 18722(o), the County has developed a system for gathering data on quantities and composition of solid waste generated, diverted, and disposed, including when and from whom reports will be collected. This system will be implemented in the next year, and will be utilized to update the Solid Waste Generation Study in subsequent years. The County plans to discuss reporting options with local waste haulers, solid waste facility operators, recycling facilities, recycling programs, and source reduction programs to determine what refinements to the system will work best in the future. A brief outline of the system to collect diversion data to be initially adopted is listed below.

- Identify all new and existing source reduction, recycling, and composting programs in the County, including private businesses, County offices, and local and regional diversion programs.

- Survey all programs diverting waste from the County annually for diversion data by mail and telephone, including types of materials diverted, quantities diverted, and marketing information.

A brief outline of the system to collect composition data to be initially adopted is listed below.

Table 2-21

TOTAL WASTE DIVERSION COMPOSITION
UNINCORPORATED COUNTY OF LOS ANGELES

WASTE TYPE	Res Waste Average Annual Tons	Com Waste Average Annual Tons	Ind Waste Average Annual Tons	Total Waste Diversion Annual Tons	Percent Composition By Weight
PAPER					
Corrugated Containers	751	7113	2368	10232	15.7%
Mixed Paper	567	2231	338	3136	4.8%
Newspaper	8511	1062	469	10041	15.4%
High Grade Ledger	192	4503	358	5053	7.7%
Computer Printouts	0	0	0	0	0.0%
Other Paper	245	284	125	654	1.0%
SUBTOTAL	10266	15192	3658	29117	44.5%
PLASTIC					
PVC	0	0	0	0	0.0%
PET Container	142	16	8	166	0.3%
HDPE Container	60	0	0	60	0.1%
Film Plastics	0	0	0	0	0.0%
Polystyrene	0	0	0	0	0.0%
Other Plastics	25	2	1	27	0.0%
SUBTOTAL	226	18	9	253	0.4%
GLASS					
Refillable Glass	0	0	0	0	0.0%
CA Redemption Glass	2828	128	60	3015	4.6%
Other Recyclable Glass	2144	13	103	2260	3.5%
Non-recyclable Glass	0	0	0	0	0.0%
SUBTOTAL	4972	141	163	5275	8.1%
METALS					
Aluminum Cans	1451	86	40	1578	2.4%
Bi-metal Containers	1	1	0	3	0.0%
Ferrous Metals	57	66	469	592	0.9%
Non-ferrous Metals	243	240	205	688	1.1%
White Goods	281	0	0	281	0.4%
Other Metals	121	0	0	121	0.2%
SUBTOTAL	2154	393	716	3263	5.0%
YARD WASTE					
Yard Waste	4660	15725	1742	22128	33.8%
SUBTOTAL	4660	15725	1742	22128	33.8%
ORGANICS					
Food Waste	0	241	0	241	0.4%
Wood Waste	116	89	1670	1875	2.9%
Tires and Rubber	737	703	352	1792	2.7%
Crop Residues	0	0	0	0	0.0%
Manure	0	0	0	0	0.0%
Diapers	963	0	0	963	1.5%
Textiles and Leather	52	0	0	52	0.1%
Other organics	0	0	0	0	0.0%
SUBTOTAL	1869	1033	2022	4923	7.5%
OTHER WASTES					
Inert Solids	0	0	420	420	0.6%
Hazardous Waste	0	0	0	0	0.0%
SUBTOTAL	0	0	420	420	0.6%
SPECIAL WASTE					
Ash	0	0	0	0	0.0%
Industrial Sludge	0	0	0	0	0.0%
Sewage Sludge	0	0	0	0	0.0%
Asbestos	0	0	0	0	0.0%
Auto Shredder	0	0	0	0	0.0%
Auto Bodies	0	0	0	0	0.0%
Other Special Waste	0	0	0	0	0.0%
SUBTOTAL	0	0	0	0	0.0%
TOTAL WASTE (tons)	24146	32502	8730	65379	100.0%

- Conduct field sampling of residential, commercial, industrial, and other waste streams, as needed to comply with State regulations, and to account for any differences that may have occurred in these waste streams due to social, demographic, or economic changes in the County.

- Waste haulers servicing accounts in the County will be required to participate in these composition studies, and will be given one month's notice of the County's intent to conduct a composition study.

2.5 Solid Waste Generation Data Projections

As required by Section 18722(c) of the regulations, a 15-year projection was made for the solid waste expected to be disposed and diverted by the unincorporated County. These projections were made based on two scenarios: 1) assumes that no increase in the waste diversion occurs, and 2) assumes that the waste diversion programs outlined in the SR&R Element are implemented and the statutory diversion goals are achieved. The projection was developed based on the following published data:

- Los Angeles County Department of Regional Planning, Research Section, Bulletin No. 156, Parts 1 and 3, January 1, 1990.

- California Department of Finance, Los Angeles County Population and Housing Estimates, January 1, 1990.

- Southern California Association of Governments (SCAG), Small Area Forecasting Data (1987 and 2010 population, housing and employment data and projections).

- Los Angeles County Solid Waste Management Plan, Triennial Review, Volume I: Non-Hazardous Waste, dated March 1984 and Revision A dated August 1985.

These published data were supplemented by County-specific data developed as part of this solid waste generation study:

- Current per capita waste generation rate for residential waste.

- Current per employee waste generation rate for commercial and industrial wastes.

General Assumptions

a. Recent historical trend reflects the total tonnage received in 1990 (Table 2-3) which is increased annually at a rate of 2.5 percent until the year 2000, which accounts for a 1.0 percent increase in population and 1.5 percent increase in per capita waste generation; from the year 2000 until the end of the 15-year planning period the trend increases only according to population growth.

b. Diversion efforts are linearly increased according to State mandates (AB 939) which calls for a maximum rate of 25 percent by 1995 and 50 percent by the year 2000. The initial rate of diversion, based on Table 2-3, is 5.9 percent in the year 1990.

The waste generation projections are presented in Tables 2-22 and 2-23, which are provided at the end of this section.

2.6 Materials Targeted For Diversion

The following categories of materials are currently being disposed and are targeted for potential diversion through the programs identified in Chapters 3 through 6 of this SR&R Element.

Paper
- Corrugated containers
- Mixed paper
- Newspaper
- Ledger
- Other paper

Plastic
- HDPE containers
- PET containers
- Film plastics
- Other plastics

Glass
- CA redemption glass
- Other recyclable glass

Metals
- Aluminum cans
- Ferrous metals
- Nonferrous metals
- White goods

Other Organics
- Food Waste
- Tires and rubber
- Wood
- Diapers
- Textiles and leather
- Other organics

Other Wastes
- Inert solids

2.7 Materials for Disposal

The following category and type of material is currently being disposed but cannot be diverted from disposal by the programs discussed in Chapters 3 through 6:

Glass

- Other nonrecyclable glass

In addition, composite materials that cannot be readily separated into individual components will not be diverted from disposal.

These materials are not targeted for diversion because 1) they are currently nonrecyclable or cannot be reduced through source reduction efforts, 2) the quantity being disposed is very small, or 3) there is currently no market for the material and future markets are uncertain.

MA:lz
mmwp3/comp2

Table 2-22

15 YEAR WASTE GENERATION PROJECTIONS
(ASSUMING CURRENT DIVERSION RATES)

WASTE TYPE	1991				1992				1993			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	81,964	10,442	92,406	11.3%	84,013	10,703	94,716	11.3%	86,113	10,970	97,084	11.3%
Mixed Paper	87,972	3,191	91,162	3.5%	90,171	3,270	93,442	3.5%	92,425	3,352	95,778	3.5%
Newspaper	49,779	10,268	60,047	17.1%	51,023	10,525	61,548	17.1%	52,299	10,788	63,086	17.1%
High Grade Ledger	25,430	5,172	30,601	16.9%	26,065	5,301	31,366	16.9%	26,717	5,433	32,151	16.9%
Computer Printouts	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Paper	75,402	685	76,087	0.9%	77,287	702	77,989	0.9%	79,219	719	79,939	0.9%
SUBTOTAL	320,527	29,776	350,303	8.5%	328,540	30,520	359,081	8.5%	336,754	31,283	368,037	8.5%
PLASTIC												
PVC	7,517	0	7,517	0.0%	7,705	0	7,705	0.0%	7,898	0	7,898	0.0%
PET Container	2,593	171	2,764	6.2%	2,658	176	2,834	6.2%	2,724	180	2,904	6.2%
HDPE Container	11,711	59	11,770	0.5%	12,004	60	12,064	0.5%	12,304	62	12,366	0.5%
Film Plastics	35,733	0	35,733	0.0%	36,626	0	36,626	0.0%	37,541	0	37,541	0.0%
Polystyrene	25,985	0	25,985	0.0%	26,634	0	26,634	0.0%	27,300	0	27,300	0.0%
Other Plastics	7,527	30	7,557	0.4%	7,715	31	7,746	0.4%	7,908	32	7,940	0.4%
SUBTOTAL	91,052	274	91,326	0.3%	93,329	281	93,610	0.3%	95,882	288	95,950	0.3%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	13,730	3,096	16,825	18.4%	14,073	3,173	17,246	18.4%	14,425	3,253	17,677	18.4%
Other Recyclable Glass	23,897	2,306	26,203	8.8%	24,495	2,364	26,858	8.8%	25,107	2,423	27,530	8.8%
Non-recyclable Glass	9,904	0	9,904	0.0%	10,151	0	10,151	0.0%	10,405	0	10,405	0.0%
SUBTOTAL	47,533	5,399	52,932	10.2%	48,721	5,534	54,255	10.2%	49,939	5,672	55,612	10.2%
METALS												
Aluminum Cans	2,801	1,617	4,418	36.6%	2,871	1,657	4,528	36.6%	2,943	1,699	4,641	36.6%
Tin Cans	10,817	0	10,817	0.0%	10,882	0	10,882	0.0%	11,154	0	11,154	0.0%
Ferrous Metals	32,560	597	33,157	1.8%	33,374	612	33,986	1.8%	34,208	627	34,835	1.8%
Non-ferrous Metals	4,240	708	4,948	14.3%	4,346	725	5,071	14.3%	4,455	743	5,198	14.3%
White Goods	742	288	1,030	28.0%	760	296	1,056	28.0%	779	303	1,082	28.0%
Other Metals	14,714	119	14,833	0.8%	15,082	122	15,204	0.8%	15,459	125	15,584	0.8%
SUBTOTAL	65,890	3,312	69,002	4.8%	67,332	3,395	70,727	4.8%	69,015	3,480	72,495	4.8%
YARD WASTE												
Yard Waste	136,787	22,638	159,425	14.2%	140,207	23,204	163,411	14.2%	143,712	23,784	167,496	14.2%
SUBTOTAL	136,787	22,638	159,425	14.2%	140,207	23,204	163,411	14.2%	143,712	23,784	167,496	14.2%
ORGANICS												
Food Waste	133,154	267	133,421	0.2%	136,483	274	136,757	0.2%	139,895	280	140,176	0.2%
Wood Waste	69,854	1,938	71,792	2.7%	71,600	1,987	73,587	2.7%	73,390	2,037	75,426	2.7%
Tires and Rubber	15,430	1,830	17,260	10.6%	15,816	1,875	17,691	10.6%	16,212	1,922	18,134	10.6%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	4,224	0	4,224	0.0%	4,330	0	4,330	0.0%	4,438	0	4,438	0.0%
Diapers	26,920	976	27,896	3.5%	27,593	1,001	28,594	3.5%	28,283	1,026	29,308	3.5%
Textiles and Leather	42,555	43	42,598	0.1%	43,619	44	43,663	0.1%	44,710	45	44,754	0.1%
Other organics	22,871	0	22,871	0.0%	23,443	0	23,443	0.0%	24,029	0	24,029	0.0%
SUBTOTAL	314,941	5,121	320,062	1.6%	322,815	5,249	328,064	1.6%	330,885	5,380	336,266	1.6%
OTHER WASTES												
Inert Solids	83,022	417	83,439	0.5%	85,097	428	85,525	0.5%	87,225	438	87,663	0.5%
Hazardous Waste	9,284	0	9,284	0.0%	9,517	0	9,517	0.0%	9,754	0	9,754	0.0%
SUBTOTAL	92,260	464	92,724	0.5%	94,566	475	95,042	0.5%	96,931	487	97,418	0.5%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	1,068,764	67,011	1,135,775	5.9%	1,095,483	68,686	1,164,169	5.9%	1,122,870	70,403	1,193,273	5.9%

Table 2-22 (Cont'd)

15 YEAR WASTE GENERATION PROJECTIONS
(ASSUMING CURRENT DIVERSION RATES)

WASTE TYPE	1994				1995				1996			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	88,266	11,245	99,511	11.3%	90,473	11,526	101,999	11.3%	92,735	11,814	104,549	11.3%
Mixed Paper	94,736	3,436	98,172	3.5%	97,104	3,522	100,626	3.5%	99,532	3,610	103,142	3.5%
Newspaper	53,806	11,057	64,864	17.1%	54,946	11,334	66,280	17.1%	56,320	11,617	67,937	17.1%
High Grade Ledger	27,385	5,569	32,954	16.9%	28,070	5,709	33,778	16.9%	28,771	5,851	34,623	16.9%
Computer Printouts	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Paper	81,200	737	81,937	0.9%	83,230	756	83,986	0.9%	85,310	775	86,085	0.9%
SUBTOTAL	345,173	32,065	377,238	8.5%	353,802	32,867	386,669	8.5%	362,647	33,669	396,336	8.5%
PLASTIC												
PVC	8,095	0	8,095	0.0%	8,298	0	8,298	0.0%	8,505	0	8,505	0.0%
PET Container	2,792	185	2,977	6.2%	2,862	189	3,051	6.2%	2,934	194	3,128	6.2%
HDPE Container	12,812	63	12,875	0.5%	12,927	65	12,992	0.5%	13,250	67	13,317	0.5%
Film Plastics	38,480	0	38,480	0.0%	39,442	0	39,442	0.0%	40,428	0	40,428	0.0%
Polystyrene	27,983	0	27,983	0.0%	28,682	0	28,682	0.0%	29,399	0	29,399	0.0%
Other Plastics	8,106	33	8,138	0.4%	8,309	33	8,342	0.4%	8,516	34	8,550	0.4%
SUBTOTAL	98,054	295	98,349	0.3%	100,505	302	100,807	0.3%	103,018	310	103,328	0.3%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	14,785	3,334	18,119	18.4%	15,155	3,417	18,572	18.4%	15,534	3,503	19,036	18.4%
Other Recyclable Glass	25,735	2,483	28,218	8.8%	26,378	2,545	28,923	8.8%	27,038	2,609	29,646	8.8%
Non-recyclable Glass	10,865	0	10,865	0.0%	10,932	0	10,932	0.0%	11,205	0	11,205	0.0%
SUBTOTAL	51,188	5,814	57,002	10.2%	52,467	5,960	58,427	10.2%	53,779	6,109	59,888	10.2%
METALS												
Aluminum Cans	3,018	1,741	4,757	36.8%	3,092	1,785	4,876	36.8%	3,169	1,829	4,998	36.8%
Tin Cans	11,433	0	11,433	0.0%	11,719	0	11,719	0.0%	12,012	0	12,012	0.0%
Ferrous Metals	35,063	643	35,706	1.8%	35,940	659	36,599	1.8%	36,839	675	37,514	1.8%
Non-ferrous Metals	4,566	762	5,328	14.3%	4,680	781	5,461	14.3%	4,797	800	5,598	14.3%
White Goods	799	311	1,109	28.0%	819	318	1,137	28.0%	839	326	1,165	28.0%
Other Metals	15,845	128	15,973	0.8%	16,242	131	16,373	0.8%	16,648	134	16,782	0.8%
SUBTOTAL	70,741	3,567	74,308	4.8%	72,509	3,656	76,165	4.8%	74,322	3,747	78,069	4.8%
YARD WASTE												
Yard Waste	147,305	24,379	171,684	14.2%	150,987	24,989	175,976	14.2%	154,762	25,613	180,375	14.2%
SUBTOTAL	147,305	24,379	171,684	14.2%	150,987	24,989	175,976	14.2%	154,762	25,613	180,375	14.2%
ORGANICS												
Food Waste	143,383	287	143,680	0.2%	146,977	295	147,272	0.2%	150,652	302	150,954	0.2%
Wood Waste	75,225	2,087	77,312	2.7%	77,105	2,140	79,245	2.7%	79,033	2,193	81,226	2.7%
Tires and Rubber	16,817	1,970	18,587	10.6%	17,032	2,019	19,052	10.6%	17,458	2,070	19,528	10.6%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	4,549	0	4,549	0.0%	4,663	0	4,663	0.0%	4,779	0	4,779	0.0%
Diapers	28,990	1,051	30,041	3.5%	29,715	1,078	30,792	3.5%	30,458	1,105	31,562	3.5%
Textiles and Leather	45,827	46	45,873	0.1%	46,973	47	47,020	0.1%	48,148	48	48,196	0.1%
Other organics	24,829	0	24,829	0.0%	25,245	0	25,245	0.0%	25,876	0	25,876	0.0%
SUBTOTAL	339,157	5,515	344,672	1.6%	347,636	5,653	353,289	1.6%	356,327	5,794	362,121	1.6%
OTHER WASTES												
Inert Solids	89,406	449	89,855	0.5%	91,641	461	92,101	0.5%	93,932	472	94,404	0.5%
Hazardous Waste	9,998	0	9,998	0.0%	10,248	0	10,248	0.0%	10,505	0	10,505	0.0%
SUBTOTAL	99,354	498	99,853	0.5%	101,838	512	102,349	0.5%	104,384	525	104,908	0.5%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	1,150,942	72,183	1,223,105	5.9%	1,179,716	73,867	1,253,583	5.9%	1,209,208	75,816	1,285,025	5.9%

Table 2-22 (Cont'd)

15 YEAR WASTE GENERATION PROJECTIONS
(ASSUMING CURRENT DIVERSION RATES)

WASTE TYPE	1997				1998				1999			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	95,053	12,109	107,162	11.3%	97,429	12,412	109,841	11.3%	99,885	12,722	112,587	11.3%
Mixed Paper	102,020	3,700	105,721	3.5%	104,571	3,793	108,364	3.5%	107,185	3,888	111,073	3.5%
Newspaper	57,728	11,908	69,636	17.1%	59,171	12,205	71,376	17.1%	60,650	12,511	73,161	17.1%
High Grade Ledger	28,491	5,998	35,488	16.9%	30,228	6,147	36,375	16.9%	30,984	6,301	37,285	16.9%
Computer Printouts	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Paper	87,443	794	88,237	0.9%	89,829	814	90,643	0.9%	91,870	834	92,704	0.9%
SUBTOTAL	371,713	34,531	406,244	8.5%	381,008	35,394	416,400	8.5%	390,531	36,279	426,810	8.5%
PLASTIC												
PVC	8,718	0	8,718	0.0%	8,936	0	8,936	0.0%	9,159	0	9,159	0.0%
PET Container	3,007	199	3,206	6.2%	3,082	204	3,286	6.2%	3,159	209	3,368	6.2%
HDPE Container	13,581	68	13,650	0.5%	13,921	70	13,991	0.5%	14,269	72	14,341	0.5%
Film Plastics	41,439	0	41,439	0.0%	42,475	0	42,475	0.0%	43,537	0	43,537	0.0%
Polystyrene	30,134	0	30,134	0.0%	30,888	0	30,888	0.0%	31,660	0	31,660	0.0%
Other Plastics	8,729	35	8,764	0.4%	8,947	36	8,983	0.4%	9,171	37	9,208	0.4%
SUBTOTAL	105,593	318	105,911	0.3%	108,233	326	108,558	0.3%	110,939	334	111,272	0.3%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	15,922	3,590	19,512	18.4%	16,320	3,680	20,000	18.4%	16,728	3,772	20,500	18.4%
Other Recyclable Glass	27,713	2,674	30,388	8.8%	28,408	2,741	31,147	8.8%	29,116	2,809	31,926	8.8%
Non-recyclable Glass	11,485	0	11,485	0.0%	11,772	0	11,772	0.0%	12,067	0	12,067	0.0%
SUBTOTAL	55,124	6,261	61,385	10.2%	56,502	6,418	62,920	10.2%	57,914	6,578	64,493	10.2%
METALS												
Aluminum Cans	3,248	1,875	5,123	36.8%	3,329	1,922	5,251	36.8%	3,413	1,970	5,383	36.8%
Tin Cans	12,312	0	12,312	0.0%	12,620	0	12,620	0.0%	12,936	0	12,936	0.0%
Ferrous Metals	37,759	692	38,452	1.8%	38,703	709	39,413	1.8%	39,671	727	40,398	1.8%
Non-ferrous Metals	4,917	821	5,738	14.3%	5,040	841	5,881	14.3%	5,166	862	6,028	14.3%
White Goods	860	334	1,195	28.0%	882	343	1,224	28.0%	904	351	1,255	28.0%
Other Metals	17,064	138	17,201	0.8%	17,490	141	17,632	0.8%	17,928	145	18,072	0.8%
SUBTOTAL	76,180	3,841	80,021	4.8%	78,085	3,937	82,022	4.8%	80,037	4,035	84,072	4.8%
YARD WASTE												
Yard Waste	158,631	26,254	184,885	14.2%	162,597	26,910	189,507	14.2%	166,662	27,583	194,244	14.2%
SUBTOTAL	158,631	26,254	184,885	14.2%	162,597	26,910	189,507	14.2%	166,662	27,583	194,244	14.2%
ORGANICS												
Food Waste	154,416	309	154,728	0.2%	158,279	317	158,596	0.2%	162,236	325	162,561	0.2%
Wood Waste	81,009	2,248	83,257	2.7%	83,034	2,304	85,338	2.7%	85,110	2,362	87,472	2.7%
Tires and Rubber	17,895	2,122	20,016	10.8%	18,342	2,175	20,517	10.8%	18,800	2,229	21,030	10.8%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	4,899	0	4,899	0.0%	5,021	0	5,021	0.0%	5,147	0	5,147	0.0%
Diapers	31,219	1,132	32,351	3.5%	31,999	1,161	33,160	3.5%	32,799	1,190	33,989	3.5%
Textiles and Leather	49,351	49	49,401	0.1%	50,585	51	50,636	0.1%	51,850	52	51,901	0.1%
Other organics	26,523	0	26,523	0.0%	27,186	0	27,186	0.0%	27,866	0	27,866	0.0%
SUBTOTAL	365,235	5,939	371,174	1.6%	374,366	6,087	380,454	1.6%	383,728	6,239	389,965	1.6%
OTHER WASTES												
Inert Solids	96,280	484	96,764	0.5%	98,687	496	99,183	0.5%	101,154	508	101,662	0.5%
Hazardous Waste	10,787	0	10,787	0.0%	11,036	0	11,036	0.0%	11,312	0	11,312	0.0%
SUBTOTAL	106,993	538	107,531	0.5%	109,668	551	110,219	0.5%	112,410	565	112,975	0.5%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	1,239,439	77,712	1,317,151	5.9%	1,270,425	79,655	1,350,079	5.9%	1,302,185	81,648	1,383,831	5.9%

Table 2-22 (Cont'd)

15 YEAR WASTE GENERATION PROJECTIONS
(ASSUMING CURRENT DIVERSION RATES)

WASTE TYPE	2000				2001				2002			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	102,362	13,040	115,402	11.3%	103,385	13,171	116,556	11.3%	104,419	13,303	117,722	11.3%
Mixed Paper	109,865	3,985	113,849	3.5%	110,963	4,025	114,988	3.5%	112,073	4,065	116,138	3.5%
Newspaper	62,167	12,823	74,990	17.1%	62,788	12,952	75,740	17.1%	63,416	13,081	76,497	17.1%
High Grade Ledger	31,758	6,459	38,217	16.9%	32,076	6,523	38,599	16.9%	32,397	6,588	38,985	16.9%
Computer Printouts	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Paper	94,187	855	95,022	0.9%	95,108	864	95,972	0.9%	98,060	872	98,932	0.9%
SUBTOTAL	400,295	37,186	437,480	8.5%	404,298	37,558	441,855	8.5%	408,340	37,933	446,274	8.5%
PLASTIC												
PVC	9,388	0	9,388	0.0%	9,482	0	9,482	0.0%	9,577	0	9,577	0.0%
PET Container	3,238	214	3,452	6.2%	3,271	216	3,487	6.2%	3,303	218	3,522	6.2%
HDPE Container	14,826	73	14,899	0.5%	14,772	74	14,846	0.5%	14,920	75	14,995	0.5%
Film Plastics	44,825	0	44,825	0.0%	45,071	0	45,071	0.0%	45,522	0	45,522	0.0%
Polystyrene	32,451	0	32,451	0.0%	32,776	0	32,776	0.0%	33,104	0	33,104	0.0%
Other Plastics	9,400	38	9,438	0.4%	9,494	38	9,532	0.4%	9,589	39	9,628	0.4%
SUBTOTAL	113,712	342	114,054	0.3%	114,849	346	115,195	0.3%	115,998	349	116,347	0.3%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	17,146	3,866	21,013	18.4%	17,318	3,905	21,223	18.4%	17,491	3,944	21,435	18.4%
Other Recyclable Glass	29,844	2,880	32,724	8.8%	30,143	2,908	33,051	8.8%	30,444	2,938	33,382	8.8%
Non-recyclable Glass	12,368	0	12,368	0.0%	12,492	0	12,492	0.0%	12,617	0	12,617	0.0%
SUBTOTAL	59,362	6,743	66,105	10.2%	59,956	6,810	66,766	10.2%	60,555	6,878	67,434	10.2%
METALS												
Aluminum Cans	3,498	2,019	5,517	36.6%	3,533	2,039	5,572	36.6%	3,568	2,060	5,628	36.6%
Tin Cans	13,259	0	13,259	0.0%	13,392	0	13,392	0.0%	13,526	0	13,526	0.0%
Ferrous Metals	40,663	745	41,408	1.8%	41,069	753	41,822	1.8%	41,480	760	42,240	1.8%
Non-ferrous Metals	5,295	884	6,179	14.3%	5,348	892	6,241	14.3%	5,402	901	6,303	14.3%
White Goods	926	360	1,286	28.0%	936	364	1,299	28.0%	945	367	1,312	28.0%
Other Metals	18,376	148	18,524	0.8%	18,560	150	18,709	0.8%	18,745	151	18,896	0.8%
SUBTOTAL	82,038	4,136	86,174	4.8%	82,858	4,178	87,036	4.8%	83,887	4,219	87,906	4.8%
YARD WASTE												
Yard Waste	170,828	28,272	199,101	14.2%	172,537	28,555	201,092	14.2%	174,282	28,841	203,102	14.2%
SUBTOTAL	170,828	28,272	199,101	14.2%	172,537	28,555	201,092	14.2%	174,282	28,841	203,102	14.2%
ORGANICS												
Food Waste	166,292	333	166,625	0.2%	167,954	337	168,291	0.2%	169,634	340	169,974	0.2%
Wood Waste	87,238	2,421	89,658	2.7%	88,110	2,445	90,555	2.7%	88,991	2,469	91,461	2.7%
Tires and Rubber	19,270	2,285	21,555	10.8%	19,463	2,308	21,771	10.8%	19,658	2,331	21,989	10.8%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	5,275	0	5,275	0.0%	5,328	0	5,328	0.0%	5,381	0	5,381	0.0%
Diapers	33,819	1,219	34,839	3.5%	33,956	1,232	35,187	3.5%	34,295	1,244	35,539	3.5%
Textiles and Leather	53,146	53	53,199	0.1%	53,677	54	53,731	0.1%	54,214	54	54,268	0.1%
Other organics	28,563	0	28,563	0.0%	28,848	0	28,848	0.0%	29,137	0	29,137	0.0%
SUBTOTAL	393,319	6,395	399,714	1.6%	397,252	6,459	403,711	1.6%	401,224	6,524	407,748	1.6%
OTHER WASTES												
Inert Solids	103,683	521	104,204	0.5%	104,720	526	105,246	0.5%	105,767	531	106,299	0.5%
Hazardous Waste	11,595	0	11,595	0.0%	11,711	0	11,711	0.0%	11,828	0	11,828	0.0%
SUBTOTAL	115,220	579	115,799	0.5%	116,372	585	116,957	0.5%	117,536	591	118,127	0.5%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	1,334,740	83,887	1,418,427	5.9%	1,348,087	84,524	1,432,611	5.9%	1,361,568	85,369	1,446,938	5.9%

Table 2-22 (Cont'd)

15 YEAR WASTE GENERATION PROJECTIONS
(ASSUMING CURRENT DIVERSION RATES)

WASTE TYPE	2003				2004				2005			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	105,463	13,436	118,899	11.3%	106,518	13,570	120,088	11.3%	107,583	13,706	121,289	11.3%
Mixed Paper	113,194	4,105	117,299	3.5%	114,326	4,147	118,472	3.5%	115,469	4,188	119,657	3.5%
Newspaper	64,050	13,212	77,262	17.1%	64,691	13,344	78,035	17.1%	65,338	13,477	78,815	17.1%
High Grade Ledger	32,721	6,654	39,375	16.9%	33,048	6,721	39,769	16.9%	33,378	6,788	40,166	16.9%
Computer Printouts	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Paper	97,020	881	97,901	0.9%	97,990	890	98,880	0.9%	98,970	899	99,869	0.9%
SUBTOTAL	412,424	38,313	450,737	8.5%	416,548	38,696	455,244	8.5%	420,714	39,083	459,796	8.5%
PLASTIC												
PVC	9,673	0	9,673	0.0%	9,769	0	9,769	0.0%	9,867	0	9,867	0.0%
PET Container	3,336	221	3,557	6.2%	3,370	223	3,593	6.2%	3,404	225	3,628	6.2%
HDPE Container	15,069	76	15,145	0.5%	15,220	76	15,296	0.5%	15,372	77	15,449	0.5%
Film Plastics	45,977	0	45,977	0.0%	46,437	0	46,437	0.0%	46,901	0	46,901	0.0%
Polystyrene	33,435	0	33,435	0.0%	33,769	0	33,769	0.0%	34,107	0	34,107	0.0%
Other Plastics	9,685	39	9,724	0.4%	9,782	39	9,821	0.4%	9,880	40	9,919	0.4%
SUBTOTAL	117,158	353	117,510	0.3%	118,329	356	118,685	0.3%	119,513	360	119,872	0.3%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	17,866	3,983	21,849	18.4%	17,842	4,023	21,866	18.4%	18,021	4,064	22,084	18.4%
Other Recyclable Glass	30,749	2,967	33,716	8.8%	31,056	2,997	34,053	8.8%	31,367	3,027	34,393	8.8%
Non-recyclable Glass	12,743	0	12,743	0.0%	12,870	0	12,870	0.0%	12,999	0	12,999	0.0%
SUBTOTAL	61,161	6,947	68,108	10.2%	61,772	7,016	68,789	10.2%	62,390	7,087	69,477	10.2%
METALS												
Aluminum Cans	3,804	2,080	5,884	36.8%	3,840	2,101	5,741	36.8%	3,876	2,122	5,799	36.8%
Tin Cans	13,861	0	13,861	0.0%	13,797	0	13,797	0.0%	13,935	0	13,935	0.0%
Ferrous Metals	41,895	768	42,663	1.8%	42,314	776	43,090	1.8%	42,737	783	43,520	1.8%
Non-ferrous Metals	5,456	910	6,366	14.3%	5,510	919	6,430	14.3%	5,565	929	6,494	14.3%
White Goods	954	371	1,325	28.0%	964	375	1,339	28.0%	974	379	1,352	28.0%
Other Metals	18,933	153	19,085	0.8%	19,122	154	19,276	0.8%	19,313	156	19,469	0.8%
SUBTOTAL	84,523	4,262	88,785	4.8%	85,369	4,304	89,673	4.8%	86,222	4,347	90,570	4.8%
YARD WASTE												
Yard Waste	176,005	29,129	205,133	14.2%	177,765	29,420	207,185	14.2%	179,542	29,714	209,257	14.2%
SUBTOTAL	176,005	29,129	205,133	14.2%	177,765	29,420	207,185	14.2%	179,542	29,714	209,257	14.2%
ORGANICS												
Food Waste	171,330	343	171,674	0.2%	173,044	347	173,390	0.2%	174,774	350	175,124	0.2%
Wood Waste	89,881	2,494	92,375	2.7%	90,760	2,519	93,299	2.7%	91,668	2,544	94,232	2.7%
Tires and Rubber	19,854	2,354	22,208	10.8%	20,053	2,378	22,431	10.8%	20,253	2,401	22,655	10.8%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	5,435	0	5,435	0.0%	5,489	0	5,489	0.0%	5,544	0	5,544	0.0%
Diapers	34,838	1,258	35,894	3.5%	34,985	1,269	36,253	3.5%	35,334	1,282	36,616	3.5%
Textiles and Leather	54,756	55	54,811	0.1%	55,304	55	55,359	0.1%	55,857	56	55,913	0.1%
Other organics	29,428	0	29,428	0.0%	29,722	0	29,722	0.0%	30,020	0	30,020	0.0%
SUBTOTAL	405,237	6,589	411,826	1.6%	409,289	6,855	415,944	1.6%	413,382	6,722	420,104	1.6%
OTHER WASTES												
Inert Solids	106,825	537	107,361	0.5%	107,893	542	108,435	0.5%	108,972	548	109,519	0.5%
Hazardous Waste	11,946	0	11,946	0.0%	12,066	0	12,066	0.0%	12,186	0	12,186	0.0%
SUBTOTAL	118,711	597	119,308	0.5%	119,898	603	120,501	0.5%	121,097	609	121,706	0.5%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	1,375,184	86,223	1,461,407	5.9%	1,388,936	87,085	1,476,021	5.9%	1,402,825	87,956	1,490,781	5.9%

Table 2-23

15 - YEAR WASTE GENERATION PROJECTIONS
(Assuming AB-939 Diversion Rates)

WASTE TYPE	1991				1992				1993			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	77,298	15,107	92,406	16.3%	71,848	22,867	94,716	24.1%	65,832	31,252	97,084	32.2%
Mixed Paper	85,324	5,838	91,162	6.4%	84,604	8,837	93,442	9.5%	83,700	12,077	95,778	12.6%
Newspaper	47,015	13,031	60,047	21.7%	41,823	19,725	61,548	32.0%	37,733	25,353	63,086	40.2%
High Grade Ledger	23,119	7,482	30,601	24.5%	20,041	11,326	31,368	36.1%	17,593	14,557	32,151	45.3%
Other Paper	73,581	2,506	76,087	3.3%	74,196	3,793	77,989	4.9%	74,755	5,184	79,939	6.5%
SUBTOTAL	306,338	43,965	350,303	12.6%	292,512	66,549	359,061	18.5%	279,613	88,424	368,037	24.0%
PLASTIC												
PVC	7,517	0	7,517	0.0%	7,705	0	7,705	0.0%	7,898	0	7,898	0.0%
PET Container	2,451	314	2,764	11.3%	2,359	475	2,834	16.8%	2,256	649	2,904	22.3%
HDPE Container	11,144	626	11,770	5.3%	10,199	1,865	12,064	15.5%	9,816	2,549	12,366	20.6%
Film Plastics	35,079	654	35,733	1.8%	35,636	990	36,626	2.7%	36,189	1,353	37,541	3.6%
Polystyrene	25,272	713	25,985	2.7%	25,555	1,080	26,634	4.1%	25,825	1,475	27,300	5.4%
Other Plastics	7,502	55	7,557	0.7%	7,663	84	7,748	1.1%	7,825	114	7,940	1.4%
SUBTOTAL	88,964	2,362	91,326	2.6%	89,117	4,493	93,610	4.8%	89,809	6,141	95,950	6.4%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	11,161	5,665	16,825	33.7%	8,671	8,575	17,248	49.7%	5,959	11,719	17,677	66.3%
Other Recyclable Glass	21,984	4,219	26,203	16.1%	20,472	6,387	26,858	23.8%	18,801	8,728	27,530	31.7%
Non-recyclable Glass	9,904	0	9,904	0.0%	10,151	0	10,151	0.0%	10,405	0	10,405	0.0%
SUBTOTAL	43,048	9,884	52,932	18.7%	39,294	14,961	54,255	27.6%	35,165	20,447	55,612	36.8%
METALS												
Aluminum Cans	2,078	2,339	4,418	53.0%	1,545	2,983	4,528	65.9%	584	4,077	4,641	87.8%
Tin Cans	9,646	971	10,617	9.1%	9,412	1,470	10,882	13.5%	9,145	2,009	11,154	18.0%
Ferrous Metals	28,910	4,247	33,157	12.8%	27,557	6,428	33,986	18.9%	26,050	8,785	34,835	25.2%
Non-ferrous Metals	3,824	1,024	4,848	20.7%	3,522	1,549	5,071	30.6%	3,081	2,118	5,198	40.7%
White Goods	653	377	1,030	36.6%	485	571	1,056	54.0%	302	780	1,082	72.1%
Other Metals	14,616	217	14,833	1.5%	14,875	329	15,204	2.2%	15,135	449	15,584	2.9%
SUBTOTAL	59,827	9,175	69,002	13.3%	57,396	13,331	70,727	18.8%	54,277	18,219	72,495	25.1%
YARD WASTE												
Yard Waste	118,023	41,403	159,425	26.0%	100,741	62,670	163,411	38.4%	81,848	85,649	167,496	51.1%
SUBTOTAL	118,023	41,403	159,425	26.0%	100,741	62,670	163,411	38.4%	81,848	85,649	167,496	51.1%
ORGANICS												
Food Waste	132,933	488	133,421	0.4%	136,018	739	136,757	0.5%	139,166	1,010	140,176	0.7%
Wood Waste	68,121	3,671	71,792	5.1%	64,837	8,750	73,587	11.9%	63,469	11,958	75,426	15.9%
Tires and Rubber	13,912	3,348	17,260	19.4%	12,624	5,067	17,691	28.6%	11,208	6,925	18,134	38.2%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	4,224	0	4,224	0.0%	4,330	0	4,330	0.0%	4,438	0	4,438	0.0%
Diapers	26,978	919	27,896	3.3%	27,203	1,391	28,594	4.9%	27,408	1,901	29,309	6.5%
Textiles and Leather	42,442	156	42,598	0.4%	43,427	236	43,663	0.5%	44,432	322	44,754	0.7%
Other organics	22,871	0	22,871	0.0%	23,443	0	23,443	0.0%	24,029	0	24,029	0.0%
SUBTOTAL	311,481	8,581	320,062	2.7%	311,881	16,183	328,064	4.9%	314,149	22,116	336,266	6.6%
OTHER WASTES												
Inert Solids	78,859	4,580	83,439	5.5%	78,592	6,933	85,525	8.1%	78,188	9,475	87,663	10.8%
Hazardous Waste	9,284	0	9,284	0.0%	9,517	0	9,517	0.0%	9,754	0	9,754	0.0%
SUBTOTAL	88,143	4,580	92,724	4.9%	88,109	6,933	95,042	7.3%	87,943	9,475	97,418	9.7%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	1,015,824	119,951	1,135,775	10.6%	979,050	185,119	1,164,169	15.9%	942,603	250,470	1,193,273	21.0%

Table 2-23 (Cont'd)

15 - YEAR WASTE GENERATION PROJECTIONS
(Assuming AB-939 Diversion Rates)

WASTE TYPE	1994				1995				1998			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	59,660	39,851	99,511	40.0%	53,138	48,861	101,999	47.9%	44,450	60,099	104,549	57.5%
Mixed Paper	82,771	15,401	98,172	15.7%	81,744	18,882	100,626	18.8%	79,917	23,225	103,142	22.5%
Newspaper	35,428	29,235	64,664	45.2%	30,436	35,845	66,280	54.1%	27,522	40,415	67,937	59.5%
High Grade Ledger	16,168	16,786	32,954	50.9%	13,197	20,581	33,778	60.9%	11,417	23,205	34,623	67.0%
Other Paper	75,327	6,611	81,937	8.1%	75,881	8,105	83,986	9.7%	76,116	9,969	86,085	11.6%
SUBTOTAL	269,354	107,884	377,238	28.6%	254,395	132,274	386,669	34.2%	239,423	156,913	396,336	39.6%
PLASTIC												
PVC	8,095	0	8,095	0.0%	8,298	0	8,298	0.0%	8,505	0	8,505	0.0%
PET Container	2,150	827	2,977	27.8%	2,037	1,014	3,051	33.2%	1,880	1,248	3,128	39.9%
HDPE Container	9,424	3,251	12,675	25.6%	9,008	3,986	12,992	30.7%	8,414	4,903	13,317	36.8%
Film Plastics	36,755	1,725	38,480	4.5%	35,268	4,176	39,442	5.4%	37,827	2,601	40,428	6.4%
Polystyrene	26,101	1,881	27,983	6.7%	25,667	3,015	28,682	8.0%	26,562	2,837	29,399	9.7%
Other Plastics	7,983	146	8,138	1.8%	7,984	358	8,342	4.3%	8,110	440	8,550	5.1%
SUBTOTAL	90,518	7,830	98,349	8.0%	88,258	12,549	100,807	12.4%	91,299	12,029	103,328	11.6%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	3,178	14,943	18,119	82.5%	3,258	15,317	18,572	82.5%	3,337	15,699	19,036	82.5%
Other Recyclable Glass	17,088	11,130	28,218	39.4%	15,277	13,646	28,923	47.2%	12,862	16,785	29,646	56.6%
Non-recyclable Glass	10,665	0	10,665	0.0%	10,932	0	10,932	0.0%	11,205	0	11,205	0.0%
SUBTOTAL	30,929	26,073	57,002	45.7%	29,465	28,963	58,427	49.6%	27,404	32,484	59,888	54.2%
METALS												
Aluminum Cans	578	4,179	4,757	87.8%	593	4,284	4,878	87.8%	608	4,391	4,998	87.8%
Tin Cans	8,871	2,562	11,433	22.4%	8,578	3,142	11,719	26.8%	8,148	3,864	12,012	32.2%
Ferrous Metals	24,503	11,203	35,706	31.4%	22,863	13,735	36,599	37.5%	20,619	16,894	37,514	45.0%
Non-ferrous Metals	2,628	2,700	5,328	50.7%	2,694	2,768	5,461	50.7%	2,761	2,837	5,598	50.7%
White Goods	310	799	1,109	72.1%	318	819	1,137	72.1%	326	840	1,165	72.1%
Other Metals	15,401	573	15,973	3.6%	15,670	702	16,373	4.3%	15,918	864	16,782	5.1%
SUBTOTAL	52,291	22,016	74,308	29.6%	50,715	25,450	76,165	33.4%	48,380	29,690	78,069	38.0%
YARD WASTE												
Yard Waste	62,469	109,215	171,684	63.6%	42,070	133,906	175,976	76.1%	43,121	137,254	180,375	76.1%
SUBTOTAL	62,469	109,215	171,684	63.6%	42,070	133,906	175,976	76.1%	43,121	137,254	180,375	76.1%
ORGANICS												
Food Waste	142,392	1,288	143,680	0.9%	145,693	1,579	147,272	1.1%	149,011	1,942	150,954	1.3%
Wood Waste	62,064	15,248	77,312	19.7%	56,811	22,434	79,245	28.3%	53,632	27,594	81,226	34.0%
Tires and Rubber	9,756	8,831	18,587	47.5%	8,225	10,827	19,052	56.8%	6,211	13,317	19,528	68.2%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	4,549	0	4,549	0.0%	4,663	0	4,663	0.0%	4,779	0	4,779	0.0%
Diapers	27,618	2,424	30,041	8.1%	27,226	3,586	30,782	11.6%	27,907	3,655	31,562	11.6%
Textiles and Leather	45,482	411	45,873	0.9%	46,516	504	47,020	1.1%	47,576	620	48,196	1.3%
Other organics	24,629	0	24,629	0.0%	25,245	0	25,245	0.0%	25,876	0	25,876	0.0%
SUBTOTAL	316,471	28,202	344,672	8.2%	314,378	38,911	353,289	11.0%	314,992	47,129	362,121	13.0%
OTHER WASTES												
Inert Solids	75,402	14,452	89,855	16.1%	70,838	21,264	92,101	23.1%	68,249	26,154	94,404	27.7%
Hazardous Waste	9,998	0	9,998	0.0%	9,223	1,025	10,248	10.0%	9,244	1,261	10,505	12.0%
SUBTOTAL	85,401	14,452	99,853	14.5%	80,061	22,288	102,349	21.8%	77,493	27,415	104,908	26.1%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	907,433	315,672	1,223,105	25.8%	858,343	394,340	1,253,683	31.5%	842,111	442,913	1,285,025	34.5%

Table 2-23 (Cont'd)

15 - YEAR WASTE GENERATION PROJECTIONS
(Assuming AB-939 Diversion Rates)

WASTE TYPE	1997				1998				1999			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	35,295	71,868	107,162	67.1%	25,653	84,188	109,841	76.6%	26,295	86,293	112,587	76.6%
Mixed Paper	52,860	52,860	105,721	50.0%	46,442	61,922	108,364	57.1%	39,669	71,404	111,073	64.3%
Newspaper	21,306	48,329	69,636	69.4%	21,839	49,538	71,376	69.4%	22,385	50,776	73,161	69.4%
High Grade Ledger	7,738	27,750	35,488	78.2%	7,932	28,444	36,375	78.2%	8,130	29,155	37,285	78.2%
Other Paper	76,316	11,921	88,237	13.5%	76,476	13,965	90,443	15.4%	76,601	16,104	92,704	17.4%
SUBTOTAL	193,515	212,729	406,244	52.4%	178,344	238,058	416,400	57.2%	173,079	253,731	426,810	59.4%
PLASTIC												
PVC	8,718	0	8,718	0.0%	8,936	0	8,936	0.0%	9,159	0	9,159	0.0%
PET Container	1,714	1,492	3,206	46.5%	1,538	1,748	3,286	53.2%	1,353	2,015	3,368	59.8%
HDPE Container	7,787	5,863	13,650	43.0%	7,123	6,868	13,991	49.1%	6,421	7,919	14,341	55.2%
Film Plastics	38,328	3,110	41,439	7.5%	38,831	3,644	42,475	8.6%	39,335	4,201	43,537	9.7%
Polystyrene	26,742	3,393	30,134	11.3%	26,913	3,974	30,888	12.9%	27,077	4,583	31,660	14.5%
Other Plastics	8,238	526	8,764	6.0%	8,367	616	8,983	6.9%	8,497	711	9,208	7.7%
SUBTOTAL	91,527	14,384	105,911	13.6%	91,709	16,850	108,558	15.5%	91,842	19,430	111,272	17.5%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	3,420	16,092	19,512	82.5%	3,508	18,494	20,000	82.5%	3,594	16,907	20,500	82.5%
Other Recyclable Glass	10,316	20,072	30,388	66.1%	7,635	23,512	31,147	75.5%	4,813	27,113	31,926	84.9%
Non-recyclable Glass	11,485	0	11,485	0.0%	11,772	0	11,772	0.0%	12,067	0	12,067	0.0%
SUBTOTAL	25,221	36,163	61,385	58.9%	22,913	40,007	62,920	63.6%	20,473	44,019	64,493	68.3%
METALS												
Aluminum Cans	623	4,500	5,123	87.8%	638	4,613	5,251	87.8%	654	4,728	5,383	87.8%
Tin Cans	7,692	4,621	12,312	37.5%	7,207	5,413	12,620	42.9%	6,694	6,242	12,936	48.3%
Ferrous Metals	18,249	20,203	38,452	52.5%	18,705	20,708	39,413	52.5%	19,172	21,226	40,398	52.5%
Non-ferrous Metals	2,830	2,908	5,738	50.7%	2,901	2,981	5,881	50.7%	2,973	3,055	6,028	50.7%
White Goods	190	1,004	1,195	84.1%	195	1,029	1,224	84.1%	200	1,055	1,255	84.1%
Other Metals	16,169	1,033	17,201	6.0%	16,422	1,210	17,632	6.9%	16,677	1,395	18,072	7.7%
SUBTOTAL	45,752	34,269	80,021	42.8%	46,068	35,954	82,022	43.8%	46,371	37,701	84,072	44.8%
YARD WASTE												
Yard Waste	20,751	164,133	184,885	88.8%	21,270	168,237	189,507	88.8%	15,656	178,588	194,244	91.9%
SUBTOTAL	20,751	164,133	184,885	88.8%	21,270	168,237	189,507	88.8%	15,656	178,588	194,244	91.9%
ORGANICS												
Food Waste	152,405	2,323	154,728	1.5%	155,875	2,721	158,596	1.7%	159,423	3,138	162,561	1.9%
Wood Waste	50,259	32,998	83,257	39.6%	46,684	38,855	85,338	45.3%	42,898	44,574	87,472	51.0%
Tires and Rubber	6,388	13,650	20,016	68.2%	6,525	13,992	20,517	68.2%	6,688	14,341	21,030	68.2%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	3,674	1,225	4,899	25.0%	3,588	1,435	5,021	28.6%	3,492	1,654	5,147	32.1%
Diapers	28,605	3,746	32,351	11.6%	29,320	3,840	33,160	11.6%	30,053	3,936	33,988	11.6%
Textiles and Leather	48,659	742	49,401	1.5%	49,767	869	50,636	1.7%	50,900	1,002	51,901	1.9%
Other organics	26,523	0	26,523	0.0%	27,188	0	27,188	0.0%	27,866	0	27,866	0.0%
SUBTOTAL	316,491	54,684	371,174	14.7%	318,943	61,511	380,454	16.2%	321,320	68,645	389,965	17.6%
OTHER WASTES												
Inert Solids	65,488	31,276	96,764	32.3%	61,782	37,401	99,183	37.7%	33,040	68,622	101,662	67.5%
Hazardous Waste	9,260	1,507	10,767	14.0%	9,270	1,768	11,038	16.0%	9,276	2,036	11,312	18.0%
SUBTOTAL	74,747	32,783	107,531	30.5%	71,052	39,167	110,219	35.5%	42,316	70,658	112,975	62.5%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	768,005	548,148	1,317,151	41.7%	750,298	599,781	1,350,079	44.4%	711,058	672,773	1,383,831	48.6%

Table 2-23 (Cont'd)

15 - YEAR WASTE GENERATION PROJECTIONS
(Assuming AB-939 Diversion Rates)

WASTE TYPE	2000				2001				2002			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	26,952	88,450	115,402	76.6%	27,222	89,335	116,556	76.6%	27,494	90,228	117,722	76.6%
Mixed Paper	32,528	81,321	113,849	71.4%	32,854	82,134	114,988	71.4%	33,182	82,956	116,138	71.4%
Newspaper	22,944	52,045	74,990	69.4%	23,174	52,566	75,740	69.4%	23,406	53,092	76,497	69.4%
High Grade Ledger	8,333	29,883	38,217	78.2%	8,417	30,182	38,599	78.2%	8,501	30,484	38,985	78.2%
Other Paper	76,682	18,340	95,022	19.3%	77,449	18,524	95,972	19.3%	78,223	18,709	96,932	19.3%
SUBTOTAL	167,440	270,040	437,480	61.7%	169,115	272,741	441,855	61.7%	170,806	275,468	446,274	61.7%
PLASTIC												
PVC	9,388	0	9,388	0.0%	9,482	0	9,482	0.0%	9,577	0	9,577	0.0%
PET Container	1,157	2,295	3,452	66.5%	1,169	2,318	3,487	66.5%	1,180	2,341	3,522	66.5%
HDPE Container	5,880	9,019	14,899	61.4%	5,737	9,110	14,846	61.4%	5,794	9,201	14,995	61.4%
Film Plastics	39,840	4,785	44,625	10.7%	40,238	4,833	45,071	10.7%	40,641	4,881	45,522	10.7%
Polystyrene	27,232	5,220	32,451	16.1%	27,504	5,272	32,776	16.1%	27,779	5,324	33,104	16.1%
Other Plastics	8,628	810	9,438	8.6%	8,715	818	9,532	8.6%	8,802	826	9,628	8.6%
SUBTOTAL	91,926	22,129	114,054	19.4%	92,845	22,350	115,195	19.4%	93,773	22,574	116,347	19.4%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	3,683	17,329	21,013	82.5%	3,720	17,503	21,223	82.5%	3,757	17,678	21,435	82.5%
Other Recyclable Glass	4,933	27,791	32,724	84.9%	4,983	28,069	33,051	84.9%	5,033	28,349	33,382	84.9%
Non-recyclable Glass	12,368	0	12,368	0.0%	12,492	0	12,492	0.0%	12,617	0	12,617	0.0%
SUBTOTAL	20,985	45,120	66,105	68.3%	21,195	45,571	66,766	68.3%	21,407	46,027	67,434	68.3%
METALS												
Aluminum Cans	671	4,847	5,517	87.8%	677	4,895	5,572	87.8%	684	4,944	5,628	87.8%
Tin Cans	6,150	7,109	13,259	53.6%	6,212	7,180	13,392	53.6%	6,274	7,252	13,526	53.6%
Ferrous Metals	19,652	21,756	41,408	52.5%	19,848	21,974	41,822	52.5%	20,047	22,184	42,240	52.5%
Non-ferrous Metals	3,048	3,131	6,179	50.7%	3,078	3,163	6,241	50.7%	3,109	3,194	6,303	50.7%
White Goods	205	1,081	1,286	84.1%	207	1,092	1,299	84.1%	209	1,103	1,312	84.1%
Other Metals	12,168	6,356	18,524	34.3%	12,290	6,420	18,709	34.3%	12,413	6,484	18,896	34.3%
SUBTOTAL	41,893	44,281	86,174	51.4%	42,312	44,724	87,036	51.4%	42,735	45,171	87,906	51.4%
YARD WASTE												
Yard Waste	16,048	183,053	199,101	91.9%	16,208	184,884	201,092	91.9%	16,370	186,732	203,102	91.9%
SUBTOTAL	16,048	183,053	199,101	91.9%	16,208	184,884	201,092	91.9%	16,370	186,732	203,102	91.9%
ORGANICS												
Food Waste	163,051	3,573	166,625	2.1%	164,682	3,609	168,291	2.1%	166,329	3,645	169,974	2.1%
Wood Waste	38,884	50,764	89,658	56.6%	39,283	51,272	90,555	56.6%	39,676	51,785	91,461	56.6%
Tires and Rubber	6,855	14,700	21,555	68.2%	6,924	14,847	21,771	68.2%	6,993	14,995	21,989	68.2%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	1,507	3,768	5,275	71.4%	1,522	3,808	5,328	71.4%	1,538	3,844	5,381	71.4%
Diapers	30,358	4,483	34,839	12.9%	30,660	4,528	35,187	12.9%	30,966	4,573	35,539	12.9%
Textiles and Leather	52,058	1,141	53,199	2.1%	52,579	1,152	53,731	2.1%	53,105	1,164	54,268	2.1%
Other organics	28,563	0	28,563	0.0%	28,848	0	28,848	0.0%	29,137	0	29,137	0.0%
SUBTOTAL	321,285	78,429	399,714	19.6%	324,497	79,214	403,711	19.6%	327,742	80,006	407,748	19.6%
OTHER WASTES												
Inert Solids	18,238	85,988	104,204	82.5%	18,418	86,828	105,246	82.5%	18,602	87,696	106,299	82.5%
Hazardous Waste	4,638	6,957	11,595	60.0%	4,684	7,027	11,711	60.0%	4,731	7,097	11,828	60.0%
SUBTOTAL	22,874	92,925	115,799	80.2%	23,102	93,855	116,957	80.2%	23,333	94,793	118,127	80.2%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	682,450	735,977	1,418,427	51.9%	689,274	743,337	1,432,611	51.9%	696,167	750,770	1,446,938	51.9%

Table 2-23 (Cont'd)

15 - YEAR WASTE GENERATION PROJECTIONS
(Assuming AB-939 Diversion Rates)

WASTE TYPE	2003				2004				2005			
	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion	Disposal	Diversion	Generation	Percent Diversion
PAPER												
Corrugated Containers	27,769	91,130	118,899	76.6%	28,048	92,042	120,088	76.6%	28,327	92,962	121,289	76.6%
Mixed Paper	33,514	83,785	117,299	71.4%	33,849	84,623	118,472	71.4%	34,188	85,469	119,657	71.4%
Newspaper	23,640	53,622	77,262	69.4%	23,876	54,159	78,035	69.4%	24,115	54,700	78,815	69.4%
High Grade Ledger	8,588	30,789	39,375	78.2%	8,672	31,097	39,769	78.2%	8,759	31,408	40,168	78.2%
Other Paper	79,005	18,898	97,901	19.3%	79,795	19,085	98,880	19.3%	80,583	19,276	99,859	19.3%
SUBTOTAL	172,514	278,223	450,737	61.7%	174,239	281,005	455,244	61.7%	175,981	283,815	459,796	61.7%
PLASTIC												
PVC	9,873	0	9,873	0.0%	9,769	0	9,769	0.0%	9,867	0	9,867	0.0%
PET Container	1,192	2,365	3,557	66.5%	1,204	2,388	3,593	66.5%	1,216	2,412	3,628	66.5%
HDPE Container	5,852	9,293	15,145	61.4%	5,910	9,388	15,298	61.4%	5,970	9,479	15,449	61.4%
Film Plastics	41,047	4,930	45,977	10.7%	41,458	4,979	46,437	10.7%	41,872	5,029	46,901	10.7%
Polystyrene	28,057	5,378	33,435	16.1%	28,338	5,431	33,769	16.1%	28,621	5,486	34,107	16.1%
Other Plastics	8,890	834	9,724	8.6%	8,979	842	9,821	8.6%	9,069	851	9,919	8.6%
SUBTOTAL	94,711	22,799	117,510	19.4%	95,658	23,027	118,685	19.4%	96,615	23,258	119,872	19.4%
GLASS												
Refillable Glass	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
CA Redemption Glass	3,795	17,854	21,649	82.5%	3,833	18,033	21,866	82.5%	3,871	18,213	22,084	82.5%
Other Recyclable Glass	5,083	28,633	33,716	84.9%	5,134	28,919	34,053	84.9%	5,185	29,208	34,393	84.9%
Non-recyclable Glass	12,743	0	12,743	0.0%	12,870	0	12,870	0.0%	12,999	0	12,998	0.0%
SUBTOTAL	21,621	46,487	68,108	68.3%	21,837	46,952	68,789	68.3%	22,055	47,421	69,477	68.3%
METALS												
Aluminum Cans	691	4,993	5,684	87.8%	698	5,043	5,741	87.8%	705	5,094	5,799	87.8%
Tin Cans	6,337	7,324	13,661	53.6%	6,400	7,397	13,797	53.6%	6,464	7,471	13,935	53.6%
Ferrous Metals	20,247	22,416	42,663	52.5%	20,450	22,640	43,090	52.5%	20,654	22,866	43,520	52.5%
Non-ferrous Metals	3,140	3,228	6,368	50.7%	3,171	3,259	6,430	50.7%	3,203	3,291	6,494	50.7%
White Goods	211	1,114	1,325	84.1%	213	1,125	1,339	84.1%	215	1,137	1,352	84.1%
Other Metals	12,537	6,549	19,085	34.3%	12,662	6,814	19,276	34.3%	12,789	6,680	19,469	34.3%
SUBTOTAL	43,163	45,622	88,785	51.4%	43,594	46,079	89,673	51.4%	44,030	46,539	90,570	51.4%
YARD WASTE												
Yard Waste	16,534	188,600	205,133	91.9%	16,699	190,486	207,185	91.9%	16,866	192,391	209,257	91.9%
SUBTOTAL	16,534	188,600	205,133	91.9%	16,699	190,486	207,185	91.9%	16,866	192,391	209,257	91.9%
ORGANICS												
Food Waste	167,992	3,682	171,674	2.1%	169,672	3,718	173,390	2.1%	171,369	3,756	175,124	2.1%
Wood Waste	40,073	52,303	92,375	56.6%	40,473	52,828	93,299	56.6%	40,878	53,354	94,232	56.6%
Tires and Rubber	7,063	15,145	22,208	68.2%	7,134	15,297	22,431	68.2%	7,205	15,450	22,655	68.2%
Crop Residues	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Manure	1,553	3,882	5,435	71.4%	1,568	3,921	5,489	71.4%	1,584	3,960	5,544	71.4%
Diapers	31,276	4,619	35,894	12.9%	31,589	4,665	36,253	12.9%	31,904	4,711	36,616	12.9%
Textiles and Leather	53,636	1,175	54,811	2.1%	54,172	1,187	55,359	2.1%	54,714	1,199	55,913	2.1%
Other organics	29,428	0	29,428	0.0%	29,722	0	29,722	0.0%	30,020	0	30,020	0.0%
SUBTOTAL	331,020	80,808	411,826	19.6%	334,330	81,614	415,944	19.6%	337,673	82,430	420,104	19.6%
OTHER WASTES												
Inert Solids	18,768	88,573	107,361	82.5%	18,976	89,459	108,435	82.5%	19,186	90,354	109,519	82.5%
Hazardous Waste	4,779	7,168	11,946	60.0%	4,826	7,239	12,066	60.0%	4,875	7,312	12,186	60.0%
SUBTOTAL	23,567	95,741	119,308	80.2%	23,802	96,698	120,501	80.2%	24,040	97,665	121,706	80.2%
SPECIAL WASTE												
Ash	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Industrial Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Sewage Sludge	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Shredder	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Auto Bodies	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
Other Special Waste	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
SUBTOTAL	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%
TOTAL WASTE (tons)	703,129	758,278	1,461,407	51.9%	710,180	765,861	1,476,021	51.9%	717,262	773,519	1,490,781	51.9%

CHAPTER 3

SOURCE REDUCTION

CHAPTER 3

SOURCE REDUCTION COMPONENT

3.1 BACKGROUND

Effective source reduction is integral to a sound integrated waste management plan. Source reduction, usually placed as the top priority of an integrated plan, is a front-end, preventive approach to managing solid wastes. Unlike other solid waste management methods, such as recycling and composting, source reduction focuses on avoiding the creation of waste rather than the management of existing waste materials. Source reduction measures reverse the trend of increasing volumes of municipal solid waste through changes in the design, manufacture, procurement, and use of products or packaging.

Source reduction encompasses actions that promote increased product longevity through reuse, repair, and remanufacture. The short- and medium-term effects are cost reduction, energy and resource conservation, and a higher standard of living. Any inconvenience or change of lifestyle to people as a result of source reduction will be outweighed by the long-term savings of material, waste disposal costs, and the conservation of existing landfill space.

3.2 SOURCE REDUCTION OBJECTIVES

Source reduction policies are defined by two time-specific goals, short-term (1995) and medium-term (2000) goals, with a number of specific objectives for each goal.

SHORT-TERM

For the short-term, these goals and objectives include diversion of 45,983 tons for the period 1992-1995 or 3.7 percent diversion from the wastestream under the following goals and objectives:

Goal 1

To reduce the volume of products and packaging by the following five objectives indicating tonnage and percentage by 1995:

- Objective 1: Reducing the use of non-recyclable materials.

- Objective 2: Reducing packaging size and weight.
- Objective 3: Reducing toxicity of products and packaging, including polystyrene, 305 tons, .02 percent diversion from the wastestream.

- Objective 4: Increasing the amount of recycled materials in products and packaging.
- Objective 5: Increasing the efficiency of the use of paper, cardboard, glass, metal, and other materials through reducing the generation of waste from non-residential generator's production, operations, processes, and equipment, including purchasing materials based upon durability, reusability, and recyclability, including recycling ledger paper, 7,344 tons, .59 percent.

Goal 2

To change patterns of consumption, growth, and disposal that produce unnecessary waste generation by the following three objectives:

- Objective 1: Encouraging the replacement of disposable materials and products with:
  a) reusable materials and products, 724 tons, .06 percent, including textiles and leather, polystyrene and film.
  b) reusable products.

- Objective 2: Encouraging the reduction of green waste, 37,610 tons, 3.0 percent through backyard composting, grasscycling and xeriscaping.

- Objective 3: Encouraging the purchase of products that:
  a) have long life spans.
  b) are repairable.
  c) are recyclable.

MEDIUM-TERM

For the medium-term, the goals and objectives include diversion of 74,028 tons for the period 1996-2000 or 5.2 percent diversion from the wastestream under the following goals and objectives:

Goal 1

To reduce the volume and toxicity of products and packaging by the following five objectives indicating tonnage and percentage per year by 2000:

- Objective 1: Reducing the use of non-recyclable materials.
- Objective 2: Reducing packaging.
- Objective 3: Reducing with reduction of polystyrene of products and packaging, 743 tons, .05 percent.
- Objective 4: Increasing the amount of recycled materials in products and packaging, 6,884 tons, .49 percent.
- Objective 5: Increasing the efficiency of the use of paper, cardboard, glass, metal, and other materials through reducing the generation of waste from non-residential generator's production, operations, processes, and equipment, including purchasing materials based upon durability, reusability, and recyclability, including recycling ledger paper, 4,130 tons, .29 percent.

Goal 2

To change patterns of consumption growth and disposal that produce unnecessary waste generation by the following three objectives:

- Objective 1: Encouraging the replacement of disposable materials and products with
  a) reusable materials and products, 5,534 tons, .39 percent including textiles and leather, polystyrene and film.
  b) reusable products.

- Objective 2: Encouraging the reduction of green waste, 56,737 tons, 4.0 percent with backyard composting, grasscycling and xeriscaping.

- Objective 3: Encouraging the purchase of products that:
  a) have long life spans.
  b) are repairable.
  c) are recyclable.

Through these 16 comprehensive term objectives, the County will achieve its four short-term and four medium-term source reduction diversion goals.

Table 3-1 identifies the goals and objectives targeted for source reduction, including tonnage and percentage diverted during the short-term. Table 3-2 identifies the goals and objectives targeted for source reduction during the medium-term.

TABLE 3-1

SOURCE REDUCTION GOALS

Short-Term
By Tonnage And Percent

1995 Short-Term Goals and Objectives	Tons Diverted	Percent Diverted
Goal 1: Reduce volume/toxicity of products and packaging from Dry ICI[1] wastestream		
1. Non-recyclable materials	-	-
2. Packaging	-	-
3. Toxicity	-	-
a) products	-	-
b) packaging		
• polystyrene	305	.02
4. Recycled materials increase		
a) products	-	-
b) packaging		
5. Waste reduction		
• ledger paper	7,344	.59
Subtotal	**7,649**	**.61%**
Goal 2: Change consumption patterns		
1. Disposable replacement		
a) reusable material		
• film	124	.01
• polystyrene	96	.01
• textiles/leathers	504	.04
b) reusable product	-	-
2. Green waste reduction (yardwaste)		
• composting	2,059	.16
• grasscycling	34,810	2.78
• xeriscaping	741	.06
3. Product purchase		
a) long-life	-	-
b) repairable	-	-
Subtotal	**38,334**	**3.06%**
TOTAL	**45,983**	**3.67%**

[1] **ICI - Industrial, commercial, and institutional sources combined.**

TABLE 3-2
SOURCE REDUCTION GOALS
Medium-Term
By Tonnage And Percent

2000 Medium-Term Goals and Objectives	Tons Diverted	Percent Diverted
Goal 1: Reduce volume/toxicity of products and packaging from Dry ICI[1] Wastestream		
1. Non-recyclable materials	-	-
2. Packaging	-	-
3. Toxicity	-	-
a) products		
b) packaging		
• polystyrene	743	.05
4. Recycled materials increase	-	-
a) products		
b) packaging		
5. Waste reduction		
• ledger paper	11,014	.78
Subtotal	**11,757**	**.83%**
Goal 2: Change consumption patterns		
1. Disposable replacement		
a) reusable material		
• film	353	.02
• polystyrene	272	.02
• textiles/leathers	1,141	.08
b) reusable product	-	-
2. Green waste reduction (yardwaste)		
• composting	5,558	.39
• grasscycling	48,488	3.42
• xeriscaping	2,691	.19
3. Dry ICI Waste		
• manure	3,768	.27
4. Product purchase		-
a) long-life	-	-
b) repairable	-	
Subtotal	**62,271**	**4.39%**
TOTAL	**74,028**	**5.22%**

[1] ICI - Industrial, commercial, and institutional sources combined.

Table 3-3 identifies those materials targeted for source reduction programs during both the short- and medium-terms.

TABLE 3-3

SHORT-AND MEDIUM-TERM TARGETED MATERIALS

Wastestream	Material	Criteria for Target Selection
• Residential	Bulky discards	Substitutes available, low recyclability
	Disposable plates, cups and cutlery	Single-use, high volume, plastic plates made from non-renewable resources
	Junk mail and catalogs	Volume, low recyclability
	Paper packaging	Volume, low recyclability
	Paper towels and napkins	Single-use, high volume, substitute availability
	Plastic packaging	Front-end pollution, low recyclability
	Yard waste (grass, leaves, and brush)	Volume of material
• Industrial, Commercial, Institutional (ICI)	Office paper	High volume
	Fast-food in-house plastic cutlery	High volume, low recyclability
	Plates and cups	Substitute availability
	Toner cartridges	Easily reused
	Yard waste	Volume, low maintenance substitutes available

3.3 EXISTING CONDITIONS

Current Source Reduction Activities

Unincorporated Area of Los Angeles County government offices, as well as businesses in unincorporated areas of Los Angeles County, perform various voluntary types of source reduction activities, in varying degrees, including:

1. COMPUTER

   a. Computerization of business, commercial, government, and personal activity.
   b. Use of electronic billing system.
   c. Use of document retrieval and management systems.

   To reduce the amount of paper generated, computerization of the workplace is encouraged. This includes electronic billing, document retrieval and management systems. Diversion figures for computer paper are unavailable.

2. DISPOSABLE DIAPERS

   Use of cloth diapers in:

   a. hospitals.
   b. residences.

   Use of reusable cloth diapers instead of disposable plastic/paper diapers greatly diminishes the tonnage of waste entering landfills. Currently, 967 tons per year of disposable diapers are diverted from landfills by using cloth diapers in unincorporated area hospitals.

3. PAPER

   a. Purchase of recycled paper.
   b. Use of copying machines with double-sided copy features.

   The County purchases recycled paper as a portion of its paper supply. As one of the largest agency generators of paper in Los Angeles County, it contributes to both the paper recyclability and market expansion. The County has initiated a program of purchasing second generation paper at worksites with more than 600 employees. These sites generate the bulk of computer, white, and mixed (colored) paper used in its offices. The County recycled 7.7 tons of paper in Fiscal Year 1989-90 from sites located in unincorporated area County buildings. When using both sides of the paper for reproduction, double-sided paper copying machines may considerably reduce paper consumption.

4. PLASTIC

a. Efficient product design.
b. Use of refillable drinking containers.

Plastic bottles are redesigned to hold the same amount of material as the old bottles but with less plastic to be recycle-efficient. Products are designed with a combination of recyclable materials to expand and optimize the recyclable market. The amount of recycled plastic bottles diverted is unavailable.

5. YARD WASTE

a. Grass clippings on lawn.
b. Backyard composting system.

Instead of disposing grass clippings in landfills, gardeners leave it on residential, commercial, and institutional lawns enriching growth as decomposed mulch. Likewise, a backyard composting system allows waste grass and shrubbery cuttings to decompose and be used as mulch. Each year 16,349 tons of yard waste are diverted from landfills through source reduction activity.

Table 3-4 identifies quantifiable waste types diverted by existing source reduction activities. The methodology used to quantify the amounts of diverted waste is presented in Chapter 2, Solid Waste Generation Study and shown in Appendix C.

TABLE 3-4

EXISTING SOURCE REDUCTION QUANTITIES
1990

Waste Category	Waste Type	Weight Diverted (tpy)	Percent Diverted from Wastestream
• **Yard Waste**	- Grasscycling	14,019	1.26%
	- Leaves and Grass	2,330	0.21
• **Organics**	Textiles/Leather	52	0.004
• **Other**	Disposable Diapers	963	0.08
	TOTAL	17,364	1.5%

None of the source reduction activities of 1990 in the unincorporated areas of Los Angeles County are expected to cease in either the short- or medium-term planning periods, but will continue in unison with projected AB939 Source Reduction mandates.

3.4 Source Reduction Program

Section 18734.3 of the regulations lists a minimum set of source reduction alternatives (see Table 3-5 Program Alternatives) that each jurisdiction is responsible for consideration. The 17 alternatives are listed under four distinct activity groups including the source of waste generation (1) Rate Structure Modifications, (2) Economic Incentives, (3) Technical Assistance or Educational and Promotional Alternatives, and (4) Regulatory programs.

TABLE 3-5

PROGRAM ALTERNATIVES

ALTERNATIVES By TYPE, NAME, AND NUMBER	WASTESTREAM APPLICATION
1. Rate Structure Modifications	
1 - Local waste disposal fee modifications	ICI[1]
2 - Quantity-based local user fees	Residential
2. Economic Incentives	
3 - Loans, grants, and loan guarantees	ICI
4 - Deposits, refunds, and rebates	Residential/ICI
5 - Business license fees	ICI
6 - Local taxes, fees, and fines	Residential/ICI
3. Technical Assistance and Education/Promotions	
7 - Waste evaluations	ICI
8 - On-site composting and mulching	Residential/ICI
9 - Technical assistance to businesses, industry, and consumer organizations	Residential/ICI
10 - Educational efforts	Residential/ICI
11 - Awards and public recognition	Residential/ICI
12 - Non-procurement source reduction	Residential/ICI
13 - Demonstration programs	Residential/ICI
4. Regulatory Programs	
14 - Government procurement ordinances	ICI
15 - Land-use incentives for source reduction	Residential/ICI
16 - Nonresidential generator required waste reduction planning	ICI
17 - Product and packaging bans	ICI

[1] ICI - Industrial, commercial, and institutional sources combined.

3.4.1 EVALUATION OF ALTERNATIVES

Using the evaluation methodology described completely in Appendix D, alternatives were screened for applicability. All alternatives were fully evaluated based on all 17 evaluation criteria.

Each alternative was assigned a low, medium, or high rating in terms of each criterion. This rating identified whether the alternative had a positive, neutral, or negative impact, respectively, on source reduction effectiveness.

The result of the evaluation process is presented in Table 3-6 Source Reduction Alternative Evaluation Matrix. Several observations can be made regarding this result:

- Source reduction alternatives are generally consistent with local policy, require a minimum of new equipment, and are easily implementable in both the short- and medium-terms.
- With the exception of loans, grants, and loan guarantees, source reduction alternatives are relatively easy to finance and are moderately or minimally priced.
- In general, source reduction alternatives are technically effective, avoid potential environmental hazards, and cause desirable shifts in waste generation and product and material use.

To assist in selecting programs, the 17 source reduction alternatives were divided into the following three groups based on their effectiveness in reducing waste:

1.	High Effectiveness:	Alternatives 1 and 2.
2.	Moderate Effectiveness:	Alternatives 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, and 17.
3.	Low Effectiveness:	Alternatives 11, 13, and 14.

The reason for dividing the alternatives into three groups based on waste reduction effectiveness is that it provides a common basis for selecting alternatives in consideration of its impact on local conditions. Since waste reduction and diversion is the purpose of AB 939, waste reduction effectiveness was chosen as the criterion most closely addressing the goals of the AB 939 program. The following sections describe each alternative, numbers one through 17 in detail.

3.4.1.1 Alternative 1: Local Waste Disposal Fee Rate Structure Modifications

Rate structure modifications are prices set by a government jurisdiction to compensate for the partial or full costs for solid waste activities: collecting, processing, recycling, composting, and transformation, a combination of all or compensation for landfill disposal in a geographic area. The prices may be set on a quantity basis or equilaterally for all residents of a waste disposal district.

The tipping fee at landfills and waste-to-energy facilities can be raised to reflect the true cost of disposal. Differential rates can be set for recyclables and non-recyclables. Assuming that the economic mechanisms are implemented, local waste disposal fee modifications cause generators to internalize the true cost of disposal.

The primary design parameters to be considered include the following:

- Enforcement jurisdiction for disposal fees.
- Amount of the increase of the fee.

The primary implementation issues to be considered include the following:

- High disposal fees at one isolated disposal facility may lead to diversion of waste to a less expensive facility or illegal dumping.

- Increases in the disposal rate provide an incentive to both recycling and source reduction. This alternative can be coupled with differential disposal rates explained in the recycling component.

- The effect of raising the disposal fee on waste generators will be cushioned by the greater cost of providing collection service. For example, if disposal costs only account for 30 percent of the cost of collection service, increasing the disposal rate by 50 percent will only lead to a 15 percent increase in the cost of service to the generator. This assumes that the haulers will neither absorb nor profit from the additional disposal cost.

- Deciding the size of the fee increase may be challenging for political and theoretical reasons as well as on a rational basis -- estimating the true costs of disposal is not a precise science.

TABLE 3-6
SOURCE REDUCTION ALTERNATIVE EVALUATION MATRIX

IDENTIFICATION OF ALTERNATIVES:

1. Local waste disposal fee modifications
2. Quantity-based local user fees
3. Loans, grants, and loan guarantees
4. Deposits, refunds, and rebates
5. Business license fees
6. Local taxes, fees, and fines
7. Waste evaluations
8. On-site composting, mulching
9. Technical assistance
10. Education
11. Awards
12. Non-procurement programs
13. Demonstration programs
14. Procurement ordinances
15. Land-use incentives
16. Req. waste reduction packaging
17. Product and packaging bans

Source Reduction Effectiveness

KEY

H = High Impact
L = Low Impact
M = Medium Impact
NA = Not Available

CRITERIA:

I. **COST EFFECTIVENESS**

ALTERNATIVE NO:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
a. Short-term Cost	H	M	L	M	M	M	M	M	M	M	H	M	H	M	M	M	M
b. Medium-term Cost	H	H	L	H	M	M	M	H	M	M	H	H	H	H	M	M	H
c. Waste Reduction Effectiveness	H	H	M	M	M	M	M	M	M	M	L	M	L	L	M	M	M
d. Ease of Financing	H	H	L	H	M	H	M	M	M	M	H	H	H	M	M	M	M

II. **TECHNICAL EFFECTIVENESS**

ALTERNATIVE NO:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
a. Potential Hazards	M	L	M	H	H	H	H	M	H	H	H	H	H	H	H	H	H
b. System Flexibility	M	H	H	M	H	M	H	M	H	H	H	H	M	M	H	H	M
c. Shift in Waste Generation	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M
d. Technical Reliability	H	M	M	H	H	M	M	M	M	M	H	M	M	M	M	H	M
e. Equipment and Personnel Available	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
f. System Compatibility	H	L	H	M	M	M	M	M	M	M	M	M	M	M	M	M	M

III. **INSTITUTIONAL RISK IMPACT**

ALTERNATIVE NO:	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
a. Institutional Barriers	H	H	M	M	M	M	H	H	H	H	H	H	H	H	H	H	H
b. Local Policy Consistency	L	M	M	M	M	M	H	H	H	H	H	H	H	H	H	H	H
c. Facility Requirements	H	H	H	H	H	H	H	M	H	H	H	H	M	H	H	H	H
d. Short- and Medium-Term Implementability	H	M	H	M	H	M	H	H	H	H	H	H	H	H	H	H	H
e. Market Conditions	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
f. Public Acceptability	L	M	M	M	H	M	H	M	H	M	H	H	H	M	H	M	M
g. Private Acceptability	L	M	H	L	L	L	M	M	M	M	H	H	H	M	H	L	L
h. Private Sector Participation Potential	H	H	H	H	H	H	M	M	M	H	H	L	M	L	H	H	H
TOTAL NO. OF ALTERNATIVES — High	11	8	7	6	7	5	8	5	8	8	14	11	10	7	10	8	6
TOTAL NO. OF ALTERNATIVES — Medium	3	7	7	9	8	11	9	12	8	9	2	5	6	8	7	7	9
TOTAL NO. OF ALTERNATIVES — Low	3	2	2	1	1	1	0	0	0	0	1	1	1	2	0	1	1

3.4.1.2 Alternative 2: Quantity-based Local User Fees

Quantity-based local user fees are rate structures in which generators pay for garbage collection according to the quantity they place at the curb to be disposed. The rate structure provides a direct incentive for every generator to reduce the amount of waste disposed through source reduction, recycling, and composting. In such situations, program performance -- (the participation of the public) -- becomes cost-driven rather than convenience driven.

The primary design issues to be considered include the following:

- Variable garbage can rates may be applied to some or all of the types of waste generators (single family, multi-family, or commercial).
- The variable rate may be weight- or volume-based.
- A variable rate structure can be flat, linear (two containers cost twice as much as one), exponential (two containers cost more than twice as much as one), or some combination of flat, linear, and exponential.
- Containers may be provided by the County, the hauler, or purchased by the generator. For example, the County might provide 30-gallon buckets or sell specially marked garbage bags. In both cases, only garbage in approved containers, buckets or bags will be collected.
- The frequency of service provided can be set by subscription, or allowed to vary from week to week.

Implementation issues to be considered include the following:

- Generators must be able to see their cost of service itemized clearly on their refuse bill, rather than the cost being hidden in the general tax. If generators can set out different quantities of garbage in different weeks, haulers must have some method of monitoring these quantities and billing accordingly.
- Some waste generators will be more responsive to variable can rates than others (multi-family, for example).

- Designing an effective variable rate structure.
- Capitalizing a volume - or weight-based system may be expensive.
- Weight-based systems are relatively untested.
- Volume-based rates may lead to overstuffing of containers or littering.
- The potential exists for fee inequity between small and large generators.
- Variable garbage can rates may subsidize the cost of operating a recycling program.

ECONOMIC INCENTIVES

Economic incentives are a variety of government actions to encourage residents and businesses to reduce refuse at its source and include: loans, grants, and loan guarantees; deposits, refunds, and rebates; business license fees; local taxes, fees, and fines.

3.4.1.3 Alternative 3: Loans, Grants, and Loan Guarantees

A jurisdiction can help generators by offering grants, loans, or loan guarantees for equipment and other capital expenditures that will allow them to initiate source reduction projects.

The primary design parameters to be considered include the following:

- amount and effect on the wastestream.
- availability of funds.
- conditions of eligibility.
- collateral requirements.
- kinds of materials to be reduced.
- level of need.
- matching funds.

The primary implementation issues to be considered include the following:

- interest rates, degree of risk for business and municipality.
- institutional or policy requirements.
- company cooperation to publicize source reduction information program.
- personnel to oversee program.
- budgets and competing priorities.
- fiscal or financial effects of loans, grants, and loan guarantees.

3.4.1.4 Alternative 4: Deposits, Refunds, and Rebates

Deposits on recyclable beverage containers have been used successfully as a means of increasing the percent of plastic, aluminum, and glass beverage containers recycled. In California, the current rate of redemption for California refund value containers is approximately 80 percent. The redemption rate has steadily increased as more people learn and practice recycling.

The primary design parameters to be considered include the following:

- choose deposit, refund, or rebate.
- method of determining amount of financial incentive.
- disposition of unclaimed deposits.
- choice of item that will have deposit, rebate, or refund.
- implementation by government, retailer, or manufacturer.

The primary implementation issues to be considered include the following:

- processing of unclaimed deposits.
- multi-municipal jurisdiction purchasers and redeemers make local implementation difficult.
- fraud prevention.

3.4.1.5 Alternative 5: Business License Fees

Businesses that implement source reduction programs may qualify for reduced business license fees. Conversely, those businesses that do not develop source reduction programs may be fined.

The primary design parameters to be considered include the following:

- conditions of eligibility.
- methodology to determine license fee reduction or fine.
- flat rate or percent-basis format.
- require a business to submit source reduction plans as a condition of having a business license or to avoid fines.

The primary implementation issues to be considered include the following:

- measuring source reduction impact.
- possible loss of revenue may cause resistance to program.
- ineffective business fees.
- inequity of product volume between small and large business.

3.4.1.6 Alternative 6: Local Taxes, Fees, and Fines

Tax incentives and disincentives, fees, and fines can be applied to encourage or discourage a wide range of desired or undesired products and services. One significant tax, the advanced disposal fee, is detailed in the Funding Component. Fines do not stand on their own as an independent alternative. They serve as a method of enforcing regulatory programs. They are included here because, like taxes and fees, they create economic incentives to reduce waste and provide a source of funding for the jurisdiction.

The primary design parameters to be considered include the following:

- Taxes and fees can target consumers, retailers, manufacturers, or haulers.

- The item to be taxed can include services (garbage disposal), specific products (disposable diapers), packaging (nonrefillable beverage containers), use of production material (virgin newsprint), or equipment (copy machines without the capacity to copy on both sides of a page).

- Changes in the tax structure can result in a net decrease or increase of tax revenue, depending on incentives emphasis (tax exemptions) or disincentives.

- Taxes which can be changed are sales tax, property tax, and business tax.

- Taxes can be used to encourage any of the possible source reduction and/or recycling goals or objectives.

The primary implementation issues to be considered include the following:

- Taxes can result in a net gain or loss of revenue for the jurisdiction.

- Taxes may be difficult to administer.

- Taxes should aim to be neutral in terms of net taxation, as increased taxes will be unpopular with taxpayers, while decreased revenue will face internal agency resistance.

- Taxes, especially sales taxes at the point-of-purchase, can provide valuable source reduction monitoring information.

- Some taxes cannot be changed at the local level and require state or federal action.

- Taxes can be created to provide equity for the funding of public programs. For example, battery recycling programs can be funded by the users of batteries through a battery sales tax, rather than by utilizing the entire tax base through the property, income, or general sales tax.

TECHNICAL ASSISTANCE AND EDUCATION/PROMOTION

Technical assistance, education and promotion alternatives involve the County providing professional advice on developing private source reduction programs in addition to public education programs. Specifically, these programs include waste evaluations, composting and mulching activities, public recognition and awards, non-procurement source reduction, reducing refuse without any additional product purchase, and source reduction demonstration programs.

3.4.1.7 Alternative 7: Waste Evaluations

Waste evaluations are one of the most common forms of government assistance to non-residential generators. Most waste evaluations involve a trained waste auditor who visits businesses and gathers information on the amount and type of wastes produced; the types, amounts, and quality of recyclables in the wastestream; and the company's internal waste handling process. This is usually followed by a recommendation of source reduction and recycling actions.

The primary design parameters to be considered include the following:

- Determination of mandatory or voluntary participation levels.
- Degree of evaluation follow-up to the site visit which may range from none to an active planning program and assistance program by the auditor or government.
- The auditors may be government staff, haulers, business sector, students, professors, citizens, or professional auditors contracted by the municipality.
- Phone or on-site audits.

The primary implementation issues to be considered include the following:

- Waste evaluations apply to both recycling and source reduction activities.
- Staff time allocation to provide auditing services may be required.

- Residential, commercial, industrial, and institutional sectors generate different waste generation patterns, requiring that the auditor be familiar with different types of nonresidential wastestreams. A pool of specialized auditing staff shared among neighboring communities would be an efficient method of developing this skill.

- Waste evaluations can be added to other auditing services such as energy, water, and hazardous waste audits.

- A core team of waste auditors can coordinate the results of waste evaluations with a local or regional waste exchange.

- Some firms may consider internal operations to be confidential.

3.4.1.8 Alternative 8: On-Site Composting and Mulching

Technical and financial assistance or both can be provided to assist generators of organic waste in implementing on-site composting programs. The jurisdiction can also promote and assist the mulching of grass clippings and woody debris.

The primary design parameters to be considered include the following:

- The County can promote on-site composting for a variety of materials (leaves, lawn clippings, shrubs, and small wood debris).

- The County can promote "grasscycling", the natural recycling of lawn clippings by leaving them on the lawn after mowing.

- The program can target varieties of generators: single- and multi-family residential, institutional, commercial, and industrial.

- The medium of technical assistance and information can include fact sheets, mailings, slide shows, and seminars, demonstration facilities, site visits and site-specific planning assistance.

- The assistance providers can be government staff, trained volunteers such as "Master Composters", or a contracted business.

- Mulching assistance can be provided on-site, using a traveling mulching machine, or at a neighborhood facility such as a park, given that the mulched material returns to its source of generation and thus constitutes source reduction.

The primary implementation issues to be considered include the following:

- On-site Composting: On-site is preferable to centralized composting facilities. It avoids collection, transportation, and marketing costs.

- Environmental Impacts: Positive (soil conditioning, nutrient enhancement, water retention, and appearance improvements) or negative (odor) outside of the solid waste realm.

- Regional Government Cooperation: Mulching and on-site composting activity may benefit through working together.

- Backyard composting in small lots may not be feasible.

- Zoning or other ordinances prohibition.

3.4.1.9 Alternative 9: Technical Assistance to Businesses, Industry, and Consumer Organizations

Local government staff can assist businesses and organizations by sharing research findings, waste management experience, and technical knowledge. Because implementing source reduction and recycling activities requires some level of knowledge, the local jurisdiction can play a valuable role in sharing information so individual firms do not have to learn the rudiments themselves. Providing technical assistance to industry and consumer organizations can be an efficient and effective method of sharing ideas and reducing the amount of waste generated.

The primary design parameters to be considered include the following:

- The government targeting sectors where technical assistance will be in demand and/or particularly effective.

- Technical assistance activities targeting on-site waste generation and disposal problems solely or expanding to include product and package design issues.

- The medium of technical assistance may include fact sheets, workshops, labor and management training, marketing assistance, product testing, assistance with permits and loans, and demonstration programs.

- The jurisdiction's role in industry/consumer organizations includes the organization initiator, the liaison with jurisdiction staff, as a resource of information and ideas and as a promoter of source reduction opportunities and actions.

The primary implementation issues to be considered include the following:

- Technical information shared between County and City jurisdictions through an information clearinghouse or a shared technical assistance service.

- For business promotion, jurisdictions may need to demonstrate restraint when promoting certain businesses while excluding others.

- Technical assistance requiring understanding of manufacturing, packaging, and industrial design.

- Follow-up services used as a form of monitoring program effectiveness.

- Technical assistance as the end-product of a waste evaluation.

3.4.1.10 Alternative 10: Educational and Promotional Efforts

The primary mechanism of eliciting source reduction is through educational and promotional efforts aimed at making changes in the production of goods, packaging design, and consumer buying practices. Consumer awareness programs, school curricula development, seminars, and public forums are ways in which educational programs can be presented. The targeted audiences are product designers, manufacturers, retailers, individuals and business consumers.

The primary design parameters to be considered include the following:

Motivational

- Source reduction education tailored to specific audiences (students, children, parents, employees, manufacturers, retailers, designers).

Product

- Method of presentation (point-of-sale, direct mail, brochures).
- Communications medium used (print, television, radio, billboards, video).

Program

- Responsible party (in-house or contractor).
- Program selection and combination of programs: Source reduction alone or with recyclability; recycled content, reuse, repairability, remanufacturability.
- Fact sheets are specific information about the program such as backyard composting and telephone hotlines that residents and businesses may use to have source reduction questions answered.

The primary implementation issues to be considered include the following:

- Public adoption of source reduction habits needed to ensure long-term program success. It is essential that the County be committed to sustaining educational programs over the duration of the program's life.
- Measuring impact of educational efforts quantitatively.

3.4.1.11 Alternative 11: Awards and Public Recognition

Awards acknowledge the achievements of businesses, individuals, and organizations with source reduction programs. They form the basis for personal satisfaction in meeting a challenge and motivating people to further source reduction achievement. Moreover, awards create favorable publicity and demonstrate a commitment from the

bestowing agency, reinforcing the importance of source reduction and conservation of our finite environment.

The primary design parameters to be considered include the following:

- Conditions of eligibility.
- Awards for non-profit, private, and public sector participants.
- Competitive or noncompetitive awards.
- Monetary or nonmonetary acknowledgement.
- Scale can be small, medium, or large businesses.
- Nomination procedure.

The primary implementation issues to be considered include the following:

- Institutional or policy requirements.
- Minimal costs.
- Creating prestigious awards.
- Involvement of local business groups.
- Encourage innovative source reduction techniques.

3.4.1.12 Alternative 12: Non-procurement Source Reduction Activities

Non-procurement source reduction includes programs such as education of employees, office changes to increase scrap paper use, increase of electronic mail, sharing subscriptions, routing, and increase of double-sided paper copying.

The primary design parameters to be considered include the following:

- Provide in-service and training videos to educate all office employees about source reduction techniques; for example, electronic mail training sessions.
- Adopt office policy for printing drafts, inter-office memos, copies, filing, and subscription materials.

- Standardize forms within agencies; for example, multi-use forms.

- Office policy of using double-sided paper copies when feasible.

The primary implementation issues to be considered include the following:

- Elicit ownership response for office changes without forcing compliance. Options include asking for input from each agency and allowing it to tailor its program.

- Record-keeping requirements may limit reduction of hard copies.

3.4.1.13 Alternative 13: Demonstration Programs

Demonstration programs are model source reduction programs that can be observed by both the public and private sectors. Such programs provide the opportunity to see source reduction in action and help decision makers to visualize both the process of source reduction and its potential impact on people, habits, and the environment. Alternatives that may benefit from on-site demonstration programs are waste evaluations, composting and mulching, technical assistance, and public education.

The primary design parameters to be considered include the following:

- A display may demonstrate a variety of source reduction options, from on-site composting operations to restaurant dishwashing machines.

- The demonstration site may be for either demonstration purposes or can be a working program encouraging public participation.

- Private businesses with source reduction programs willing to provide on-site tours or demonstrations especially for volunteer groups that may emulate their example and begin a similar ecology program themselves.

- Demonstration programs used in support of other source reduction alternatives, including assistance with on-site composting and mulching activities; technical assistance to businesses, industry and consumer organizations; and non-procurement source reduction activities.

The primary implementation issues to be considered include the following:

- To be effective, demonstration programs must be convenient to observe and leave the audience with positive impressions.

- Demonstration programs must emphasize a number of different facets including cost, ease of implementation, environmental benefit, and other available technical assistance. A professional audience analysis should be considered when designing the demonstration facility to heighten its effectiveness.

- Demonstration facilities displaying other environmental actions besides source reduction, including recycling, energy and water conservation, and indoor air pollution.

REGULATORY PROGRAMS

Government regulatory programs seek to legally require businesses to purchase items which will reduce the wastestream, such as recycled products. Also, there may be incentives for land-use practices such as storage areas for recycled items in all new development, waste reduction planning, and product and packaging bans.

3.4.1.14 Alternative 14: Government Procurement Ordinances

Local adoption of ordinances that specify durability, recyclability, reusability, price preference for recycled material content, are purchasing considerations that will move the County toward its source reduction objectives.

The primary design parameters to be considered include the following:

- Ordinances specific to agency needs.

- Joint standards for procurement to facilitate market development.

- Minimum recycled content for purchase of product.

- Price preference for products with recycled content.

- Recycled content percent of consumer and industrial goods.

The primary implementation issues to be considered include the following:

- Products with recycled content are more costly than virgin materials.
- Give priority to products with recycled content allowing for a cost differential of specified percent.
- Quality of recycled products.
- Expense and time management for collection of information of recycled materials.

3.4.1.15 Alternative 15: Land-use Incentives for Source Reduction

To the extent that specific land-use practices relate to the generation and disposal of waste, jurisdictions may promote source reduction through regulations, incentives, education, and technical assistance.

The primary design parameters to be considered include the following:

- A jurisdiction can encourage xeriscaping, the planting of native, dry-climate plant species for different land uses.
- Education programs may include instruction at schools, public recognition and financial incentives.
- Elimination of landscaping with plants, especially those that are fast-growing, generating a large volume of green waste.
- A jurisdiction may change its zoning laws to encourage the convenient location of source reduction businesses. A variety of business types can be included, from repair industries (laser cartridge repair) to large manufacturing plants.
- A jurisdiction can create differential price structures for renovation and demolition. For example, developing higher permit fees for demolition thereby creating incentives to renovate rather than demolish and rebuild.

The primary implementation issues to be considered include the following:

- Eligibility requirements for xeriscaping or "source reduction businesses" will require classification.
- Xeriscaping provides other beneficial environmental impacts beyond solid waste reduction, such as decreased water consumption. However, a logical connection between xeriscaping and reduced solid waste has not been documented.
- The elimination of plants as landscaping altogether may aggravate several environmental problems, including drainage, certain forms of air pollution, and localized temperature increases during the summer months.
- Large scale xeriscaping could impact compost facilities, both in quantity and quality of feedstock.

3.4.1.16 Alternative 16: Nonresidential Generator Required Waste Reduction Planning

Businesses can be required or requested to submit source reduction and recycling plans to the local jurisdiction. Such plans can lead businesses in the direction of analyzing their wastestreams and discovering methods of saving money and improving their corporate citizenship through implementing source reduction and recycling programs.

The primary design parameters to be considered include the following:

- Nonresidential generators can be required or simply encouraged to prepare a plan.
- Plans and planning requirements can vary in their relative emphasis on source reduction, recycling, and composting.
- Different sectors and types of businesses may be required to participate.
- Plans may require source reduction and recycling within the traditional context of waste disposal, or may require manufacturing firms to consider its impact on the solid wastestream as a criteria for product and package design.

- Required plans can call for a variety of documentation, from rigorous reporting procedures to none at all.

The primary implementation issues to be considered include the following:

- This alternative may begin as voluntary and become mandatory if certain goals are not met.
- Required plans may serve as a valuable reporting tool.
- Depending on the level of detail required by the plans, firms may require additional technical assistance for the preparation of reports.
- Some firms may be legitimately concerned over the confidentiality of their reports.
- Reports may create an undue compliance burden on certain firms or sectors.

3.4.1.17 Alternative 17: Product and Packaging Bans

Bans arise in many forms, targeting specific products as well as specific materials. For example, aseptic packages have been banned in one state, while polystyrene has been banned in some regions.

The primary design parameters to be considered include the following:

- Decision Makers: for example, supervisorial executive order, city council decision, or public vote.
- Specific criteria used to determine if a material or product should be banned: for example, volume of disposed waste product in the wastestream, potential environmental impacts, energy intensiveness of product manufacture, availability of substitute products, and recyclability.
- Scope of ban: for example, specific product or family of materials.
- Stipulations of the ban: for example, recycling or reuse standards.
- Stringency of enforcement: for example, revocation of business license, fines, or policing.

The primary implementation issues to be considered include the following:

- Regulations effecting a ban are typically harsh and inflexible, often meeting with strong opposition from special interest groups.

- Material should be banned only if the replacement will result in a net decrease of the wastestream.

- Materials, products, and packaging with short, useful life spans are frequent target of bans.

3.4.2 Targeted Wastestream Sources

For the purposes of estimating short- and medium-term diversion and developing a monitoring program, the County has chosen to identify a source reduction program based on three targeted wastestream sources:

1. Residential Dry Waste Diversion.

2. ICI Dry Waste Diversion.

3. Yard Waste Diversion.

The three reasons for identifying three separate wastestreams are:

- The selected source reduction alternatives work together as a unified system. Protecting diversion rates on an alternative-by-alternative basis might underestimate source reduction diversion, due to the synergistic relationships between the several alternatives.

- The County's program provides different services for the reduction of yard wastes, other residential wastes, and ICI wastes. The variety of services offered will result in differences in diversion resulting from source reduction activities.

- The methodology used to arrive at these projected diversion estimates were necessarily different for the three wastestreams. With yard waste, it is relatively straightforward to project diversion as a function of waste stream share, participation rate, and separation efficiency. With dry residential and ICI source reduction, however, the County has relied on diversion rates reported from other programs, adjusted for local conditions and

projected level of effort. Monitoring of source reduction program effectiveness has been more successful in the ICI sector than in the residential sector, justifying a greater level of confidence in the estimated diversion for ICI waste.

3.5 PROGRAM SELECTION

The list of grouped alternatives presented above were assessed based on local conditions, goals, and objectives, and the Solid Waste Generation Study. Subsequently, several alternatives were selected and configured into a source reduction program for the County. The local conditions in the unincorporated areas of the County that most influenced the selection of alternatives included:

- Existing diversion rate.
- Division between multi-family and single-family housing in the residential housing sector.
- Density of the population.

A few observations regarding this selection process are worth noting:

- Alternative 2, Quantity Based Local User Fees (variable can rates), although rated high for waste reduction effectiveness; it was not selected because it would be difficult to implement with the current free enterprise system of garbage collection and disposal services existing in the County unincorporated areas.
- Of the moderately effective alternatives, the County has selected only those where the evaluation matrix has yielded a significant number of "high" rankings or a complete absence of "low" rankings for all criteria.
- Several moderately effective alternatives with numerous moderate and/or low rankings have been left out of the selected source reduction program. However, the County may wish to implement some of these alternatives as contingency measures if selected programs prove insufficient to meet mandated waste diversion goals.

- Finally, the alternatives with low effectiveness all tended to be inexpensive, relatively risk free, and acceptable to both the private and public sector.

3.5.1 Program Description

The descriptions of the alternatives selected for the source reduction program are described in Section 3.4. The alternatives selected are deemed to support the most compatible and cost-effective source reduction program based on local conditions, waste survey results, and existing efforts. The source reduction program is described as the continuation and expansion of existing programs and the implementation of new programs as identified in Sections 3.5.2 and 3.5.3, respectively.

3.5.2 Existing Programs

The following existing programs are expected to be continued or expanded during the short- and medium-term planning periods: Grasscycling, white goods, tires, textiles and leather, household items, and paper.

3.5.3 New Programs

Selected new programs consist of eight alternatives: 7, 8, 9, 10, 12, 13, 14, and 15. These selections are described in Sections 3.4.1 through 3.4.1.15.

3.5.3.1 Alternative 8 - Assistance with On-Site Composting and Mulching Activities

In the short-term, the County will promote on-site composting and mulching to the residential, industrial, commercial, and institutional sectors through its education and public information campaign. Given the large quantity of yard waste generated by the residential sector, the County plans to focus its efforts in the short-term on promoting "grasscycling", the natural recycling of grass clippings by leaving green waste on the lawn, and on-site composting in the residential sector. Promotion activities will include brochures and events to publicize the benefits and various means of grasscycling and on-site composting, as well as other yard waste reduction activities, such as xeriscaping (see Section 3.4.1 for details).

The County may recruit volunteers from the community to be trained as "Master Composters". These Master Composters would assist the community and conduct half-day or one-day backyard composting workshops for interested citizens. These workshops can be conducted through and held for interested people at churches, schools, public parks, and designated public gardens. These composting workshops can be promoted through the following: the media - television, radio, print, local churches, the Parent Teacher Association, local schools, the Los Angeles County Parks and Recreation Department, and homeowner associations. If a diversion shortfall develops at the end of the short-term or in the medium-term, the County will consider procuring compost bins at bulk rates for resale to residents at or below procurement cost.

Assistance with on-site composting and mulching activities has been selected for the following reasons:

- Yard waste comprises 14 percent of the residential wastestream.
- Grasscycling and on-site composting have been demonstrated to be effective at both reducing waste and controlling cost.
- Assistance with on-site composting and mulching activities received no "low" ratings on any of the evaluation criteria.

ICI grasscycling in 1990 diverted 14,019 tons per year from the wastestream. The program will be expanded over the short- and medium-term planning periods. Sources for effective grasscycling diversion are cemeteries, parks, schools, business parks, and commercial developments. Grasscycling tonnage will increase to 34,810 in 1995 and 48,488 in 2000.

The increase will come from greater participation of business, government and residences involved in landscape management. Through education, personnel will be taught the benefits of leaving clippings on lawns. Savings of labor, transportation and landfill capacity will be emphasized.

3.5.3.2 Alternatives 7 and 9 - Waste Evaluations and Technical Assistance to Businesses, Industry and Consumer Organizations

During any given month, the County would conduct free waste audits for any County business requesting one.

Once the County has conducted and analyzed the audit, the County would send each business a copy of the audit results with specific suggestions as to how each business could reduce its waste and recycle. The waste audit team would be composed of one of the following:

-- County trained volunteers
-- County trained staff
-- Consultant trained volunteers/County staff
-- Consultant team
-- Local waste hauler team

These alternatives have been selected for the following reasons:

- Nonresidential generators contribute 51% of waste currently disposed in the unincorporated areas of the County.

- Waste evaluations are successful at targeting all materials in the nonresidential waste stream for source reduction, recycling, and reuse.

- In the evaluation process, these alternatives received no ratings of "low" on any of the evaluation criteria.

3.5.3.3 Alternative 10 - Educational Efforts

The County will educate residents, institutions, and businesses about the need for source reduction and about specific opportunities to reduce waste at the source. The educational campaign will continue throughout both planning periods until a conservation ethic is firmly rooted in the community and waste diversion goals have been achieved.

For education to be successful, it must both motivate people and provide them with specific useful ideas for source reduction. For example, from experience, "environmental shopping" source reduction campaigns provided useful ideas, but failed to motivate consumers and businesses to integrate source reduction activities into their daily habits.

Thus, the educational effort of the County will focus on providing that motivation, to integrate source reduction activities into their thinking and activities.

In the short-term, the County will:

- Develop a motivational campaign that promotes the concepts of source reduction, recycling, and composting as activities that benefit personal income, the County, and the environment.

- Develop and distribute educational materials for businesses and residents.

- Develop and encourage implementation of an elementary/secondary school K-12 curriculum that teaches and motivates the principles of source reduction as the preferred waste management alternative.

In the medium-term, this alternative will focus on developing more interactive educational avenues such as seminars and workshops targeted toward different types of waste generators.

Educational efforts have been selected as part of the source reduction program because they:

- Target all generators of waste and most components of the waste stream;

- Received no ratings of "low" in the evaluation matrix; and

- Are essential to successful implementation of much of this source reduction program.

3.5.3.4 Alternative 12 - Nonprocurement Source Reduction
Alternative 13 - Demonstration Program
Alternative 14 - Procurement Ordinance

The County plans to provide a positive model of source reduction to local unincorporated area citizens and businesses. Source reduction activities will include, but not be limited to, nonprocurement activities (double-sided copying, for instance), demonstration programs (such as xeriscaping and on-site composting), and a model procurement ordinance (retreaded tires, recycled paper, durable products).

In the short-term, the County will develop and implement nonprocurement source reduction activities in all unincorporated area County offices, and organizations receiving funding or support from the County. The County will focus on developing, adopting, and implementing

guidelines for all unincorporated area County offices that encourage employees and others to engage in source reduction activities. Examples of the types of source reduction that the County engages in are double-sided copying; employee use of ceramic mugs, glasses, and reusable dishes; and making scratch paper pads from discarded paper.

Also, in the short-term, the County will establish model programs that demonstrate the feasibility and success of source reduction. The plan calls for on-site composting and xeriscaping to be demonstrated in one of the County's parks. The demonstration site may be used by the schools for teaching and orientation purposes as needed. County staff will identify model programs, either within County departments, cooperating businesses or institutions which display successful source reduction, recycling, and composting efforts.

The County plans to enact a procurement ordinance favoring the purchase of products and packaging which are durable, recyclable, reusable, and/or contain a specified recycled material content. It may also contain a specified price preference provision, allowing for the higher costs of some types of products.

These alternatives were selected because:

- The County should serve as a model of Source Reduction for local businesses and institutions, and adoption of alternative 12 is a beneficial program to achieve this idea.
- Alternative 12 provides valuable first-hand technical educational experience to the County staf who will provide technical assistance to local businesses and institutions.
- Nonprocurement source reduction activities can be highly cost effective.

The following contingencies are available for possible implementation if source reduction goals are not being met:

- Ban all wooden pallets and crates from refuse collection.
- Require all businesses to charge a fee to customers using plastic and paper bags.

- Disseminate procedural information to the residential community to help in the prevention of unsolicited business (junk) mail.

- Disposable diaper ban for hospitals located within unincorporated County boundaries.

3.5.3.5 Alternative 15 - Land-Use Incentives for Source Reduction

The County plans to encourage modification of land-use practices through xeriscaping and land-use planning limitations.

Regarding the first incentive, the County plans to include xeriscaping principles as part of its educational campaign in the short-term. The County will work with landscape architects, gardeners and developers to conduct a pilot promotion program that emphasizes the reduced maintenance effort facilitated by xeriscaped landscape and the water and resource conservation potential. As part of its demonstration program, the County will also demonstrate xeriscaping to the public on County unincorporated properties in all geographic areas.

Also, as part of its campaign, the County plans to evaluate the feasibility of a number of regulatory and financial incentives which promote xeriscaping, including, but not limited to:

- Establishment of a County ordinance requiring housing, commercial, and institutional developers working in unincorporated areas to landscape using low maintenance, drought-resistant grass, plants and shrubbery. In addition, developers must submit a list of all trees, shrubs, flowers, ground covers, and bushes to be used at a project for approval by the Los Angeles County Department of Public Works.

The County will, if warranted, expand the scope of its ordinance which currently requires all new commercial developments to be landscaped to meet certain minimum standards of xeriscaping.

In the second incentive, land-use planning, the County may revise its land-use code to favor the reconstruction and renovation of older buildings in the medium-term planning period. Also, the employment of wood recycling/reuse storage bins reconstruction/construction sites may be utilized.

This alternative has been selected because it:

- Affects a significant portion of the residential waste stream of the County.
- Received no low effectiveness rating in the evaluation.
- Has the additional benefit of conserving water, an increasingly scarce resource in arid Southern California, which must transport water from outside the region.

3.5.4 Diversion Quantities

It is estimated that the County source reduction program will divert 45,983 tons or 3.7 percent of the total generated waste stream in the short-term and 74,028 tons or 5.2 percent of the waste stream in the medium-term as shown in Table 3-7.

TABLE 3-7

SOURCE REDUCTION DIVERSION
(in tons)

PROGRAM (ALTERNATIVE NO.)	Short-Term 1993-1995					Medium-Term 1996-2000				
	Res.	Comm.	Ind.	Total	Percent	Res.	Comm.	Ind.	Total	Percent
YARD WASTE										
1. Backyard Composting (8)	2,059	0	0	2,059	.16	4,642	572	344	5,558	0.39
2. Grasscycling (8)	9,445	20,801	4,564	34,810	2.78	16,989	24,665	6,834	48,488	3.42
3. Xeriscaping (15)	741	0	0	741 37,610	0.06 3.00%	2,123	355	213	2,691 56,737	0.19 4.0%
DRY ICI WASTE										
4. Manure (8)	0	0	0	0	0	0	2,385	0	2,385	0.17
5. Polystyrene (14)	0	226	79	305	0.02	0	515	228	743	0.05
6. Paper (14)	0	6,304	1,040	7,344	0.59	0	8,845	2,169	11,014	0.78
7. Textiles and Leather (Thrift Stores) (9)	0	504	0	504 8,153	0 .04 0.65%	0	1,141	0	1,141 15,283	0.08 1.08%
DRY RESIDENTIAL WASTE										
8. Polystyrene (14)	96	0	0	96	0.01	272	0	0	272	.02
9. Film (14)	124	0	0	124	0.01	353	0	0	353	.02
10. Manure (8)	0	0	0	0 220	0 0.02%	1,383	0	0	1,383 2,008	.10 .14%
EDUCATION										
11. Commercial/Industrial Waste Evaluation and Assistance (10)	-	-	-	-	-	-	-	-	-	-
12. Residential Education (10)	-	-	-	-	-	-	-	-	-	-
TOTAL Diversion Estimates/Percentages	12,465	27,835	5,683	45,983	3.7%	25,762	38,478	9,788	74,028	5.2%
TOTAL Generation Estimates				1,253,683					1,418,427	

3.5.5 Anticipated End-Uses

There are no anticipated final-uses of products resulting from the choice of alternatives. On-site composting and mulching activities do produce a material or product, but it is anticipated that these by-products will be used by the original generator. Other alternatives, such as educational and technical assistance, do not produce a material or product and do not have any anticipated end uses.

3.5.6 Materials Handling Methods

Materials handled pursuant to the on-site composting and mulching programs should be handled by the generator, in order for that activity to qualify as source reduction. In other words, with on-site composting, the party generating compost and mulch should handle all materials which are composted on site. Similarly with mulching, the original party will return those materials to their place of origin.

All other aspects of the County's source reduction program do not require any transport of materials.

3.5.7 Facility Needs

There is no facility development use or construction required with these selected alternatives.

3.6 PROGRAM IMPLEMENTATION

The following section identifies the tasks necessary to implement the program, the agency responsible for implementation, and the implementation schedule and costs.

3.6.1 Short-Term Implementation Plan

The short-term implementation plan for the selected alternatives, including specific tasks, start and finish dates, and the County department responsible for implementation, is presented in Table 3-8, Short-Term Implementation Plan, January 1992-December 1995.

3.6.2 Medium-Term Implementation Plan

The medium-term implementation plan for the selected alternatives including specific tasks, start and finish dates, and the County department responsible for implementation, is presented in Table 3-9, Medium-Term Implementation Plan, January 1996-January 2000.

3.6.3 Identification of Costs and Revenues

This section discusses estimated implementation costs, revenues, and revenue sources necessary for implementation of the source reduction programs. The County source reduction programs will derive revenue for implementation and monitoring/evaluating procedures from the imposition of a Solid Waste Generation Service Charge on each non-vacant parcel of real property within the unincorporated County area. Cost data are summarized in Table 3-10. Cost data for the private sector are unknown as of October 1992.

TABLE 3-8

SHORT-TERM IMPLEMENTATION PLAN

1/1993 - 12/1995

Alternative/Task	Start	Finish	Responsibility
8 - Assistance with On-Site Composting and Mulching			Los Angeles County Department of Public Works
• Promote on-site composting and grasscycling	1/93	12/95	
• Decide if the County will provide composting units	7/95	12/95	
• Monitoring	6/93		
• Evaluation	8/93		
7,9 - Waste Evaluations and Technical Assistance			Los Angeles County Department of Public Works
• Formalize cooperative assistance, management, cost, risk-sharing program with cities	1/93	6/93	
• Develop written materials	7/93	12/95	
• Solicit and train waste evaluation volunteers, and/or employees	7/94		
• Advertise technical assistance program	1/93	12/95	
• Monitoring	1/94	12/95	
• Evaluation	4/94		
10 - Education Efforts			Los Angeles County Department of Public Works
• Formalize cooperative assistance, management, cost, risk sharing program with cities	1/93	6/93	
• Develop and implement promotional campaign	7/93	12/95	
• Develop and implement educational materials for residents	7/93		
• Monitoring	1/94	12/95	
• Evaluation	4/94		
12, 13, 14 - Nonprocurement Source Reduction Activities Demonstration Program and Procurement Ordinance			Los Angeles County Department of Public Works
• Pilot in-house program	1/93	6/93	
• Full program	6/93	12/95	
• Publicize model program	1/93	12/95	
• Develop and maintain County demonstration sites	6/93	12/95	
• Develop and adopt procurement ordinance	7/93	12/93	
• Monitoring	1/94		
• Evaluation	4/94		
15 - Land-Use Incentives			Los Angeles County Department of Public Works
• Xeriscaping demonstration and education	1/93	12/95	
• Develop and adopt xeriscape land-use ordinance	1/93	12/95	
• Possible revisions to tax, land-use, and building codes	1/94		
• Monitoring	7/93	12/95	
• Evaluation	10/93		

TABLE 3-9

MEDIUM-TERM IMPLEMENTATION PLAN

1/1996 - 1/2000

Alternative/Task	Start	Finish	Responsibility
8 - Assistance with On-Site Composting and Mulching			Los Angeles County Department of Public Works
• Promote on-site composting and mulching	1/96	12/2000	
• Provide composting units, if needed	1/96	12/2000	
• Develop Demonstration Materials and Program, and Train Volunteers	1/96	12/2000	
• Monitoring	6/96		
• Evaluation	9/96		
7 - Waste Evaluations 9 - Technical Assistance			Los Angeles County Department of Public Works
• Develop written materials	1/96	12/2000	
• Solicit and train waste evaluation volunteers	1/96	12/2000	
• Advertise technical assistance program	1/96	12/2000	
• Develop Demonstration Materials and Program	1/96	12/2000	
• Monitoring	3/96		
• Evaluation	6/96		
10 - Education Efforts			Los Angeles County Department of Public Works
• Develop and implement motivational campaign	1/96	12/2000	
• Develop and implement educational materials for residents	1/96	12/2000	
• Develop and implement curricula changes	1/96	12/2000	
• Develop and conduct seminars and workshops	1/97	12/2000	
• Monitoring	4/96		
• Evaluation	7/96		
12 - Nonprocurement Source Reduction Activities 13 - Demonstration Program 14 - Procurement Ordinance			Los Angeles County Department of Public Works
• Full program	1/96	12/2000	
• Publicize model program	1/96	12/2000	
• Maintain County demonstration sites	1/96		
• Grocery bag user fee (optional)	1/98	12/2000	
• Monitoring	4/96	12/2000	
• Evaluation	7/96		
15 - Land-Use Incentives for Source Reduction			Los Angeles County Department of Public Works
• Xeriscaping demonstration and education	1/96	12/2000	
• Develop and adopt xeriscape land-use ordinance	1/96	12/2000	
• Possible revisions to tax, land-use, and building codes	1/96	12/2000	
• Monitoring	4/96		
• Evaluation	7/96		

TABLE 3-10

SOURCE REDUCTION PROGRAM COST
SHORT-TERM
COUNTY COST
AVERAGE ANNUAL COSTS FOR THE YEARS 1993-1995

SELECTED ALTERNATIVES	Average Annual Expense for 1993-95			Average Annual Cost (1993-95)
	Program Development/ Implementation	Education/ Public Information	Monitoring Evaluation	
7 - Waste Evaluation	$100,000	$23,500	$17,000	$140,500
8 - Composting/Mulching	85,000	21,000	10,000	116,000
9 - Technical Assistance	110,000	41,000	17,000	168,000
10 - Education	125,000	21,000	19,000	165,000
12 - Nonprocurement Source Reduction	30,000	6,000	8,000	44,000
13 - Demonstration Programs	80,000	0	7,000	87,000
14 - Procurement Ordinances	25,000	6,000	8,000	39,000
15 - Land Use Incentives	32,500	10,000	8,000	50,500
TOTAL	$587,500	$128,500	$94,000	$810,000

Note: • Private sector costs are unknown at this time. However, future updates to the SRRE may be able to include these costs.

• Costs are based on $100,000 per full-time employee, 260 days/year.

Annual Cost for the implementation of the Source Reduction initiatives includes the cost of a Source Reduction Coordinator as well as three full-time and one half-time staff members. Staff costs are approximately $100,000 per staff member per year. Cost includes salary, benefits, and overhead.

3.7 MONITORING AND EVALUATION OF PROGRAMS

The following sections describe the methods to be used by the County to quantify and monitor achievement of the objectives of the overall source reduction program and its individual alternatives. Those objectives include diversion from solid waste landfills and transformation facilities and reduction of waste hazards.

3.7.1 Recordkeeping

Haulers will be required to keep records and make a quarterly report to the County concerning the quantities of solid waste disposed by residents and businesses and any other waste generators within the County. If quantity-based user fees are implemented, the hauler will be required to keep records concerning the quantities of waste disposed by each household.

Records will be kept by the Los Angeles County Department of Public Works, Waste Management Division and private haulers of participation rates and long-term effects stemming from all nonmandatory, participatory programs which include awards and public recognition, education and information programs, nonprocurement activities, generator source reduction plans, and waste audits. Records will be made of the names and addresses of the participants in all of these programs.

3.7.1.1 Program Analysis

The County will conduct a survey and analyze the results of each program. This survey will consist of contacting participants, learning their degree of satisfaction with the program, long-term habit and lifestyle changes, and attempting to quantify waste diversion amounts, if any, as a result of participation in the program.

3.7.1.2 Solicitation of Feedback

The County will solicit residents, businesses, and other waste generators for opinion concerning the overall source reduction program or any selected alternative.

The County will also request comments and suggestions about desired changes in or additions to the source reduction program.

3.7.2 Diversion Programs Monitoring

Either one or both of the following methods shall be used to monitor implementation of the source reduction program and to evaluate its effectiveness:

- Targeted waste characterization studies involving a representative sampling of generator sites or recycling, composting, transformation, and solid waste landfill facilities to measure changes in the volume, weight and hazards of specific materials.

- An assessment of any changes in the design, production, distribution, sale, or use of selected products and packages which affect solid waste generation.

3.7.3 Monitoring Information

The sections provide information based upon the specific monitoring and evaluation methods selected for the source reduction program:

The following criteria will be used to evaluate the program's effectiveness:

- source reduction/waste reduction effectiveness
- cost effectiveness
- participation rate in various alternatives
- level of satisfaction with various alternatives
- lifestyle and habit changes
- awareness level of residents, businesses and any other waste generators
- flexibility
- reliability
- equipment and personnel availability
- institutional barriers

3.7.3.1 Responsible Parties

The Department of Public Works shall be responsible for the program's monitoring, evaluation, and reporting.

3.7.3.2 Costs and Revenues

The known funding requirements for monitoring and evaluating of the source reduction program are included in Table 3-10, source reduction program cost. At this time, the revenue for these programs will come from the solid waste generation service charge described in Chapter 9, the Funding Component.

3.7.3.3 Contingency Measures

The following measures will be implemented by the County if monitoring shows a short-term or medium-term shortfall in the attainment of AB 939 diversion percentage objectives:

- Modification of objectives or diversion alternatives
- Accelerated information dissemination
- Increase frequency of monitoring/review of program(s)
- Add or accelerate financial incentives or disincentives attached to program alternatives
- Add other alternatives to the program: #6, 11, 16, 17.

  a) Required waste reduction planning (#16)
  b) Awards (#11)
  c) Local taxes, fees, and fines (#6)
  d) Product Packaging bans (#17)

TB:lz
ALLEN/COMP3

CHAPTER 4

RECYCLING COMPONENT

CHAPTER 4
RECYCLING COMPONENT

4.1 BACKGROUND

This chapter presents an overview of the existing activities and program alternatives to divert materials from the waste stream through recycling in the unincorporated areas of Los Angeles County.

Recycling is the process of converting discarded products into new materials and products. Recycling preserves natural resources by diverting from disposal materials that can be used to produce new manufactured goods. Recycling also reduces the increasing costs and environmental impacts of solid waste disposal.

On a municipal level, the four steps in the recycling process include the following:

1. Collection

2. Processing

3. Remanufacturing

4. Purchasing (Closing-the-Loop).

Collection of the material includes storage of recyclable materials at a collection site and transportation of the material from there to an intermediate processing facility.

Processing the recyclable material into new products involves separating and decontaminating the material, baling, and containerizing the material, and transporting the material to an end-use market.

Remanufacturing the material into new products is the process of rendering recyclable feedstock for manufacturing into new products. For example, recyclable office paper is rendered into pulp which is converted into new paper products.

Closing-the-Loop is the purchase or beneficial use of products containing recycled material. Closing-the-loop is the most critical step in the recycling process, for it determines whether recycled products will be economically viable. Simply put, recycling creates a supply of products. Unless there is a demand for the supply, the economics of recycling will fail.

If recycled products are not purchased, it will not pay to make them or pay to have them collected, and they will end up back in the waste stream. Therefore, it is essential to procure products that contain recycled materials. A product is not "recycled" until it has actually been collected, processed, remanufactured, and, most importantly, resold or otherwise put to good use.

This chapter describes how the County will incorporate recycling into its Countywide Integrated Waste Management Plan (CIWMP) to help achieve the AB 939 waste diversion goals. The County will address recycling for the following waste generation sectors:

* The Residential sector;

* The Commercial sector;

* The Industrial sector;

* The Marine sector (Beaches and Harbors), and

* The Other sector (Parks and Institutions).

4.2 OBJECTIVES

4.2.1 Short-Term Objectives

The objectives for the short-term planning period include the following:

* To collect, process, and recycle 24.1 percent of the total waste stream or 301,887 tons by the year 1995.

* Investigate the feasibility of analyzing and standardizing the curbside system to provide optimal service throughout the unincorporated areas of the County. Require all permitted waste haulers operating in the unincorporated areas of the County to provide mandatory residential curbside collection services (glass containers, newspaper, PET and HDPE plastic beverage containers, aluminum and tin cans, and yard waste) for all single-family and duplex dwellings by June 1995.

* To develop an at-source collection program that would require commercial generators to provide for the recovery of all recyclable materials including aluminum cans, glass containers, wood waste, newspaper, plastics, mixed paper, and tin cans by the year 1995.

* To establish a Recycling Market Development Zone in an unincorporated area of the County by the year 1995 and to support other cities' pursuits to establish similar zones within their jurisdiction.

* By the year 1995, consider with neighboring jurisdictions supporting the private sector development of regional/multi-jurisdictional materials recovery facilities (MRFs).

* To enact a mandatory separation ordinance for all commercial and industrial businesses by the year 1995.

* To develop and adopt a scavenging policy by the year 1995.

* To prepare potential amendments to the building code to establish requirements for new buildings to include adequate space for storing recyclable materials by the year 1995.

* By the year 1995, begin implementing a business waste recovery initiative that would include the following features: 1) During the short-term, require waste haulers to provide recycling services to commercial generators; 2) In the medium-term, establish an ordinance to require businesses to submit a recycling plan to the County describing their existing and planned waste diversion activities, and 3) In the medium-term, require businesses to report diversion quantities annually, with possible restrictions on business license renewal.

* By the year 1995, investigate the feasibility of implementing a recycling franchise or contract arrangement, specifically for recycling services, if haulers are not able or willing to provide services to waste generators.

* By the year 1995, develop a recycling program in County facilities that requires separation and recovery of recyclable materials. This program will be an example for businesses to follow.

* By the year 1995, develop a comprehensive educational campaign to inform residents and businesses of programs and to encourage recycling.

* Provide ongoing technical assistance, information, and incentives to businesses conducting or considering institutional and office recycling programs.

4.2.2 Medium-Term Objectives

The objectives for the medium-term planning period include the following:

* To collect, process, and recycle 36.1 percent of the total waste stream, or 510,700 tons by the year 2000.

* To expand all short-term program objectives by the year 2000.

* To expand the number and types of materials collected through the curbside program by the year 2000.

* To expand the number and types of materials collected through at-source collection by the year 2000.

* To establish mobile/stationary drop-off for multifamily dwellings by the year 2000.

* By the year 2000, establish financial incentives to encourage investment in recycling, collection, and processing recyclable materials.

* By the year 2000, consider changing rate structures to encourage recycling.

* By the year 2000, promote the siting and implementation of privately owned and operated MRFs (if environmentally, economically, and institutionally feasible).

4.2.3 Targeted Materials

Targets have been established for categories and types of materials based on analysis in the solid waste generation study (SWGS). Six waste categories are targeted for diversion and are shown in **Table 4-1.**

Table 4-1
Rationale for Selecting Target Waste Types

Waste Category	Waste Types	Criteria for Selection
Paper	Newspaper, mixed paper, high grade paper and old corrugated containers (OCC)	Weight, Volume
Plastics	High and low density polyethylene (HDPE and LDPE), Polyethylene Terephthalate (PET), film plastics, polystyrene, other plastics	Volume, limit of recyclability, and extent of nonrenewability
Glass	All types	Weight
Yard Waste	Grass and leaves; prunings	Weight
Other Organics	Wood wastes, food wastes	Weight
Metals	Tin and aluminum cans, ferrous and non-ferrous metals, and other metals	Hazard and extent of nonrenewability

4.2.4 Market Development Objectives

The following are market development objectives that the County will pursue in the short- and medium-terms to increase the demand for products that contain recycled materials.

4.2.4.1 Short-Term Market Development Objectives

The short-term market development objectives include the following:

* To develop a County procurement policy that gives a 10% purchasing preference to any product containing recycled materials within established minimum content specifications.

* To revise County procurement specifications to mandate purchase of recycled products.

* To procure equipment that enables and/or encourages the purchase and use of recycled products.

* To investigate the feasibility of establishing a Recycling Market Development Zone in an unincorporated area of the County and support other cities' pursuits to establish similar zones within their jurisdiction.

* To lobby for the establishment of State of California procurement policies which encourage buying recycled products.

* To provide technical assistance through a County Resource Center.

* To establish a consumer awareness campaign with local and regional markets and groceries to promote procurement of recycled products or products in recycled packaging.

* To conduct seminars with local and regional businesses and schools on "buying recycled" in the work place.

* To promote a "buy recycled" advertising campaign in the media including print, television, and radio.

4.2.4.2 Medium-Term Market Development Objectives

The medium-term market development objectives include the following:

* The continuation of the short-term market development objectives.

* To impose fees or bans on selected non-recyclable products and/or packaging made from nonrenewable resources where alternatives are available and economical.

* To encourage residents, through a resident information campaign, to purchase products containing recyclable material.

4.3 EXISTING CONDITIONS

Within the unincorporated County area, there are established recycling programs that currently divert targeted wastes and other types of wastes from disposal at local landfills (See Section 4.5.2 et seq.). This section identifies existing recycling programs, both public and private, that service the unincorporated County, its residents, and businesses. The amount of diverted material is quantified and reported. Finally, the future status of existing programs is projected.

4.3.1 Existing Programs

Based on the solid waste generation study (SWGS), a large portion of the existing diversion activities taking place in the unincorporated County are credited to recycling. The following describes the various recycling activities within the unincorporated County:

* Recovery of assorted recyclable materials, as identified in Tables 4-3 and 4-8, from the residential sector through citizen-return to certified California Redemption Centers located both within and outside the County unincorporated areas. Information on existing centers in the unincorporated area is provided in **Table 4-2.**

* Recovery of assorted materials, as identified in Table 4-8, from the residential and commercial sectors through commercial recyclers. Information on existing recyclers is provided in **Table 4-2.**

* Recovery of OCC by grocery stores and other major retailers.

* Recovery of concrete and asphalt from government and commercial sources.

* Recovery of metals from the commercial and industrial sectors through scrap metal dealers.

* Recovery of assorted recyclable materials, as identified in Table 4-8, from the residential, commercial and industrial sectors at solid waste transfer stations.

* Recovery of assorted materials, as identified in Table 4-8, through curbside collection programs.

For detailed information on the quantities of recyclable materials diverted through existing programs, see Table 4-8 and the description of programs contained in Section 4.5.2. et seq.

Table 4-2
Existing Recycling Centers in 1990
Unincorporated County of Los Angeles

Facility Name	Location
Alpha Beta Market	3130 So. Colima Rd. Hacienda Heights
Big Mike's Recycling Center	16745 Sierra Hwy. Canyon Country
Western Disposal	1017 W. Gladstone Azusa
South Bay Recycling	15001 So. San Pedro St. Gardena
Alco Metal & Supply	2100 E. Florence Ave. Huntington Park
Bestway Recycling	2268 E. Firestone Blvd. South Gate
Boys Market	2270 N. Lake Ave. Altadena
Atlas Iron & Metal	10019 So. Alameda St. Los Angeles
U. S. Scrap, Inc.	1316 E. Slauson Ave. Los Angeles
Eaton Canyon Park	1750 N. Altadena Pasadena
Goodwill Industries	1st St. & Bandini San Pedro

Source: California Department of Conservation

4.3.2 Quantity of Waste Diverted

Based on the SWGS, the quantities of materials diverted through recycling activities are shown in **Table 4-3.** Although 173 tons of marine sector waste and 35,349 tons of other sector waste was generated in 1990, there was no identified diversion of marine or other sector waste during that year.

4.3.3 Future Status

All existing recycling programs and facilities are expected to continue expanding during the short- and medium-term planning periods.

4.4 PROGRAM ALTERNATIVES

This section identifies various recycling alternatives and presents the results of the programs evaluation.

4.4.1 Identification of Alternatives

Twenty-six recycling alternatives are identified in **Table 4-4.** The alternatives are organized in three categories: 1) materials collection; 2) materials processing; and 3) supportive policies.

Table 4–3
Materials Diverted Through Recycling by Sector in 1990
Unincorporated County of Los Angeles (in Tons)

Material Type	Residential Waste Annual Average	Commercial Waste Annual Average	Industrial Waste Annual Average	Total
Corrugated containers	750	7,114	2,368	10,232
Mixed paper	566	2,231	339	3,136
Newspaper	8,508	1,064	469	10,041
Ledger	192	4,503	358	5,053
Other paper	245	284	125	654
HDPE Containers	60	0	0	60
PET containers	142	16	7	165
Film plastics	0	0	0	0
Polystyrene	0	0	0	0
Other plastics	24	2	1	27
CA redemption glass	2,832	128	55	3,015
Other recyclable glass	2,167	13	80	2,260
Aluminum cans	1,487	60	31	1,578
Non–ferrous metals	242	239	207	688
Ferrous metals	56	66	470	592
Other metal	0	0	121	121
Yard waste	2,325	1,708	1,746	5,779
Wood	117	89	1,669	1,875
Tin cans	1	1	1	3
Food waste	0	241	0	241
TOTAL*	**19,714**	**17,759**	**8,047**	**45,520**

Note: Res = Residential, Com = Commercial, Ind = Industrial
No diversion quantity identified for marine sector or other sector waste.

* (Rounded to the nearest ton)

Table 4-4
Recycling Program Alternatives

Material Collection Alternatives	Waste Stream Application
1 - Curbside collection of separated materials	Residential
2 - At-source separation and collection of recyclables	ICI (1)
3 - Mobile/stationary buy-back centers	Residential
4 - Mobile/stationary drop-off centers	Residential
5 - Multifamily collection	Residential
Materials Processing Alternatives	
6 - Manual materials recovery operations	Residential/ICI
7 - Mechanized materials recovery operations	Residential/ICI
8 - Salvage at solid waste facilities	Residential/ICI
9 - At-source processing	ICI
10- Yard waste processing (mulching)	Residential/ICI
11- Christmas Tree Recycling	Residential
12- CSD Green Waste Landfill Cover Project	Residential/ICI
Supportive Policies	
13- Recycling market development zone siting	ICI
14- Mandatory materials separation ordinance	Residential/ICI
15- Ban on disposal of designated recyclables	Residential/ICI
16- Policy on scavenging	Residential/ICI
17- Zoning code practices	ICI
18- Building code changes	ICI
19- Business permit requirement	ICI
20- Mandatory recycling service provided by hauler	Residential/ICI
21- Contracted or franchised recycling service position	Residential/ICI
22- Cooperative marketing	Residential/ICI
23- Procurement practices	Residential/ICI
24- Changing existing rates	Residential
25- Financial incentives	Residential/ICI
26- Educational outreach and technical assistance	Residential/ICI

1) ICI - Industrial, commercial, and institutional sources

4.4.2 Description of Alternatives

4.4.2.1 Material Collection

A. Curbside Collection of Separated Materials

The County has a variety of curbside collection programs being implemented throughout the County. Curbside collection is a generic term applied to the scheduled collection of recyclable materials that have been set out by households. Programs are operated by either the waste management industry or the local government. Collection equipment ranges from modified refuse trucks to high-tech automated collection vehicles equipped for segregated recyclables. Most programs provide households with containers for recyclables. Most operators collect materials separated by material type. However, many of the new programs are moving towards mixed recyclable collection followed by manual or semi-automated segregation at a materials recovery facility.

The primary design parameters are summarized in Table 4-5 and include the following:

* Materials targeted to be collected.
* Frequency of collection (e.g. weekly, biweekly, bimonthly, monthly).
* Degree of separation of materials (commingled, partially commingled, fully separated).
* Set-out requirements (curb or alley).
* Estimate of quantities for each material.
* Type of household container.

The primary implementation issues to be considered include the following:

* Capital and operating costs.
* Mandatory or voluntary service.
* Scavenging of materials is often a problem.
* Compatibility with other recycling programs.

Table 4-5
Summary of Curbside Collection Design Parameters
Five Basic Options

DESIGN PARAMETER	Options 1	2	3	4	5
* Service Area	urban	urban	urban	urban	urban
* Generator Type	S-F, S-G	S-F, S-G	S-F, S-G	S-F, S-G	S-F, S-G
+ Materials Collected	NP, MP GL, TIN, AL HDPE, PET	NP, MP GL, TIN, AL HDPE, PET	NP, MP GL, TIN, AL HDPE, PET	NP, GL, TIN, AL	NP, GL, TIN, AL
* Collection Frequency	variable	variable	variable	variable	variable
* Point of Collection	curb/alley	curb/alley	curb/alley	curb/alley	curb/alley
* Container Type/Volume	30-90 gal gal-cart	14-30 gal bin-cart	15-30 gal bins	10-30 gal bin-cart	10-15 gal bins
* Number of Containers	1	1-2	1 or more	1-2	1 or more
+ Collection Equipment	single bin	min. 2 bin	multi-bin	min. 2 bin	multi-bin
* Collection Crew	1	1 to 2	1 to 2	1 to 2	1 to 2
* Service Provider	public/private	public/private	public/private	public/private	public/private
+ Level of Truck	fully	partially	fully	partially	fully
Sorting	commingled	commingled	separated	commingled	separated

Code

* = Specifics to be determined at program design level
+ = Influences option variations

Generator Type: S-F = Single family residents, S-G = Small generating multi-family buildings and businesses.
Material Collected: MP = Mixed paper, NP = Newspaper, PET = PET plastics, HDPE = HPDE plastics, AL = Aluminum, TIN = Tin cans, GL = Recyclable glass.

JT1/TAB4-5

Public Versus Private Ownership/Operation:
Curbside recycling programs typically involve a mix of public and private involvement. Some jurisdictions provide collection, processing, marketing and promotion functions in-house, depending on the extent to which they are already involved in providing waste management operations. However, the County has a unique solid waste collection system whereby the majority of unincorporated areas are serviced by waste haulers operating within a free-enterprise system. The County can require the establishment of curbside recycling programs when renewing waste hauler permits. Given the County's waste collection system, the operation of curbside recycling programs would be conducted by the private haulers and monitored by the County.

B. At-Source Separation and Collection of Recyclables

Recyclable materials generated as waste from non-residential sources can be separated and collected for transport to processing and marketing facilities. The responsibilities for successfully implementing at-source recycling efforts are shared between on-site personnel and recyclers, waste haulers, and infrastructure for appropriate program promotion and for the processing and marketing of material. Some at-source separation and collection, such as old corrugated container recovery from distribution warehouses, is market driven based on the quantity and value of available materials. Other approaches for collecting multiple materials of smaller volumes per source may require funding in addition to that from materials revenue or will depend on savings realized in avoided trash collection and disposal costs.

Examples of at-source separation and collection approaches include the following:

* Single material recovery from generators with significant volumes of particular materials; typically old corrugated containers or office paper are targeted from business, institutional, or industrial sources. Bars and restaurants may support collection efforts for glass and/or aluminum containers.

* Multiple material collection from institutional, commercial, and industrial generators. Such comprehensive efforts often involve the targeting of various materials from the functional areas which are unique to each site (cafeterias, computer rooms, retail areas, classrooms, shipping and maintenance areas, grounds, etc.).

* Specialized collection efforts including receptacles for recyclables placed in public facilities, malls, parks, and transit stations and salvage or waste exchange from manufacturing processes (this may involve recycling or reuse of solvents or shipping containers/pallets and particular feedstocks, such as metals, plastic resins, or organics).

The primary design parameters to be considered include the following:

* Targeted materials and facilities or generator subsectors.

* Degree of site tailoring and support (individual facility waste plans, audits, or evaluations).

* Degree of generator staff involvement and responsibility.

* Material sorting, container, and storage requirements.

* Characteristics of collection and processing infrastructure and equipment.

The primary implementation issues to be considered include the following:

* Understanding the availability, requirements, and stability of materials markets is critical for the design of at-source separation efforts.

* Lack of material storage or loading space may be an issue at some sites.

* Cooperation and training of employees and maintenance staff is generally required for successful efforts; user friendly design helps.

* The wide variety and diversity of businesses, institutions, and industries can complicate service design and delivery.

* Seasonal variations may be a factor for some sources in the types and quantities of material generated.

* Added costs/savings associated with daily operations and separation activities is a concern for most generators.

* Business culture may effect some generator motivation for participating in at-source programs.

Public Versus Private Ownership/Operation:
Commercial and industrial at-source separation and collection activities are basically a private, commercial sector function. Program design, implementation, operations, and marketing, are left to the discretion of each individual private business.

C. Mobile/Stationary Buy-Back Centers

One type of buy-back recycling center is a commercially located and staffed recycling facility that purchases small amounts of post-consumer secondary materials from the public. Buy-back centers typically buy aluminum cans and may also handle glass containers, plastic containers, and newspapers. In general, the more materials handled, the more effectively a center can compete with other, similar operations. A typical buy-back center is located along a major thoroughfare, often in buildings such as vacated service stations and small warehouses. Most centers are open five or six days a week and are operated by several employees. The staff weighs materials and pays customers. Larger facilities may process materials with equipment such as glass crushers, can flatteners, and paper balers. Storage equipment commonly used includes roll-off boxes, bins, and barrels.

A second type of buy-back recycling center is a commercially located California Redemption machine which may accept aluminum cans, glass bottles, and plastic containers and automatically reimburses the recycler for deposited materials. Most of these machines are located in shopping centers at or near grocery stores and are accessible seven days a week.

The primary design parameters to be considered include the following:

* Types of materials to be handled.

* Volumes of materials to be handled.

* Compliance with the zoning ordinance.

* Processing requirements for markets.

* Location relative to customers and markets.

The primary implementation issues to be considered include the following:

* Existing markets for recycled materials.

* Competition with other recycling centers and programs.

* Consistency with the Countywide Integrated Waste Management Plan.

Public Versus Private Ownership/Operation:
Buy-back centers are typically private enterprises and depend upon revenues from the sale of recyclable materials to cover operating costs. Implementation of this alternative by the County would be appropriate when it does not create competition with existing private operations in the unincorporated area or when the public does not have reasonable access to a local buy-back center.

D. Mobile/Stationary Drop-Off Centers

A drop-off center is a recycling collection location where citizens can voluntarily deliver separated secondary materials, such as newspaper, glass containers, and aluminum and tin cans. This is the most common type of residential waste recycling. These centers tend to be the easiest to initiate and the simplest form of operation. The typical center is unattended and has one container for each type of material collected. Some drop-off facilities may include on-site processing of the materials. Convenient locations are usually selected for siting these facilities. Parking lots of shopping centers, churches and schools are often selected. They may also be located at solid waste transfer stations and landfills. Most drop-off centers do not generate enough volume to justify the cost of processing equipment. The usual procedure is to ship directly to a dealer or end user equipped to handle larger volumes. Some dealers supply and haul roll-off boxes or trailers, often paying a lower material price in exchange for the service. Participation in drop-off recycling is generally higher in rural areas where residents must haul their own trash.

The primary design parameters to be considered include the following:

* Type of material collected.

* Volume of material collected.

* Consistency with the local zoning ordinance.

* Processing requirements for markets.

* Location relative to customers and markets.

The primary implementation issues to be considered include the following:

* Existing markets for recycled materials.

* Competition with other recycling centers and programs.

* Consistency with the Countywide Integrated Waste Management Plan.

Public Versus Private Ownership/Operation:
Drop-off programs are typically operated and promoted by the private sector, particularly nonprofit groups. The role of the public sector is often in the area of providing a site and some promotional support. The County's involvement in the drop-off alternative may be to enhance private operations or to fill a void in the absence of private operations.

E. Multifamily Collection of Source Separated Recyclables

Collection of household recyclables from multifamily structures/developments is an effective alternative to curbside collection where trash is placed in common area bins or dumpsters rather than in receptacles for each unit. Recycling program design for these facilities would maximize convenience for residents and haulers and should be parallel and consistent with the existing trash collection system. Container, collection vehicle, material processing, and program promotion requirements are generally different than those for curbside efforts.

The primary design parameters to be considered include the following:

* Targeted materials and types of multifamily sites.

* Types of in-unit and common area storage containers.

* Assignment of responsibilities to tenants, maintenance staff, and haulers or recyclers.

* Characteristics of collection and processing infrastructure and equipment.

* Nature and scale of promotion and support programs.

The primary implementation issues to be considered include the following:

* Lack of in-unit and/or common area material storage or loading space may be an issue at some sites.

* Tenant turn over rates may require greater ongoing promotion and monitoring efforts than for curbside programs.

* Diversity of site requirements can complicate service design and delivery (e.g. tenant densities, high-rise vs. low-rise vs. trailer park).

* Feasibility of multifamily programs may require a certain threshold number of units and/or sites.

* Motivating tenants can be a challenge at some sites; this may be linked to demographics.

* Added costs/savings associated with recycling service delivery may be a concern for some landlords and their tenants.

Public Versus Private Ownership/Operation:
Multi-family residential collection programs are not a well-established recycling alternative with substantial operational history. To the extent that such programs are currently implemented throughout the country, both public and private involvement can be found. Program planning, design, and operations are compatible with either public or private participation. The County will explore this alternative with private waste management firms providing collection, processing and marketing services.

4.4.2.2 Materials Processing

A. Manual Materials Recovery Operations

Materials recovery operations are commonly called intermediate processing centers (IPCs) or materials recovery facilities (MRFs). These facilities separate marketable materials such as newspapers, mixed glass containers, metal and plastic

containers, and process the materials for sale to end users. The facility receives waste directly from residential collection vehicles and commercial waste vehicles that collect certain recyclable safe commercial waste.

Once at the facility, the vehicles proceed to the tipping area, generally an enclosed concrete pad, and the load is dumped for processing. The waste is manually picked for identifiable recyclable items such as paper, cardboard, cans, glass, and plastic. Multiple pick stations are often used especially in large facilities. The end product specifications are an integral part of the facility design.

The primary design parameters to be considered include the following:

* Type of material targeted for collection.
* Volume of material estimated to be collected.
* Source of material (e.g. residential, commercial, industrial).
* Consistency with the local zoning ordinance.
* Processing requirements for markets.
* Location relative to customers and markets.

The primary implementation issues to be considered include the following:

* Existing and projected markets for recycled materials.
* Competition with other recycling centers and programs.
* Consistency with the Countywide Integrated Waste Management Plan.

Public Versus Private Ownership/Operation:
This activity is appropriate for both the public and private sectors.

B. Mechanized Materials Recovery Operations

Materials recovery operations are commonly called intermediate processing centers (IPC) or materials recovery facilities (MRF). These facilities separate marketable recyclable materials such as newspapers, mixed glass containers, metal and plastic containers, and process the materials for sale to end users. The facility receives waste directly from residential collection vehicles and commercial waste vehicles that collect certain recyclable safe commercial waste.

The vehicles proceed to the tipping area, generally an enclosed concrete pad and the load is dumped for processing. The first major stage in the recovery operation is mixing and screening waste. A large rotary drum screen is commonly used for bag opening and mixing; bags are broken open, bulky items are set aside, and hazardous materials are removed. Next, the waste is manually picked for identifiable recyclable items such as paper, cardboard, cans, glass, and plastic. Multiple pick stations are often used especially in large facilities. Size reduction is achieved by use of a shredder or hammermill. Magnetic separation for removal of ferrous metals can be located ahead and after the size reduction step. Following size reduction, the waste is separated by screens, drums, and classifiers into light fraction and heavy fraction. The end product specifications are an integral part of the facility design, especially when facility output is destined for further processing as in a compost feedstock.

The primary design parameters to be considered include the following:

* Type of material targeted for collection.

* Volume of material estimated to be collected.

* Source of material (e.g. residential, commercial, industrial).

* Consistency with the local zoning ordinance.

* Processing requirements for markets.

* Location relative to customers and markets.

The primary implementation issues to be considered include the following:

* Existing and projected markets for recycled materials.

* Competition with other recycling centers and programs.

* Consistency with the Countywide Integrated Waste Management Plan.

Public Versus Private Ownership/Operation:
This activity is appropriate for both the public and private sectors.

C. Salvage at Solid Waste Facilities

Salvage at solid waste facilities can be very simple or very complex. For example, simple salvaging at a solid waste facility is a sort and pick system where people can separate their recyclables into bins. A more complex system is an intensive recovery system, such as a materials recovery facility (MRF).

The primary design parameters to be considered include the following:

* Sort and pick; self haulers sort materials themselves and deposit them in drop boxes or other on site storage containers.

* Direct loads; diverted directly to a recovery area.

* Spotter; an employee assigned to spot recyclables in mixed wastes and to set them aside.

* Shopping carts.

* Type of user; self haulers, packer truck, drop box loads.

* Picking belts.

* Intensive recovery; material recovery facility (MRF).

* Transformation center; refuse dry fuel.

* User disposal fee reductions on remaining refuse.

The primary implementation issues to be considered include the following:

* Marketing the recovered materials.

* Arranging for use of the processing facility, if any.

* Promotion and public education.

* Capital investment costs vary with size of program, type of recovery method, number of materials and condition of site.

* Ongoing costs; labor, site maintenance, utilities, insurance, and public education.

Public Versus Private Ownership/Operation:
Solid waste facility salvaging operations are typically handled by the facility operator, whether that be a public agency or a private business.

D. At-Source Processing

Some non-residential waste generators may be able to ship separated recyclable materials directly to end users or through local and regional brokers without the need for intermediate off-site processing or special hauler collection routes. The degree of on-site processing performed ranges from minimal to extensive and may result in higher prices paid to generators and reduced collection and transportation costs. At-source processing often provides an advantage of reduced storage space requirements and of increased flexibility in the types of materials recovered and in the generators' ability to control marketing arrangements. The types of equipment and processes involved in at-source processing may range from the sorting of office paper grades, to the placement of converter scrap into a roll-off box for shipment to a mill, to a baler or roll-off box compactor for old corrugated containers, to a pallet shredder, to

a glass crusher or can densifier for bars or restaurants. Certain sites with particular types and volumes of separated materials may develop more elaborate sorting and/or processing systems. Many generators already have some of these capabilities in place.

The primary design parameters to be considered include the following:

* Targeted materials and volumes generated at various sites.

* Processing equipment specifications and configurations at various sites.

* Capital and operating costs; revenue and other funding sources.

* Degree of processing at various sites and market requirements.

* The availability of processing system vendors and transportation providers.

* Required level of processing equipment operator time and training.

The primary implementation issues to be considered include the following:

* Consideration should be given to the need to have duplicate processing capabilities at numerous facilities versus the potential for sharing capabilities at a common facility.

* Scale of operations and material volumes at each site are critical threshold factors in determining where this approach makes sense.

* To date, the public sector role and the role of waste haulers in managing this approach have been limited; decisions have most frequently been initiated by generators in coordination with markets.

* As a result of the above, data is limited on the quantities of materials being handled through this method.

Public Versus Private Ownership/Operation:
Commercial and industrial at-source processing activities are basically a private, commercial sector function. Program design, implementation, operations, and marketing, are left to the discretion of each individual private business.

E. Yard Waste Processing (Mulching)

Yard waste such as grass, leaves, and brush are delivered to one of several remote sites for volume reduction and/or densification. The yard waste is processed by shredding and mulching. The mulch may be used for land application such as fire suppression material on fire breaks by the County Fire Department.

The primary design parameters to be considered include the following:

* Type of yard waste collected.
* Volume of materials handled.
* Material delivery frequency and seasonality.
* Condition of materials as delivered.
* Intended end-use of material.
* Degree of automation.
* Land availability.
* Degree of source separation.

The primary implementation issues to be considered include the following:

* Mandatory or voluntary separation of yard waste from refuse.
* Promotion and education outreach.
* Facility siting.

Public Versus Private Ownership/Operation:
Volume reduction and/or densification of yard waste through a mulching process can be conducted by both the public and private sectors. The County will support private sector efforts to develop yard waste processing facilities. The mulch can be utilized by the County for land application as fire suppression material on fire breaks by the County Fire Department.

F. Christmas Tree Recycling Program

Christmas trees can be collected and chipped for use as mulch. These trees could be collected at the curbside by waste haulers or dropped off by County residents at designated collection locations (County parks). The mulch can be offered to residents, may be used for landscaping at County facilities, or other useful purposes.

The primary design parameters to be considered include the following:

* Selection of drop-off locations.
* Volume of materials handled.
* Condition of materials as delivered.
* Intended end-use of material.
* Access to chipping machinery.
* Weather conditions; particularly for the drop-off program.

The primary implementation issues to be considered include the following:

* Mandatory or voluntary commitment by waste haulers to participate in a collection program.
* Promotion and outreach.

Public Versus Private Ownership/Operation:
Diverting Christmas trees from disposal at local landfills can be either a public or private sector activity. In January 1992 the County and the private sector conducted Christmas tree recycling at six County parks. The trees were chipped and used as mulch at County parks and also offered to the public. In addition, two private waste haulers volunteered to pick up trees at the curbside on their normal collection routes. These trees were collected and transported to Puente Hills Landfill for use as landscaping mulch.

G. CSD Green Waste Landfill Cover Project

Yard waste (e.g. grass, leaves, brush) is delivered to one or more sites established to receive these materials. If size reduction or densification is required by the County Sanitation Districts of Los Angeles County, or if this would allow more cost effective transport and disposal, then these activities may be incorporated into the facility design. The yard waste received would then either be stored temporarily or shipped directly for final use by the CSD for its Green Waste Landfill Cover Project.

The primary design parameters to be considered include the following:

* Type of yard waste collected.
* Volume of materials handled.
* Material delivery frequency and seasonality.
* Condition of material as delivered.
* Intended end use of material.
* Degree of automation.
* Available land.
* Degree of source separation.

The primary implementation issues to be considered include the following:

* Mandatory or voluntary separation of yard waste from refuse.

* Mandatory or voluntary participation in the program by waste haulers.

* Ordinance preparation and adoption.

* Promotion and education outreach.

* Facility siting.

Public Versus Private Ownership/Operation:
Volume reduction and/or densification of yard waste through a mulching process can be conducted by both the public and private sectors. The County could require private waste haulers to deliver mulched yard waste to landfills for application as daily cover material.

4.4.2.3 Supportive Policies

A. Recycling Market Development Zones

The County can determine the feasibility of identifying and establishing recycling market development zones within the County unincorporated area to encourage advances in recycling technology and to stimulate the development of markets for recycled materials. The County may discuss with other jurisdictions the feasibility of proposing region-wide zones.

The primary design parameters to be considered include the following:

* Adequate areas that are designated in the County General Plan for industrial use.

* Consistency of proposed land use with the County General Plan.

* Convenient access to major transportation corridors and facilities.

* Adequate infrastructure to support the type and amount of physical development.

* Adequate area for physical expansion of businesses.

* Availability of reliable flow of materials to support business activities.

The primary implementation issues to be considered include the following:

* Siting a recycling market development zone in the County unincorporated area.

* Acquire tax-credit program eligibility from the State for businesses who locate within the designated zone. Eligible businesses may apply for a tax-credit for the purchase of recycling equipment.

* Monitoring - Ensure an adequate, reliable flow of materials to support recycling activities.

* Revise County regulations: Ordinances, policies, and plans, to promote recycling market development zones.

B. Mandatory Materials Separation Ordinance

The County can require residential and commercial generators to separate their recyclables from the garbage.

The primary design parameters to be considered include the following:

* Type of materials separated.

* How the materials must be set out for collection.

* Whether or not generators must set out recyclables for the hauler or whether they can use drop-off facilities or sell or donate recyclables to any person or organization operating for profit or as a non-profit enterprise.

* Institute a fine system.

* Enforcement mechanisms, possibly including suspension of garbage/refuse collection service.

The primary implementation issues to be considered include the following:

* Mandatory separation ensures greater participation than a voluntary program and is desirable for market development in that it assures a reliable flow of materials. It may, however, rule out some other recycling options such as post-collection sorting of predominantly high grade commercial loads.

* Enforcement mechanisms are an important part of any mandatory program.

C. Ban on Disposal of Designated Recyclables

Institute a ban on the disposal of certain recyclables or loads with more than a certain percentage of recyclables.

The primary design parameters to be considered include the following:

* Determine that stable markets are available for banned materials.

* Publicize the ban to haulers and generators before implementation.

* Enforce the ban at landfill gates.

* Institute a fine system for haulers and a notification system for generators.

The primary implementation issues to be considered include the following:

* Recovery alternatives for banned materials must be in place before the ban is implemented. Without alternative methods for reusing, recycling, or, in some cases, otherwise disposing of materials banned at local landfills, there will be a hidden disincentive for their recovery.

* The ban must be monitored and enforced. Without effective monitoring and enforcement, compliance can not be controlled or directed.

* Establish clear lines of communication between regulators, haulers, and generators. The goals and methods of the ban must be clearly presented to affected parties. Many successful bans have phased-in their enforcement procedures, to allow generators and haulers time to respond to the unfamiliar regulatory requirement.

D. Policy on Scavenging

Scavenging policy can be addressed in two ways: anti-scavenging and scavenging, with anti-scavenging policies being the most common. In its most restrictive form, scavenging is prohibited at all times and anything set out at the curb belongs to the County. An example of a milder anti-scavenging policy allows scavenging any day other than the collection day.

The primary design parameters to be considered include the following:

* Scavenging or anti-scavenging policy.

* Type of enforcement.

* Implementation schedule for enforcement.

* Types of disincentives or deterrents used.

* Developed in conjunction with mandated recycling.

* Materials placed at curbside commingled rather than pre-separated.

* Increased security, drop-off containers locked at night.

* Drop-off container design.

* Schedule for material collection.

* Encouragement of public reporting.

The primary implementation issues to be considered include the following:

* Scavengers are not reliable or consistent in their pick ups because of weather, market price of recyclables, etc.

* Increased litter as a result of scavenging.

* Market price of materials: what is being skimmed.

* Monitoring: who is responsible, who pays for it.

* Public opposition to limiting scavengers.

* Developing an equitable policy on the issue of scavenging is difficult.

* Anti-scavenging laws do not prevent residents from donating recyclables to volunteer groups.

E. Zoning Code Practices to Encourage Recycling

The zoning code is one major tool that local governments have for preventing detrimental effects on the public health, safety, or general welfare. The zoning ordinance defines conditions and permit procedures for different types of development within the local jurisdiction. The ordinance should address the potential impacts of the different types of recycling facilities, the concerns of planners, and the ways in which these concerns are handled.

The primary design parameters to be considered include the following:

* Types and volumes of material that will be handled at the facility.

* Appearance and visibility of the facility.

* Health and safety of the workers and the public.

* Changes in local traffic volumes or patterns.

* Noise.

* Parking.

The primary implementation issues to be considered include the following:

* Procedures required to amend a zoning ordinance to permit a recycling facility.

* Types of permits needed by recycling facilities: permit by right, administrative permit, conditional use permit, and site development permit.

F. Building Code Requirements to Encourage Recycling

One common barrier to separating recyclables is inconvenience and lack of space. Building codes or guidelines can address this problem at the source, before the building is constructed, to help make recycling behavior and collection mechanisms an integral part of the work or dwelling place.

Building codes can be revised to require that new commercial and multifamily developments include space for recycling.

The primary design parameters to be considered include the following:

* Set aside space for recycling in commercial or residential developments of more than a specified number of square feet.

* Integrate recycling and recovery into the design of the waste disposal system, for instance, by putting both the recycling and disposal functions in the same area of the building.

* Include in lease or sale agreements the requirement that the tenants participate in a waste reduction program as outlined in a waste management plan.

* Reasonable codes for fire, sanitation, and safety.

The primary implementation issues to be considered include the following:

* The bureaucratic process may be slow to incorporate changes.

* May encounter resistance from fire marshall, sanitation staff, etc.

* May encounter resistance from developers.

* Single family residences would be exempt.

G. Business License Requirements to Encourage Recycling

One approach the jurisdiction can take to encourage recycling is to attach stipulations to the acquisition of business licenses.

The primary design parameters to be considered include the following:

* Businesses with greater than a specified number of employees or a specified amount of waste generation must provide proof of a recycling strategy integrated into the business plan in order to obtain or renew a business license.

* The recycling strategy shall include but is not limited to the following: specification of internal collection systems, availability of balers or other machines to facilitate recycling of separated materials, waste generation expectations, a monitoring mechanism, and regular diversion reports submitted to the jurisdiction.

The primary implementation issues to be considered include the following:

* May encounter resistance from business communities.

* Such requirements may create administrative and managerial burdens for the jurisdiction.

* The licensing requirements may be perceived by new businesses as a deterrent to locating in the area.

H. Mandatory Recycling Service Requirements for Private Refuse Haulers

A jurisdiction can require haulers to provide recycling collection as a condition of their business licenses or franchise agreements.

The primary design parameters to be considered include the following:

* Materials required to be collected.

* Required frequency of collection: weekly, biweekly, bimonthly, monthly.

* Whether the hauler must provide an incentive to recycle.

* Enforcement mechanism: how haulers will be monitored for compliance with the requirements.

* Payment system: how the hauler will be compensated for the service.

The primary implementation issues to be considered include the following:

* Any mandatory service requirement needs not only enforcement but a clear standard of what constitutes reasonable service.

* Mandatory service requirements raise issues of equity between large waste hauling firms which can afford to capitalize recycling equipment, and small firms which cannot. This problem is more easily resolved when the haulers operate under a franchise agreement.

* A system must be put in place to handle complaints about non-complying haulers.

I. Contracted or Franchised Recycling Service Provision

Through contracts or franchises a jurisdiction can organize programs and routes. This may be particularly useful in areas which are under served or not served at all by private haulers or recycling collectors.

The primary design parameters to be considered include the following:

* Who receives collection service.

* Who provides collection service.

* Where the collection service is provided.

* What materials are collected.

* How the program is monitored and evaluated.

* The duration of the program.

The primary implementation issues to be considered include the following:

* A contracted pilot program can demonstrate the economic viability of recycling collection and pave the way for private sector initiatives. Pilot programs also allow a contractor and the jurisdiction to test or compare various program strategies.

J. Cooperative Marketing of Recyclable Materials

This alternative involves joint marketing of materials aggregated from a number of jurisdictions. Such an arrangement may assure a better price and a longer term arrangement than could be secured if individual municipalities market their materials separately.

The primary design parameters to be considered include the following:

* Type of materials anticipated to be collected.

* Amount of materials to be collected.

* Haul distances to market.

* Processing requirements of markets.

* Storage capacity at facilities.

* Effects on the cost of processing and transporting materials.

The primary implementation issues to be considered include the following:

* A joint powers agreement will be necessary.

* Agreement could also be used for joint purchase of recycled products.

K. Procurement Practices Promoting Preferential Purchase or Use of Recycled-Content Products.

Adoption of ordinances that specify durability, recyclability, reusability, or recycled material content as a purchasing consideration will move towards recycling objectives.

The primary design parameters to be considered include the following:

* Ordinances specific to agency needs.

* Joint procurement policies with state and local governments.

* Joint standards for procurement to facilitate market development.

* Set asides, for example, an established percent of paper purchased will be recycled paper.

* Price preferences for products versus post industrial and total recycled content.

* Conduct seminars or workshops to address common barriers preventing widespread use of recycled paper products and to develop consensus methods for overcoming these obstacles.

The primary implementation issues to be considered include the following:

* Joint purchase agreements between different municipalities may be difficult to negotiate.

* Cost considerations: products with recycled content are more costly than virgin materials; priority may be given to products with recycled content allowing for a cost differential of a specified percent.

* Recycled products vary in quality.

* Collection of information on availability of recycled materials may be expensive and time consuming.

L. Changing Existing Rate Structures to Encourage Recycling

At disposal facilities where recyclables processing or drop-off opportunities have been established, charging a lower tipping fee or none at all for high-grade loads and provides an incentive for haulers and generators to separate recyclables from waste. For instance, loads of clean yard waste can be charged at a lower rate than garbage.

The primary design parameters to be considered include the following:

* Charging less for specific materials, such as clean yard waste.

* Charging less depending on the percent recyclables in the load.

* Determining the size of the differential.

* Establishing a system for monitoring loads for compliance.

* Educating haulers.

The primary implementation issues to be considered include the following:

* The necessity for monitoring loads will mean greater labor costs at the disposal site.

* May encourage high grade routes.

M. Financial Incentives for Local Investment in Recycling, Collection, Processing, and Marketing

Tax or accounting incentives can be developed, such as sales tax exemption, investment tax credits, accelerated depreciation, and consumption tax credits, for local investment in recycling, collection, processing, and marketing.

The primary design parameters to be considered include the following:

* Tax and accounting incentives in the form of deductions, exemptions, credits or reduced tax rates.

* Sales tax exemptions: exempting sales tax from the purchase of recycling equipment.

* Property tax exemptions.

* Investment tax credits.

* Accelerated depreciation on state income tax for real and personal property purchases.

* Consumption tax credits to encourage the use of secondary materials.

The primary implementation issues to be considered include the following:

* Sales tax and property tax exemption may not be a determining factor in investment decisions.

* Property tax exemption can have a significant negative effect on local bases when granted to larger operations.

* Tax incentive costs can be high because of forgone revenues and administrative costs.

* The benefit will be in terms of increased economic activity and improved recovery of materials from solid waste.

* Cost-to-benefit ratio is not known.

* Tax programs require little expense to administer in comparison to financial assistance or entrepreneurial development projects.

N. Educational Outreach & Technical Assistance to Waste Haulers, Private Businesses, Recycling Companies, and Other Groups

Workshops can be conducted to give technical assistance to haulers, businesses, and recycling companies. This may include giving them information on setting up and marketing programs. It may also involve giving them a forum to allow them to share information among themselves and express concerns. Through outreach activities input can be required from concerned parties before changes in regulations are made.

The primary design parameters to be considered include the following:

* Market presentations from end users.

* Training on performing waste audits.

* Sharing of information among haulers.

* Discussion of how to meet service level requirements.

* Presentations targeted to specific industry sectors, addressing how to set up recycling programs given their particular waste streams, problems and needs.

The primary implementation issues to be considered include the following:

* Workshops will be more effective and better attended in an environment involving mandatory collection requirements.

* Impact of educational efforts can be difficult to measure.

4.4.3 Evaluate Alternatives

4.4.3.1 Results of Evaluation

All alternatives passed initial screening, and were then fully evaluated based on 18 evaluation criteria. For each alternative a high, medium or low factor was assigned, thereby identifying whether the alternative had a net positive, neutral, or negative effect for any criterion. See Appendix D for a detailed description of this methodology. **Table 4-6** (as described in **Appendix D**) and **Table 4-7** show the results of the evaluation.

The findings were based on local conditions in the County unincorporated area. The principal factors considered include the following:

* A wide range of diversion rates.

* A large residential single-family housing sector.

* Primarily essential and commercial waste sources and comparatively few industrial generators.

* Difficulty in siting recycling operations in primarily residential areas.

* A need to handle increasing amounts of recyclable materials.

* High potential for using the private sector for recycling services.

* A broad spectrum of economic and ethnic groups.

TABLE 4-6
RECYCLING ALTERNATIVES EVALUATION MATRIX

KEY: L = Low H = High
M = Medium N/A = Not Applicable

	ALTERNATIVES:																									
COST-EFFECTIVENESS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Short-Term Cost	M	M	M	H	M	M	L	H	M	M	M	H	H	H	H	H	M	M	M	M	M	H	L	M	M	M
Medium-Term Cost	M	M	M	H	M	M	M	H	M	M	M	H	H	M	M	H	M	M	M	M	M	H	M	M	M	M
Waste Reduction Effectiveness	H	H	M	L	M	M	H	M	M	H	L	H	H	H	H	M	M	M	H	H	H	M	M	H	H	M
Ease of Financing	M	M	H	H	M	M	M	H	H	M	H	H	L	NA	NA	NA	NA	NA	NA	NA	L	M	M	H	L	H
TECHNICAL EFFECTIVENESS																										
Potential Hazards	H	H	M	M	M	M	M	L	M	M	M	M	H	NA	NA	H	H	H	H	M	M	H	NA	M	H	NA
System Flexibility	M	H	M	H	M	H	L	H	M	M	M	H	L	M	L	L	H	L	L	M	L	H	H	H	H	H
Shift in Waste Generation	NA	NA	NA	NA	NA	M	M	NA	M	M	NA	M	L	M	H	NA	NA	NA	NA	M	M	H	H	H	NA	M
Technical Reliability	H	M	H	H	M	M	M	H	H	H	H	H	L	H	H	M	M	M	M	H	H	H	NA	M	M	M
Equipment/Personnel Avail.	M	M	H	H	L	M	L	H	H	L	H	H	H	M	M	M	M	M	H	M	H	H	M	M	H	L
System Compatibility	H	H	H	H	H	H	H	H	H	H	H	M	M	M	M	H	H	H	H	H	L	H	M	M	M	H
INSTITUTIONAL RISK/IMPACT																										
Institutional Barriers	H	M	H	H	M	H	H	H	H	M	H	M	H	M	M	H	M	M	M	M	L	M	M	M	M	H
Local Policy Consistency	H	H	H	H	H	H	H	H	H	M	H	H	L	L	L	H	M	H	L	H	L	M	H	H	M	H
Facility Requirements	L	L	L	L	L	L	L	H	H	M	H	H	H	NA	NA	NA	NA	H	H	M	M	M	NA	NA	NA	NA
ST/MT Implementability	H	H	M	M	M	H	M	H	H	M	H	H	M	H	H	M	M	M	M	M	M	M	M	M	M	H
Market Conditions	M	M	M	M	M	M	M	M	H	M	H	H	H	NA	M	M	NA	NA	NA	M	M	H	H	NA	H	NA
Public Acceptability	H	H	H	H	M	M	M	H	H	H	H	H	M	M	M	M	M	H	H	H	H	H	H	M	M	H
Private Acceptability	H	M	H	H	M	H	H	NA	M	H	H	H	H	M	M	H	L	M	L	M	L	H	M	M	H	H
Private Participation Potential	L	M	H	H	L	H	H	L	H	M	M	L	H	H	H	NA	M	H	H	H	M	H	H	H	H	H

ALTERNATIVES

1 Curbside collection of separated mtls.
2 I/C/I at-source sep./coll. of recy. mtls.
3 Mobile/stationary buy-back centers
4 Mobile/stationary drop-off centers
5 M-F coll. of source sep. recy. mtls.
6 Manual materials recovery operations
7 Mechanized mtls. recovery operations
8 Salvage at solid waste facilities
9 At-source processing
10 Yard waste processing (Mulching)
11 Christmas Tree Recycling Program
12 Green waste cover project
13 Recycling market devel. zone siting
14 Mandatory materials sep. ordin.
15 Restrict disposal of desig. recy.
16 Policy on scavenging
17 Zoning code practices
18 Building code requirements
19 Business permit requirements
20 Mandatory recyc. service reqmts.
21 Contracted/franchised recy. serv.
22 Cooperative marketing
23 Procurement practices
24 Changing existing rate structures
25 Financial incntvs. for local invst.
26 Educational outreach & tech. asst.

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TABLE 4-7 RECYCLING ALTERNATIVES EVALUATION

Alternative / Criteria	Curbside Collection	Drop-off Center	Buy-Back Center	At-source Collection	Multifamily Collection	All Processing Alternatives
Total Cost	Expensive to start up; Cost of labor	Low equipment costs; Cost of land>$ return	Low equipment cost; Cost of land >$ return	Existing equipment; Private sector	Existing equipment; Private sector	Cost of labor; Private sector usually; Large sources only
Waste Reduction Effectiveness	>5-25%	>5%	5-10%	>5-25%	5-10%	>10-50%
Ease of Finance	Difficult to fund trucks; Low collection yield & $ return	Land cost >$ return	Land cost >$ return	Existing equipment; Concentrated sources	Existing equipment; Concentrated sources	New mode; Single source
Potential Hazard	Traffic; asthetics	Noise and litter; minimal impact	Noise and litter; minimal impact	Traffic only	Noise and litter; minimal impact	Noise; Worker safety
System Flexibility	Sensitive to changes in mat'l	Able to adapt to waste changes	Able to adapt	Oldest type of collection	Able to adapt to waste changes	New type; unproven
Shift in Waste Type	No impact	No impact	No impact	No impact	No impact	No impact
Technically Reliable	Extensively used	Extensively used	Extensively used	Extensively used	Unproven	Unproven
Equipment and Personnel Availability	Some training and personnel requirements	No training, some supervision available equip.	Ability to handle money; available equipment	Some training and personnel requirements	No training, some supervision available equip.	Needs supervision and specialized workers

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TABLE 4-7 RECYCLING ALTERNATIVES EVALUATION (CONT')

Alternative / Criteria	Curbside Collection	Drop-off Center	Buy-Back Center	At-source Collection	Multifamily Collection	All Processing Alternatives
System Compatibility	Can target variety of mat'ls; highly compatible	Profit center; single materials	Needs established markets; may cause dislocation in other programs	Compatible; hauler sponsored	Compatible; hauler sponsored	Single source; need for coordination with local plans
Institutional Barriers	Citizen noncompliance	Minimal	Some opposition due to profit center	Minimal	Unproven with some generators; lack of coordination in sector	Unproven with some generators; lack of coordination in sector
Consistency with Local Policy	Consistent with hierarchy	Consistent with heirarchy	Consistent with heirarchy	Consistent with heirarchy	Consistent with heirarchy	Consistent with heirarchy
Facility Requirements	No new facility needed	Needs facility	Needs facility	No new facility needed	No new facility needed	Needs facility
Implementability in ST/MT	Moderate timetable	Minimal timetable	Minimal timetable	Minimal timetable	Moderate timetable	Moderate timetable
Market Condition	Sensitive; low value goods	Less sensitive; low value goods	Profit making; high value goods	Concentrated sources only	Concentrated sources only	Large quantities per collection source
Publicly Acceptable	Yes	Yes	Yes	Yes	Yes	Depends on site
Privately Acceptable	Yes	Yes	Yes	Yes	Yes	Yes
Private Sector Participation	Yes	Yes	Yes	Yes	Yes	Yes

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TABLE 4-7 RECYCLING ALTERNATIVES EVALUATION (CONT')

Alternative Criteria	Recycling Market Development Zone Siting	Mandatory Separation	Disposal Ban	Scavenger Policy	Zoning and Building Code Changes	Business Recycling Plans	Hauler Service Requirement
Total Cost	Cost of enforcement may be high; but revenues could outweigh program cost	Cost of enforcement may be high; but revenues could outweigh program cost	Cost of enforcement may be high; but revenues could outweigh program cost	Policy reduces material loss; return should outweigh cost of development	Revenues should exceed costs	Revenues should exceed costs	Hauler charges reasonable rate
Waste Reduction Effectiveness	Excellent	Excellent	Can effect total diversion of items, but must have alternative end uses available	Can improve collection effeciencies, but does not add any materials	Can improve collection by promoting storage capacity	Pass along state mandated diversion targets to business	>5 to 25%
Ease of Finance	Start up services/ construction costs may be difficult to finance	Usually good	Usually good	Not applicable	Burden on regulated community	Usually good	Existing service
Potential Hazard	Some traffic	Danger of illegal disposal	Danger of illegal disposal	None	None	None	Some traffic
System Flexibility	Highly sensitive to market conditions	Can be changed to include other materials separated	Can be used to catch materials not being recycled	Can impact poor and less fortunate	Takes time to implement, not good for retrofit	Performanced based, not designed based	Adds services
Shift in Waste Type	None	None	Can have good effect	None	Can shift from durable to compressible items	None	Beneficial
Technically Reliable	Depends on market fluctuations	Used in many communities	Unproven recyclables	Needs enforcement mechanism	Unproven, takes years to implement	Used in other sectors such as hazardous waste	Depends on price
Equipment and Personnel Availability	Available	Needs enforcement personnel	Needs enforcement personnel	Design based	Design based	Private sector	Available

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TABLE 4-7 RECYCLING ALTERNATIVES EVALUATION (CONT')

Alternative Criteria	Recycling Market Development Zone	Mandatory Separation	Disposal Ban	Scavenger Policy	Zoning and Building Code Changes	Business Recycling Plans	Hauler Service Requirement
System Compatibility	Usually good as all programs benefit	Usually good as all programs benefit	Usually good as all programs benefit	May dislocate scavenging personnel	Depends on local siting requirements	Usually good as private sector oriented	Integrates hauler into collection of recyclables
Institutional Barriers	Some opposition	Some opposition	None at this time	Impact on informal sector	Some resistence from developers	ICI may not want to participate	None at this time
Consistency with Local Policy	Consistent	Inconsistent	Consistent	Consistent	Inconsistent	Consistent	Consistent
Facility Requirements	Yes	None	None	None	None	None	None
Implementability in ST/MT	ST/MT	ST	ST/MT	ST	MT	ST	ST
Market Condition	Needs markets, reliant on supply	Needs markets, but guarantees supply	Needs markets	Beneficial	Increases supply	Increases supply	Increase materials
Publicly Acceptable	Usually positive response	Generally resisted	Action can broaden impact to ICI sector	Usually positive response	Less acceptable among regulated owners	No effect	Acceptable
Privately Acceptable	Acceptable	Usually if collecting, not if separating	Resisted	Usually positive response from collectors	Less acceptable	Less acceptable	Acceptable
Private Sector Participation	Good	Good	Good	Good	Good	Excellent	Excellent

Note: ST = Short-Term Planning Period; MT = Medium-Term Planning Period

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TABLE 4-7 RECYCLING ALTERNATIVES EVALUATION (CONT')

Alternative / Criteria	Marketing Cooperative	Purchase Policy	Rate Changes	Contract Recycling Service	Financial Incentives	Outreach/ Technical Assitance
Total Cost	Can improve value of recyclables	Higher startup cost but may improve as usage increases	Those who produce more pay more--only residential sector	Duplicative service can be more expensive	Expensive; limited funds	Expensive; need for technical expertise
Waste Reduction Effectiveness	<1 to 10%	<1%	Found to be significant (>20%)	>5 to 25%	Unless applied across sector, little return	Education requires expertise
Ease of Finance	Low cost = easy to finance	Usually costs more at start (supply/demand)	Generates revenues, but may be difficult to "sell"	Start up services may be more difficult to finance	Difficult	County understands necessity for funding
Potential Hazard	None	None	Increase in illegal dumping	Duplicative services	None	None
System Flexibility	Unproven	Limited to what is available	Rates can be changed	Adds services	Fair; takes time to implement	Responds well to changes and can include all efforts
Shift in Waste Type	No data to determine effect	Not much effect	Beneficial	Beneficial	None	Beneficial effect
Technically Reliable	Unproven	Reliable, but market fluctuations	Some adjustments required	Depends on price	Depends on circumstance	Used as basis of many city programs
Equipment and Personnel Availability	Unavailable	Information not available on goods	Standardized containers	Available	Little experience present on such alternatives	Need to add personnel; ed. materials

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TABLE 4-7 RECYCLING ALTERNATIVES EVALUATION (CONT')

Alternative / Criteria	Marketing Cooperative	Purchase Policy	Rate Changes	Contract Recycling Service	Financial Incentives	Outreach/ Technical Assistance
System Compatibility	Should improve markets	Adds to markets	Not used in County as yet	Adds duplicative services	Can be challenged by other sectors	Good compatibility
Institutional Barriers	County versus private sector	Higher cost for same materials limit application	Citizens may object	Haulers object to duplicative services	Problem with finding funding	Usually none to education
Consistency with Local Policy	Consistent	Consistent with market development	Inconsistent with keeping costs low	Consistent	Inconsistent	Consistent
Facility Requirements	None	None	None	None	None	None
Implementability in ST/MT	ST	ST	ST/MT	ST	MT	ST
Market Condition	Improves marketability of materials	Improves markets	Needs markets to offset higher prices of collection	Set up by markets	Poor	Good, as not as much money required
Publicly Acceptable	Acceptable	Acceptable	Unacceptable	Acceptable	Unknown	Excellent response; most feel this is real goal of gov't
Privately Acceptable	Less acceptable	Opens additional markets for suppliers	Yes, as it is already done for private sector	Acceptable except to competitors	To some but not to others	Yes
Private Sector Participation	Less acceptable	Excellent	No impact	Excellent	Potential for participation	Potential for participation

Note: ST = Short-Term Planning Period; MT = Medium-Term Planning Period

Based on the evaluation, summarized in Table 4-6, various alternatives emerged that had broad applicability to the County. They include the following:

* Curbside collection at residential sources.

* Buy-back centers at strategic locations.

* Manual/mechanical materials recovery facility (MRF).

* CSD green waste landfill cover project.

* At-source separation and collection at commercial, industrial, and institutional sources.

* Multifamily collection system.

* Various supportive policies:

  - Mandatory materials separation ordinance;

  - Changing existing rates;

  - Scavenging policy.

The listing of qualified collection and processing alternatives included Alternatives 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, and 12. The full range of supportive policies is considered necessary to assist the County in increasing the diversion rate to meet the 1995 mandate. These policy alternatives were selected for their applicability and are widely viewed as supportive of the specific technological alternatives.

4.5 PROGRAM SELECTION

The qualified alternatives were considered for final selection by comparing each alternative against local conditions, existing waste diversion, goals and objectives, waste generation, and other considerations. Based on this comparison, several of the qualified alternatives were selected and configured into a diversion program, which is described and detailed in Section 4.5.3. The diversion program includes augmentation of existing activities. An overview of the program is presented in Section 4.5.1, while existing efforts are summarized in Section 4.5.2 et seq.

4.5.1 Program Description

Since the County's existing diversion rate is very low, the short-term recycling program is extensive and will focus on the residential, commercial and industrial waste streams. The emphasis is on: curbside collection of residential recyclables; at-source separation and collection, processing of commercial recyclables; and investigation of manual and mechanized materials recovery operations.

In the medium-term, any diversion gap is expected to be closed by expanding the then-existing programs to include other materials that represent a greater percentage of the total waste stream.

4.5.2 Existing Programs

The following is a description of the existing recycling programs. Known quantities diverted by existing programs are presented in **Table 4-8**. The discussion of monitoring and evaluation activities, program costs, and contingency measures for the selected programs is discussed in Section 4.7 through 4.7.3.4.

4.5.2.1 Curbside Collection (Single-Family)

Curbside collection is the separation of recyclables from other nonrecyclable waste for trash pick-up. The County program involves the pick-up of glass, newspapers, metals (aluminum and tin), and plastics on a voluntary basis. Customers are provided with one or more containers to separate recyclables. The following single-family curbside collection programs were implemented within the unincorporated County prior to January 1, 1991:

* Altadena (commencing 1/1/90)
* East Pasadena (1/1/90)
* Hacienda Heights (1/1/90)
* La Crescenta/Montrose (1/1/90)

The results of the recycling data survey that was distributed to all haulers in Los Angeles County showed that several haulers were able to quantify the waste diverted through their recycling programs in the unincorporated County areas. The total waste diverted by the four existing County curbside programs is

Table 4–8

Recycling Diversion For Existing Programs in 1990 (in Tons)

Waste Type	1990				
	SF CURB	MF	BuyB	MRF	TOTAL (Tons)
PAPER					
corrugated containers	0	0	0	10,232	10,232
mixed paper	0	0	0	3,136	3,136
newspaper	4,909	61	1	5,070	10,041
high grade ledger	0	0	0	5,053	5,053
other paper	0	0	0	654	654
SUBTOTAL	4,909	61	1	24,145	29,116
PLASTIC					
PET	0	0	1	165	166
HDPE	0	0	0	60	60
other plastics	21	2	0	4	27
film plastics	0	0	0	0	0
polystyrene	0	0	0	0	0
SUBTOTAL	21	2	1	229	253
METAL					
aluminum cans	122	2	1	1,453	1,578
tin	0	0	0	3	3
ferrous metals	0	0	0	592	592
non–ferrous metals	0	0	0	688	688
other metal	0	0	0	121	121
SUBTOTAL	122	2	1	2,857	2,982
GLASS					
CA redemption glass	0	0	4	3,011	3,015
other glass	1,661	14	2	583	2,260
SUBTOTAL	1,661	14	6	3,594	5,275
YARD					
yard waste	0	0	0	5,779	5,779
SUBTOTAL	0	0	0	5,779	5,779
ORGANICS					
food waste	0	0	0	241	241
wood waste	0	0	0	1,875	1,875
SUBTOTAL	0	0	0	2,116	2,116
TOTAL WASTE DIVERTED	6,713	79	9	38,720	45,521

Note: SF CURB = Single–Family Curbside Program, MF = Multi–Family Collection, BuyB = Buy Back Centers, MRF = Materials Recovery Facilities.

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approximately 6,000 tons which equals to 0.17 tons or 340 pounds per participant (assuming 100% participation for the 35,000 residents served by the programs), for the first year of operation. However, as the actual participation rates were on average 43%, the volume of potentially recoverable materials will increase with greater participation in the future.

4.5.2.2 Curbside Collection (multi-family)

The County began a multi-family curbside collection program for the unincorporated County area of Marina Del Rey on April 1, 1991. The program retrieves newspaper, glass, aluminum and tin cans, and plastics on a voluntary basis. No data is available at this time for the collected recyclables.

4.5.2.3 Buy-Back Centers

Certified Buy-Back Centers are located throughout the unincorporated County area. Such centers recompense individuals for recyclable materials. Most grocery stores in this area provide vending machines to buy-back California (CA) redemption value beverage containers.

Los Angeles County recently opened a certified Buy-Back Center in another unincorporated area, Lennox, on December 15, 1990. The new center accepts aluminum, glass, HDPE, PET, and newspaper. During the first month of operation, more than 115 pounds of plastics, 150 pounds of aluminum cans, and 1800 pounds of glass were collected.

In addition to this County-owned center, there are many privately owned buy-back centers within the County's unincorporated areas. Such commercial recycling centers were previously identified in Table 4-2. The County distributed a recycling data survey form to all certified buy-back centers within its boundaries. Only one center in the unincorporated area was able to quantify its recycling rates to the State of California, Department of Conservation (DOC) according to the generation point of the recyclables. The DOC will make this data available to each city and county within the State.

4.5.2.4 Drop-Off Program

Drop-off Centers accept donated materials which are commonly used for community services. The number of drop-off centers in the County unincorporated area are unknown at this time. Soon, certified drop-off programs will report to the DOC based on the generation point of the recyclables. Diversion percentages for the unincorporated County area as a result of the drop-off centers will soon be available from the DOC for each city area.

4.5.2.5 Office Paper Recycling

Office paper recycling programs collect high grade ledger, mixed paper, newspaper, computer paper and corrugated containers. The number of private businesses that implement an office paper recycling program is constantly growing. The County distributed a data survey form to all haulers in the County to determine if they were participating in an office paper recycling program, out of which only one large hauler was able to quantify the amounts of white paper and computer paper diverted through programs in the unincorporated area.

Furthermore, on July 3, 1990, 42 County Departments began a paper recycling program with an average of 75 tons of paper collected and recycled each month. Currently, 228 office buildings participate in this program. It is anticipated that by July 1991 all County offices, 300 in total, will participate in this program.

4.5.2.6 Recycling by Commercial Businesses

Many businesses operating in the County unincorporated areas implement in-house recycling programs. These businesses include grocery stores, restaurants, and bars. Each program is individual and specific to the type of business that is recycling. Materials recycled include corrugated containers, aluminum and tin cans, and glass. A recycling data survey form was distributed to all haulers and grocery store corporations located in County unincorporated areas. Several haulers were able to quantify their commercial recycling programs within the unincorporated areas. However, the total volume recycled is not known at this time. In addition to private recycling efforts, the County has a commercial program in the planning stages which may be implemented in 1993.

4.5.2.7 Materials Recovery Facilities (MRFs)

There are several transfer stations in Los Angeles County that are operating as Materials Recovery Facilities. The types of materials that are typically diverted at these facilities are: ferrous and non-ferrous metals, wood, glass, corrugated containers, aluminum, high-grade paper, newspaper, and mixed paper. Recyclables are often separated by hand, then baled, with the remaining refuse transferred to a nearby landfill. Most transfer stations are able to accept residential, commercial, and industrial waste and have a diversion rate of approximately 10 to 20 percent of the inflow waste stream.

4.5.2.8 Public Education Program

The County's public education program has been increasing in scope. It has included a brochure for the adult segment of the population and an educational packet for school children from kindergarten to sixth grade. This educational packet includes "Let's All Recycle!", an English/Spanish video and activities booklet program starring Woody Woodpecker, Los Angeles County's Official Recycling Mascot. The video has been produced for the Los Angeles County Department of Public Works by AIMS Media, KIIS-FM, MCA/Universal Merchandising Inc., and the Southern California Gas Company. It has been reviewed and endorsed by representatives from the Los Angeles County Office of Education and the Los Angeles Unified School District. The Activities Booklet focuses on the "New Three R's": Reduce, Reuse, Recycle. The video has been distributed to all public and private elementary schools within Los Angeles County.

Children kindergarten through sixth grade participated in Woody Woodpecker's first environmental calendar contest. This event was sponsored by Ralphs Grocery Stores, KIIS-FM, and BFI Waste Systems. The program was coordinated through the Los Angeles County Department of Public Works. The focus of the contest is to introduce children to the "New Three R's": Reduce, Reuse, Recycle. The twelve winners will have their drawings featured in a 1993 calendar. Entry forms were made available at local Ralphs stores.

A new Woody Woodpecker Environmental Award, sponsored by Lucky stores and coordinated through the Los Angeles County Department of Public Works, was available for the

winners of the junior and senior divisions of the Los Angeles County Science Fair and the California State Science Fair. These awards target grades seven through twelve and are open to all categories, however, entries should focus on the "New Three R's: Reduce, Reuse, and Recycle.

The County has developed and distributed materials which help support and promote County recycling programs. Flyers and door-hangers have been distributed to residents and schools in communities where curbside recycling programs are being implemented. Also, the County participates in special events such as parades and grand openings (for the Lennox buy-back center). In addition, the County is currently developing an information pamphlet targeted to the business sector.

There are also numerous privately implemented educational programs. One such program is implemented by Universal Studios Hollywood, where recycling brochures prepared by the County are distributed to the approximately 250,000 individuals who visit the park in a six-month period. Universal Studios also features Woody Woodpecker as their recycling mascot in an electronic display.

Another privately implemented public education effort is an exhibit in the California Museum of Science and Industry entitled, The Urban Environment: Can We Recycle More Materials? This impressive exhibit features a large trash can representing the trash generated in the County. The can has wedges representing the different components of the waste stream and it illustrates that most of these materials are recyclable.

4.5.2.9 Government Procurement Programs

The Los Angeles County Board of Supervisors passed a motion on May 8, 1990 for the County departments to favor procurement of goods made from recycled materials. A pilot program for recycled paper was conducted at one County department. Several types of paper meeting the necessary quality requirements were identified. The County Department of Public Works also recently changed from yellow pad paper to white to reduce the amount of colored ledger paper produced.

4.5.3 Selected Programs

Programs selected for short- and medium-term implementation consist of: a) Alternative 1, single-family curbside collection; b) Alternatives 2 and 9, at-source separation, collection, and processing at businesses; c) Alternative 3, buy-back centers; d) Alternative 4, drop-off facilities, e) Alternative 5, Multi-family collection; f) Alternatives 6 and 7, Materials Recovery Operations; g) Alternative 11, Christmas Tree Recycling Program; h) Alternative 12, CSD Green Waste Landfill Cover Project; and i) the development and implementation of various supportive policies (Alternatives 13 through 26) designed to increase the effectiveness of the primary recycling efforts. The discussion of monitoring and evaluation activities, program costs, and contingency measures included for each of the selected alternatives is discussed in Section 4.7 through 4.7.3.4.

4.5.3.1 Alternative 1 - Curbside Collection of Separated Materials

The County, in conjunction with the refuse haulers now serving the unincorporated County area, will evaluate the performance data from the existing curbside recycling programs. Based on this information, as well as input from other interested parties, the County will expand its existing curbside recycling program for the unincorporated area to include other unincorporated areas. The targeted materials for the program will be: newspapers, glass containers, tin cans, aluminum cans, plastic and yard waste (contingency).

The critical design factors that the County will consider in formulating the County curbside program are: collection frequency, collection day, collection time, container type and size, materials separation requirements, service provider, and promotional techniques. The program will be designed and implemented early in the short-term planning period to maximize the program's contribution to achieving the diversion goal.

The curbside program will be monitored and evaluated during the short-term to determine how it should be expanded during the medium-term. For example, how the numbers and types of materials collected can be enlarged. Possible additional materials to be collected in the medium-term are: mixed paper, old corrugated cardboard, and other plastics. The County will require those refuse haulers currently serving single-family residences (as defined by the County) to provide curbside collection of

designated recyclables. This service shall be provided as a condition of receiving a business license or permit to operate within County limits. Curbside collection programs for the unincorporated area will be fully implemented by June 1995.

Since January 1, 1991, the County has implemented the following three curbside collection programs in addition to those programs commenced in 1990:

* Topanga Canyon (commencing 4/91)

* Rowland Heights (10/91)

* Bassett/Valinda (10/91)

4.5.3.2 Alternative 2 - At-Source Separation and Collection and Alternative 9 - At-Source Processing

The County plans to initiate a business-wide recovery program that begins with Alternative 2, At-Source Separation and Collection. In this effort, commercial generators will be encouraged to implement separation systems for recoverable waste. Through educational efforts, the County will integrate businesses into this diversion program as early and as vigorously as feasible. To aid in this effort, haulers will be required to provide a collection service to businesses that desire to separate and recover target materials.

For some businesses, at-source processing (Alternative 9) may be a viable alternative because of economy-of-scale and other considerations. Development of at-source processing will not be mandated, but will be urged through performance-based guidance, rather than design-based standards. This means that the County would not impose any design alternatives upon businesses with respect to diversion, but might provide guidance target levels for businesses to divert recyclables (e.g., 25% diversion for a business by 1995 including, existing levels).

These alternatives are selected because of the potentially high diversion rates that may be achieved and the low implementation cost to the County. Implementation may be costly to some businesses due to reasons of size, volume of recyclable materials, and other considerations.

4.5.3.3 Alternative 3 - Buy-Back Centers

The County, in collaboration with private industry, plans to encourage the development of more facilities to buy-back recyclable materials in the unincorporated area. Buy-back facilities should be located particularly in unincorporated areas that are not targeted for curbside collection programs. This program will be implemented in the short- and medium-terms and was selected for its proven ability to achieve diversion of target waste types.

4.5.3.4 Alternative 4 - Mobile/Stationary Drop-Off Facilities

The County, in collaboration with private industry, plans to encourage the development of more facilities that accept drop-off of recyclable materials in the unincorporated area. Drop-off facilities should be located particularly in unincorporated areas where curbside collection programs are not established and where drop-off facilities would not compete with existing buy-back operations. This program will be implemented in the short- and medium-terms and was selected since it provides an important diversion alternative to curbside collection and buy-back programs and has low implementation costs to the County.

4.5.3.5 Alternative 5 - Multifamily Collection Mobile/Stationary Drop-Off

The County, in collaboration with interested haulers, multifamily dwellers and other residences with commercial accounts, will develop a mobile/stationary drop-off collection system for multifamily dwellers and single-family residents with commercial accounts who do not have recycling pick-up service. This system will give these individuals the opportunity to recycle certain targeted materials such as newspapers, aluminum cans, glass containers, and CA Redemption plastic beverage containers.

4.5.3.6 Alternatives 6 and 7 - Material Recovery Operations (Manual and Mechanized)

An important medium-term diversion program is the development of materials recovery facilities (MRFs). The County plans to encourage the planning, siting, and development of such operations Countywide. At this time, the specific mechanics and design of such operations are not known.

The County can encourage the development of materials recovery operations and other recycling incentive programs at solid waste facilities that are new or which propose expansions and/or revisions to their existing solid waste facility operations. As a regulatory body, the County may impose conditions and/or restrictions deemed necessary to achieve Assembly Bill 939 goals on a wide variety of land use decisions including, but not limited to, environmental impact reports, conditional use permits, findings of conformance for solid waste facilities, and solid waste facility permits. In addition, the County has a cooperative arrangement with the County Sanitation Districts (CSD) of Los Angeles County for the operation of the Calabasas, Puente Hills, and Spadra landfills and for the implementation of household hazardous waste collection events.

In the Los Angeles County Solid Waste Management Action Plan, adopted by the Board of Supervisors on April 5, 1988, the County and the CSD were directed to site future landfill locations within Los Angeles County. It is difficult to site solid waste facilities in the highly urbanized Los Angeles County. However, it is potentially less difficult to site MRF operations at solid waste facilities such as landfills which are already accepting municipal solid waste.

The Materials Recovery Operations alternative was selected for its ability to increase the gross marketability of recyclable material by increasing the volume of materials available to recycling processors.

4.5.3.7 Alternative 8 - Salvaging at Solid Waste Facilities

Subject to their use and facilities permits, operators of solid waste facilities may conduct limited salvaging activities at their facilities. The County can also permit limited salvaging activities at existing County-owned landfills. This program will be implemented by landfill operators in the short- and medium-terms. The program was selected since it provides an important diversion alternative and has low implementation costs to the County.

4.5.3.8 Alternative 11 - Christmas Tree Recycling Program

Two pilot Christmas tree recycling programs were conducted by the Los Angeles County Department of Public Works during January 1992 to divert these trees from disposal at local landfills and to contribute toward meeting the Assembly Bill 939 state-mandated waste diversion goals. First, the Department of Public Works Christmas Tree drop-off program was co-sponsored by the Los Angeles County Department of Parks and Recreation, in cooperation with the County Fire Department Explorer Program and the private sector. The program was conducted at six County parks on the first three consecutive weekends in January. Approximately 5,200 trees (39 tons) were collected, chipped and used as mulch at County parks. Second, a Christmas tree drop-off site was also held in connection with a waste hauler at San Angelo Park in the community of Bassett. The cost of the two Department of Public Works Christmas tree recycling programs was $57,240.

In addition, two waste haulers volunteered to pick up trees at the curbside on their normal trash collection days. Through these efforts, approximately 19,600 trees (147 tons) were collected and transported to Puente Hills Landfill and used as landscaping mulch.

This program will be implemented by the County and the private sector during the short and medium-term planning periods. The program was selected since it is an activity which provides an excellent opportunity for public education and outreach.

4.5.3.9 Alternative 12 - CSD Green Waste Landfill Cover Project

In conjunction with the curbside collection of separated materials program mentioned earlier, private waste haulers will deliver collected yard waste to several locations designated by the CSD as accepting green waste for landfill daily cover. This program will be implemented in the short-term and was selected for its potential for diverting large quantities of yard waste and has very low implementation costs to the County.

The County will require private haulers and landscape firms to utilize the CSD's yard waste cover programs for landfills. The alternative is selected because of

cost-effectiveness and waste reduction potential. The Los Angeles County Solid Waste Management Committee/Integrated Waste Management Task Force has accepted green waste used as a landfill daily cover to be a permissible diversionary credit program for compliance with the California Integrated Waste Management Act of 1989, Assembly Bill 939 and subsequent amendments.

4.5.4 Supportive Policies

The following supportive policies were selected to support the basic program alternatives. These policies will be implemented if needed to support the implementation of the primary program alternatives. Most will be implemented during the short-term and, if necessary, reviewed and revised during the medium-term planning period.

A. Alternative 13 - Recycling Market Development Zone Siting

The County plans to establish a Recycling Market Development Zone in the unincorporated area and/or a regional recycling market development zone with other jurisdictions. The first step is to determine the feasibility of identifying and establishing recycling market development zones within the County unincorporated area to encourage advances in recycling technology and to stimulate the development of markets for recycled materials. Also, the County may work with other jurisdictions within the region to determine the feasibility of establishing a region-wide recycling market development zone. This program will provide financial and other incentives from the State and the County to recycling businesses located within the designated zone. This policy will be implemented during the short-term and medium-term planning periods.

B. Alternative 14 - Mandatory Materials Separation

Residential and commercial generators will be required to separate their recyclables from their garbage/refuse. The targeted recyclable materials will consist of those materials included in the curbside recycling program for the residential generators and materials included in the at-source collection program for commercial generators.

C. Alternative 16 - Scavenging

Scavenging can be controlled by a County ordinance that prohibits scavenging for any recyclables set aside for recovery. A scavenging policy will be implemented to protect the County's curbside collection program which can be impacted by the potential loss of revenue due to theft. It is important to note that enforcement, the types of deterrents used, and encouragement of public reporting are essential to a successful anti-scavenging policy. This policy will be enacted early in the short-term planning period.

D. Alternative 17 - General Plan and Zoning Code Policies

The County General Plan and the County zoning code are major tools that the County has for preventing detrimental effects to the public health, safety, or the general welfare of its citizens. The general plan guides development and establishes general land use patterns for areas defined within the unincorporated boundaries. The zoning ordinance defines the conditions and permit procedures for different types of development within the County's jurisdiction. Amendments to the General Plan and ordinances to amend the County Zoning Code to permit recycling facilities should address the potential impacts of the different types of recycling facilities, the concerns of planners, and the way in which these concerns are handled.

E. Alternative 18 - Building Code Requirements

One common barrier to separating recyclables is inconvenience and lack of space. Building codes or guidelines can address this problem at the source, before the building is constructed, to help make recycling behavior and collection mechanisms an integral part of the work or dwelling place. The County Building Code can be revised to require that new commercial and multifamily developments include adequate space for storing recyclable materials.

F. Alternative 20 - Ordinance to Require Hauler-Supplied Collection Services

A County ordinance can be developed that requires the hauler to provide recycling collection. The ordinance might identify what materials will be collected, the frequency of collection, whether the incentive to recycle should be provided, the enforcement mechanism, and any payment system or compensation to the hauler. Any mandatory service requirement should have a clear standard of what constitutes reasonable service. This alternative is selected because there needs to be some guarantee that businesses can obtain collection for recyclables at a reasonable cost.

G. Alternative 21 - Special Recycling Agreements

The County will also consider requiring contract or franchise arrangements specifically for recycling services, in the event that private waste haulers are not able or willing to provide services to sources.

H. Alternative 23 - Procurement Practices

Local adoption of ordinances that specify durability, recyclability, reusability, or recycled material content as a purchasing consideration will contribute only nominally towards the County's diversion goals; however, it will set an example to the private sector that will encourage the diversion of significant volumes of recyclable materials and aid in the marketability of recycled materials over time.

I. Alternative 24 - Changing Existing Rate Structures to Encourage Recycling

The County can enact measures to increase the tipping fees at landfills to encourage private waste haulers to utilize lower cost materials recovery facilities and to encourage the source reduction or separation of recyclable materials from solid waste prior to disposal at landfills.

J. Alternative 26 - Technical Assistance and Public Information

An integral aspect of the recycling program will be the outreach and technical assistance program for residents and area businesses. The County will conduct workshops for and give technical assistance to haulers, businesses, recycling companies, and residents on setting up collection and marketing programs, or developing a waste exchange. It may also involve giving the audience a forum to share information and to express concerns. Through outreach activities, the County will receive input from concerned parties before changes in regulations are made.

For the collection and diversion programs anticipated for the short-term planning period, technical assistance may include: training for generators to perform their own waste audits; a discussion of how to meet service level requirements; and presentations targeted to specific waste streams, problems, and needs. It is expected that outreach can be coordinated with source reduction and composting outreach efforts.

4.5.5 Estimated Diversion Quantities

Table 4-9 provides estimates of the types and quantities of solid waste to be diverted from disposal by the selected alternatives. **Table 4-10** provides estimates of quantities of solid waste to be diverted from disposal for each material type by sector. **Table 4-11** presents estimates of quantities of waste types to be diverted by each program. **Table 4-12** presents estimates of quantities of waste diverted for each program by sector. According to the available waste characterization data (See Chapter 2) recyclable materials in the marine waste stream have little or no potential for diversion due to high contamination potential at the source (paper) and breakage (glass) which can render these wastes unrecoverable. Until data is collected indicating a realistic potential for diverting recyclable marine sector waste, no diversion is anticipated for marine sector waste during the planning period. Although there is no diversion anticipated for the Other waste sector, the County may consider investigating the feasibility of diverting green waste from all County Parks as a contingency measure if targeted diversion of this material is not achieved during the planning period.

Table 4-9

Estimated Diversion for Selected Recycling Alternatives*

	Alternatives	Materials	% Diversion	
#1	Single-Family Curbside	NP, PET, HDPE, OPL AL, TIN, CG, GL, YARD+	2.48% 3.52%	ST MT
#5	Multi-Family Collection	NP, PET, HDPE, OPL, AL, TIN, CG, GL	0.27% 0.37%	ST MT
#3	Buy-Back Program	NP, PET, HDPE, AL, TIN, CG, GL	0.93% 1.11%	ST MT
#4	Drop-Off Program	NP, PET, HDPE, OPL FP, POLY, AL, TIN, CG, GL	0.21% 0.30%	ST MT
#6, #7	Material Recovery Facilities (MRFs) (R/C/I)	CC, MP, NP, LP, OPA, PET, HDPE, OPL, FP, POLY, AL, TIN, FM, NFM, OM, CG, GL, YARD+, FOOD, WOOD	8.86% 16.36%	ST MT
#2, #9	At-Source Separation and At-Source Separation and Processing (C/I)	CC, MP, NP, LP, OPA, PET, HDPE, OPL, FP, POLY, AL, TIN, FM, NFM, OM, CG, GL, YARD+, FOOD, WOOD	4.53% 8.25%	ST MT
#8	Salvaging at Solid Waste Facilities	FM, NFM, CG	0.13% 0.18%	ST MT
#26	CSD Green Waste Landfill Cover Project	YARD	6.64% 5.90%	ST MT
#11	Christmas Tree Recycling	YARD	0.04% 0.04%	ST MT
		TOTAL	24.09% 36.10%	ST MT

Note: ST = Short-term planning period, MT = Medium-term planning period, CC = Corrugated containers, MP = Mixed paper, NP = Newspaper, LP = Ledger paper, OPA = Other paper, PET = Polyethylene Terephthalate, HDPE = High Density Polyethylene, FP = Film plastic, POLY = Polystyrene, OPL = Other plastic, CG = California redemption glass, GL = Other recyclable glass, AL = Aluminum cans, TIN = Tin containers, FM = Ferrous metals, NFM = Non-ferrous metals, OM = Other metals, FOOD = Food waste, YARD = Yard waste, WOOD = Wood waste.

* Supportive policies are not included as separate programs for the purpose of claiming diversion credit.

\+ Yard waste is diverted through these programs, however diversion quantities are reported under the CSD Green Waste Landfill Cover Program.

JT:table4-8.wk3

Table 4–10
Estimated Quantities of Materials to be Diverted Through Recycling By Sector (In Annual Tons)

Material Type	Short–Term 1995 Res Waste	Com Waste	Ind Waste	Total	Medium–Term 2000 Res Waste	Com Waste	Ind Waste	Total
PAPER								
Corrugated Containers	3,567	33,958	11,336	48,861	6,457	61,473	20,520	88,450
Mixed Paper	3,418	13,425	2,039	18,882	14,719	57,819	8,783	81,321
Newspaper	30,361	3,799	1,685	35,845	44,082	5,517	2,446	52,045
Ledger Paper	782	15,368	1,461	17,611	736	24,296	721	25,753
Other Paper	3,039	3,518	1,548	8,105	6,878	7,959	3,503	18,340
Subtotal	41,167	70,068	18,069	129,304	72,872	157,064	35,973	265,909
PLASTIC								
PET	873	98	43	1,014	1,976	223	96	2,295
HDPE	3,432	387	167	3,986	7,765	875	379	9,019
Film Plastic	1,964	1,253	835	4,052	2,039	1,436	957	4,432
Polystyrene	356	1,686	754	2,796	511	2,852	1,305	4,668
Other Plastic	319	26	13	358	721	59	30	810
Subtotal	6,944	3,450	1,812	12,206	13,012	5,445	2,767	21,224
METAL								
Aluminum	4,027	172	85	4,284	4,566	184	97	4,847
TIN	1,068	1,037	1,037	3,142	2,417	2,346	2,346	7,109
Ferrous	1,305	1,525	10,905	13,735	2,067	2,415	17,274	21,756
Non–Ferrous	964	971	833	2,768	1,102	1,087	942	3,131
Other Metal	0	0	702	702	0	0	6,356	6,356
Subtotal	7,364	3,705	13,562	24,631	10,152	6,032	27,015	43,199
GLASS								
CA Glass	14,398	643	276	15,317	16,293	726	310	17,329
Other Glass	13,489	80	77	13,646	26,651	167	973	27,791
Subtotal	27,887	723	353	28,963	42,944	893	1,283	45,120
ORGANICS								
Yard Waste	54,639	24,961	4,160	83,760	26,051	45,904	11,809	83,764
Food Waste	0	1,579	0	1,579	0	3,573	0	3,573
Wood Waste	1,330	1,029	19,085	21,444	2,970	2,299	42,631	47,900
Subtotal	55,969	27,569	23,245	106,783	29,021	51,776	54,440	135,237
TOTAL	**139,331**	**105,515**	**57,041**	**301,887**	**168,001**	**221,210**	**121,478**	**510,689**

Note: Res = Residential, Com = Commercial, Ind = Industrial.

JT:tab4–10.wk3

Table 4-11

AB 939 Target Diversion For
Selected Recycling Programs in 1995 and 2000 (in Tons)

Waste Type	1995										2000									
	SF CURB	MF	BUY B	MRF	AT SOURC	DROP	SALV	CSD	XTREE	TOTAL (Tons)	SF CURB	MF	BUY B	MRF	AT SOURC	DROP	SALV	CSD	XTREE	TOTAL (Tons)
PAPER																				
corrugated containers	0	0	0	31,760	17,101	0	0	0	0	48,861	0	0	0	66,338	22,112	0	0	0	0	88,450
mixed paper	0	0	0	8,497	10,385	0	0	0	0	18,882	0	0	0	32,528	48,793	0	0	0	0	81,321
newspaper	17,923	1,792	1,075	5,377	8,961	717	0	0	0	35,845	26,023	2,602	1,561	13,011	7,807	1,041	0	0	0	52,045
high grade ledger	0	0	0	12,328	5,283	0	0	0	0	17,611	0	0	0	18,027	7,726	0	0	0	0	25,753
other paper	0	0	0	5,673	2,432	0	0	0	0	8,105	0	0	0	12,838	5,502	0	0	0	0	18,340
SUBTOTAL	17,923	1,792	1,075	63,636	44,163	717	0	0	0	129,304	26,023	2,602	1,561	142,742	91,940	1,041	0	0	0	265,909
PLASTIC																				
PET	101	30	304	507	20	52	0	0	0	1,014	231	69	689	1,148	46	113	0	0	0	2,295
HDPE	399	120	1,196	1,993	80	198	0	0	0	3,985	902	271	2,705	4,510	180	450	0	0	0	9,019
other plastics	36	11	36	215	7	53	0	0	0	358	81	24	80	486	16	122	0	0	0	810
film plastics	0	0	0	3,647	324	81	0	0	0	4,052	0	0	0	3,989	355	88	0	0	0	4,432
polystyrene	0	0	0	2,516	224	56	0	0	0	2,796	0	0	0	4,201	373	94	0	0	0	4,668
SUBTOTAL	536	161	1,536	8,878	655	440	0	0	0	12,206	1,214	364	3,474	14,334	970	867	0	0	0	21,224
METAL																				
aluminum cans	428	86	2,142	1,285	129	214	0	0	0	4,284	484	97	2,423	1,454	145	243	0	0	0	4,847
tin	314	94	314	1,885	83	472	0	0	0	3,142	711	213	711	4,265	142	1,067	0	0	0	7,109
ferrous metals	0	0	0	10,301	2,060	0	1,374	0	0	13,735	0	0	0	16,317	3,263	0	2,176	0	0	21,756
non-ferrous metals	0	0	0	2,076	415	0	277	0	0	2,768	0	0	0	2,348	470	0	313	0	0	3,131
other metal	0	0	0	527	175	0	0	0	0	702	0	0	0	4,767	1,589	0	0	0	0	6,356
SUBTOTAL	742	180	2,456	16,074	2,842	686	1,651	0	0	24,631	1,195	310	3,134	29,151	5,609	1,310	2,490	0	0	43,199
GLASS																				
CA redemption glass	3,063	766	6,127	3,361	1,532	459	9	0	0	15,317	3,465	867	6,932	3,802	1,733	519	10	0	0	17,329
other glass	8,869	546	341	3,003	614	273	0	0	0	13,646	18,061	1,112	694	6,116	1,250	557	0	0	0	27,791
SUBTOTAL	11,932	1,312	6,468	6,364	2,146	732	9	0	0	28,963	21,526	1,979	7,626	9,918	2,983	1,076	10	0	0	45,120
YARD																				
yard waste	0	0	0	0	0	0	0	83,202	558	83,760	0	0	0	0	0	0	0	83,202	558	83,760
SUBTOTAL	0	0	0	0	0	0	0	83,202	558	83,760	0	0	0	0	0	0	0	83,202	558	83,760
ORGANICS																				
food waste	0	0	0	0	1,579	0	0	0	0	1,579	0	0	0	0	3,573	0	0	0	0	3,573
wood waste	0	0	0	16,083	5,361	0	0	0	0	21,444	0	0	0	35,925	11,975	0	0	0	0	47,900
SUBTOTAL	0	0	0	16,083	6,940	0	0	0	0	23,023	0	0	0	35,925	15,548	0	0	0	0	51,473
TOTAL WASTE DIVERTE	31,133	3,445	11,535	111,034	56,746	2,575	1,660	83,202	558	301,887	49,958	5,255	15,795	232,070	117,050	4,296	2,500	83,202	558	510,685

Note: SF CURB = Single-Family Curbside Program, MF = Multi-Family Collection,
BuyB = Buy Back Centers, MRF = Materials Recovery Facilities,
AT SOURC = Commercial/Industrial At-Source Collection & Processing,
DROP = Drop Off Program, SALV = Salvaging at Solid Waste Facilities,
CSD = County Sanitation Districts Green Waste Landfill Cover Program,
XTREE = County Christmas Tree Recycling Program.

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Table 4–12

Recycling Program Diversion By Sector (In Tons)

DIVERSION PROGRAMS	1990 RES	1990 COM	1990 IND	1990 TOTAL (Tons)	1995 RES	1995 COM	1995 IND	1995 TOTAL (Tons)	2000 RES	2000 COM	2000 IND	2000 TOTAL (Tons)
Single–Family Curbside	6,713	0	0	6,713	31,133	0	0	31,133	49,959	0	0	49,959
Multi–Family Collection	79	0	0	79	3,445	0	0	3,445	5,255	0	0	5,255
Buy Back Centers	9	0	0	9	11,535	0	0	11,535	15,796	0	0	15,796
Drop Off Program	0	0	0	0	2,575	0	0	2,575	4,296	0	0	4,296
Materials Recovery Facilities	12,982	17,780	7,958	38,720	36,004	50,539	24,491	111,034	65,395	115,387	51,288	232,070
Commercial/Industrial At–Source Collection and Processing	N/A	N/A	N/A	N/A	0	29,185	27,560	56,745	0	58,669	58,381	117,050
Salvaging at Solid Waste Facilities	N/A	N/A	N/A	N/A	0	830	830	1,660	0	1,250	1,250	2,500
CSD Green Waste Cover Project	N/A	N/A	N/A	N/A	54081	24,961	4,160	83,202	25,492	45,904	11,809	83,205
County Christmas Tree Recycling	N/A	N/A	N/A	N/A	558	0	0	558	558	0	0	558
TOTAL =	19,783	17,780	7,958	45,521	139,331	105,515	57,041	301,887	166,751	221,210	122,728	510,689
Total Waste Generated =				1,108,070				1,253,683				1,418,427
% Diversion of Total Waste Generated =				4.11%				24.08%				36.00%

NOTE: RES = Residential Sector, COM = Commercial Sector, IND = Industrial Sector.
No diversion anticipated for the Marine or Other sectors (see Section 4.5.4).

JT:disc.wk3

4.5.6 Anticipated End Users of Recycled Materials

The waste diversion study identified a number of end users for the materials diverted by the selected alternatives. For the targeted materials, markets are generally strong in Southern California, due to the presence of strong export buyers and available local end users. In fact, much of the material collected in San Diego and Arizona must be routed through Los Angeles port facilities, yielding a competitive marketing advantage to locally derived materials. Exportation plays a key role in the local marketplace with its capacity to decrease volatility in often-fluctuating markets.

The discussion of contingency measures to address shortfalls in the recycled materials market scenario is included in Section 4.7.3.4.

4.5.6.1 Wastepaper Grades

There are a variety of wastepaper dealers and consuming mills in the Los Angeles area, as well as access to Pacific Rim markets. These remain accessible to materials diverted from the County. There is also considerable future capacity being constructed for de-inking newspaper. Construction markets remain depressed, which may lower the value of mixed papers.

4.5.6.2 Glass Containers

The glass market is a traditionally stable market. The State has enacted recent legislation that mandates increased usage of recycled glass in containers, but this has yet to spur construction of additional capacity. However, Southern California is home to a number of glass-container producers; therefore, the effect of oversupply is less pronounced in the area. Other outlying areas may experience greater dislocation than that experienced by the County.

4.5.6.3 Metals

Tin cans are purchased for de-tinning by Proler International. Proler International has a new plant in Houston, Texas and a plant in Lathrop, California. There are strict specifications, and prices are normally low compared with other metals. At present, there is an adequate market for the material, but care will be exercised by the County to gauge the progress of new capacity and pricing relative to oversupply.

Each targeted material is described below indicating the status of the current markets and, if a problem is indicated, identifying the marketing strategy to move the diverted materials.

4.5.6.4 Plastics (PET and HDPE)

There is a developing market for plastics, but at this time it is insufficient to absorb all potentially collected materials. Waste Management, Inc. and DuPont are slated to build PET recycling facilities in Southern California. The County will monitor this situation very closely and act to develop key marketing arrangements with the potential buyers so as to confirm demand for materials prior to collection program startup.

4.5.6.5 Yard Wastes (Prunings)

There are major buyers of wood shavings and chippings within Southern California. The CSD may be able to utilize all available yard wastes in an alternative daily cover program for its landfills at Puente Hills, Spadra, Calabasas, and Scholl Canyon, if the current pilot-scale projects are approved for permitting. In addition, there is a large yard waste processing facility owned and operated by United Pacific Corporation (UPC) which is located in Santa Fe Springs. The throughput capacity of the facility is 1,500 tons per day. Incoming yard waste is screened to remove contaminants, size-reduced, then transported to the company's composting facility near Bakersfield. Compost products are then hauled to Los Angeles. The Los Angeles County Fire Department has also indicated a desire to obtain mulched yard waste to use as a fire suppression material on fire breaks on designated County lands.

4.5.7 Methods of Handling Materials

Methods for handling materials would be standard operating methods currently used by private sector recyclers.

4.5.8 Facility Needs

At present, there is no anticipated shortfall in available facilities to handle additional volumes of recyclable material in the County. There are planned MRFs in the various permitting stages that are located throughout the greater Los Angeles County area. In the event that additional facilities are needed, the County will work with other jurisdictions and with the private sector to identify appropriate facilities to handle the additional volumes of material.

4.6 PROGRAM IMPLEMENTATION

This section identifies the implementation tasks, implementation schedule, responsible parties, and costs and revenues for the selected recycling diversion program alternatives.

4.6.1 Short-Term Implementation Plan

The short-term implementation plan for the selected alternatives, including specific tasks, start and finish dates, and responsibilities for implementation, are shown in Table 4-13.

4.6.2 Medium-Term Implementation Plan

The medium-term implementation plan for the selected alternatives, including specific tasks start and finish dates, and responsibilities for implementation, are shown in Table 4-14.

4.6.3 Implementation Cost and Revenues

Table 4-15 summarizes the estimated implementation costs, revenues, and revenue sources, for various programs within the short-term planning period (1991 dollars).

4.7 MONITORING AND EVALUATION OF PROGRAMS

4.7.1 Monitoring Methods for Objectives

The following methods will be used to quantify and monitor achievement of the objectives for all of the programs selected for implementation in the unincorporated County area:

Table 4–13
Short–Term Implementation Plan

Selected Programs	Start	Finish	Responsibility
#1– Develop Single–Family Curbside Collection			DPW, WMD
* Develop Programs	1/91	ongoing	DPW, WMD
* Implement Programs	3/91	ongoing	DPW, WMD
#2, #9– At–Source Separation and Collection and At–Source Processing			
* Review and augment existing program	1/93	6/93	DPW, WMD
* Review Opportunity with hauler	1/93	3/93	DPW, WMD
* Enact ordinance for hauler services	3/93	6/93	Board of Supervisors
* If necessary, develop franchise arrangement for recycling services	12/93	6/94	DPW, WMD
#3– Buy–Back Centers			
* Review Feasibility	1/93	5/93	DPW, WMD
* Conduct siting study	6/93	9/93	DPW, WMD
* Assist private firm in acquiring land, or negotiate a lease arrangement	10/93	2/94	DPW, WMD, private sector
* CEQA and local approvals process	3/94	9/94	DPW, WMD, private sector
* Construction	9/94	3/95	Private sector
#4– Drop–Off Facilities			
* Review Opportunities	1/93	5/93	DPW, WMD
* Program Development	6/93	9/93	DPW, WMD
* Implement Program	10/93	ongoing	Private sector
#5– Multi–Family Collection			
* Program Development	1/93	5/93	DPW, WMD
* Implement Program	6/93	ongoing	DPW, WMD
#6, #7– Material Recovery Operations			
* Consider with other jurisdictions private sector MRF development	6/93	1/94	DPW, WMD
* Conduct siting study, if necessary	1/94	12/94	DPW, WMD
#8– Salvaging at Solid Waste Facilities			
* Review Opportunities with landfill operators	6/93	9/93	DPW, WMD, CSD
* Develop program	10/93	2/94	DPW, WMD, CSD
* Implement Program	3/94	ongoing	CSD
#11– Christmas Tree Recycling			
* Review Opportunities	9/92	11/92	DPW, WMD
* Implement Program	1/93	ongoing	DPW, WMD, DPR,
#12– CSD Green Waste Cover Project			
* Develop ordinance	1/93	5/93	DPW, WMD, CSD
* Review opportunity with haulers	6/93	9/93	DPW, WMD, CSD
* Enact ordinance for hauler services	10/93	1/94	Board of Supervisors

Note: Most supportive policies are included as tasks since they support the basic alternatives.

DPW = Department of Public Works, WMD = Waste Management Division,
CSD = County Sanitation Districts, DPR = Department of Parks and Recreation.

JT:implan

Table 4–14
Medium–Term Implementation Plan

Selected Programs	Start	Finish	Responsibility
#1– Expand Single–Family Curbside Collection			DPW, WMD
* Program Expansion	1/96	3/96	DPW, WMD
* Implement Expanded Programs	4/96	ongoing	DPW, WMD
#2, #9– Expand At–Source Separation and Collection and At–Source Processing			
* Review Opportunity with hauler	1/96	6/96	DPW, WMD
* Provide Expanded Outreach/ technical assistance	6/96	ongoing	DPW, WMD
* If warranted, determine additional requirements such as ordinance modifications, mandates, etc.	1/97	5/97	DPW, WMD Board of Supervisors
#3– Buy–Back Centers			
* Review Opportunities	1/96	3/96	DPW, WMD
* Implement Expanded Program	4/96	ongoing	DPW, WMD, Private sector
#4– Drop–Off Facilities			
* Review Opportunities	1/96	3/96	DPW, WMD
* If warranted, determine additional requirements	4/96	6/96	DPW, WMD, Private sector
#5– Expand Multi–Family Collection			
* Review Opportunities	1/96	5/96	DPW, WMD
* If warranted, determine additional requirements such as ordinance modifications, mandates, etc.	5/96	1/97	DPW, WMD
#6, #7– Material Recovery Operations			
* Private sector development and construction of facilities	1/96	6/97	Private sector
#8– Salvaging at Solid Waste Facilities			
* Implement Expanded Program	1/96	ongoing	CSD
#26– CSD Green Waste Cover Project			
* Review opportunity with haulers	1/96	6/96	DPW, WMD, CSD
* If warranted, determine additional requirements, such as ordinance modifications	6/96	1/97	DPW, WMD, Board of Supervisors
#11– Christmas Tree Recycling			
* Implement Expanded Program	1/96	ongoing	DPW, WMD, DPR, private sector

Note: Most supportive policies are included as tasks since they support the basic alternatives.

DPW = Department of Public Works, WMD = Waste Management Division, CSD = County Sanitation Districts, DPR = Department of Parks and Recreation.

JT:medplan

Table 4–15
Recycling Program Implementation
Average Annual Costs (1)

Implementation Program	Private Sector	County		TOTAL KNOWN COUNTY COST
	Program Development/ Implementation ($)	Program Development/ Implementation ($)	Monitoring and Evaluation Costs ($)	
Recycling Curbside Collection	*	15,000	5,000	20,000
Buy Back Centers	2,000	30,000 (2)	5,000	35,000
Drop–Off Programs	*	5,000	5,000	10,000
Commercial/Industrial At–Source Separation and Processing	*	52,500	20,000	72,500
Materials Recovery Facilities (3)	*	5,000	2,500	7,500
Salvaging at Solid Waste Facilities	*	5,000	2,500	7,500
CSD Green Waste Cover Project (4)	*	5,000	2,500	7,500
Public Education and Outreach	*	600,000 (5)	0	600,000
Christmas Tree Recycling	*	47,500	2,500	50,000
Supportive Programs #12 –#24	*	25,000	115,000 (6)	140,000
TOTAL	2,000	790,000	160,000	950,000

* Total Cost Unknown

NOTES:

1) Average annual cost calculation is based on the average costs accrued from 1993 through 1995.
2) $20,000 for staffing costs at one potential buyback center.
3) Assumes that two privately owned and operated facilities are constructed. Facility #1 has a daily throughput capacity of 2500 tons per day. Facility #2 has a daily throughput capacity of 1000 tons per day.
4) The County Sanitation Districts will accept green waste from private haulers.
5) Includes the equivalent of 1 full–time staff at $100,000/year annual salary/benefits/County overhead. Also includes $500,000 designated for consultant services.
6) $100,000 of this figure is designated for consultant services to conduct waste stream characterization studies.

JT:impcost

* Require the hauler to keep records of the amount of waste disposed by residents and businesses.

* Arrange with the hauler to provide commercial and industrial sources with a reporting device by which they can keep records of all diversion activities.

* Provide incentives for sources to engage in these types of reporting activities (fines for noncompliance).

* Keep records of attendance at all educational programs and events and follow up those events by leaving survey forms for participants to return to determine if they were engaging in the type of recycling activity.

* Review bid responses to determine if bid specification revisions have resulted in desired responses.

* Review annual purchases to determine if County has increased its purchase of recycled products.

4.7.2 Diversion Programs Monitoring

Either one or both of the following methods shall be used to monitor implementation of the various diversion programs and to evaluate their effectiveness:

* Targeted waste characterization studies involving a representative sampling of generator sites or solid waste facilities to measure changes in the volume, weight, and hazard of specific wastes.

* An assessment of any changes in the design, production, distribution, sale, and/or use of targeted materials which would affect waste generation.

4.7.3 Monitoring Information

The sections below provide information regarding the specific monitoring and evaluation methods selected for the various diversion programs.

4.7.3.1 Criteria

The general criteria to establish effective implementation of the program will include:

* The measured reduction of the material to landfills.

* The measured increased diversion of material in each sector.

4.7.3.2 Responsibility

The County's Department of Public Works, Waste Management Division will be responsible for monitoring and evaluating the programs.

4.7.3.3 Costs and Revenues

Monitoring and evaluation will require time from the identified responsible party. This will include a minimum commitment of one-quarter time (shared with other component programs) from the staff of the Department of Public Works, Waste Management Division as shown in **Table 4-15**. This time may be allocated from existing staff or from new hires. The private sector will also incur costs associated with the implementation of recycling programs. To the extent that these private costs are known, they are quantified in Table 4-15. Appendix E provides information used to estimate private sector costs for the development and operation of materials recovery facilities.

The principal revenue source to fund the recycling programs implemented in the County unincorporated areas is the Solid Waste Generation Service Charge which is described in detail in Chapter 9.

4.7.3.4 Contingencies For Primary Diversion Programs

If the County fails to make reasonable progress toward its recycling objectives, three measures will be taken. This contingency plan will be followed for each program if there is a shortfall in waste diversion attainment.

Measure 1

This measure assumes that the recycling program objectives are reasonable and that the selected alternatives are adequate to achieve those objectives. In this case, the monitoring and evaluation program will be re-evaluated to determine if sufficient and timely information is available to accurately evaluate the recycling program's progress. If the monitoring and evaluation program is adequate, Measure 2 will then be enacted. If the monitoring and evaluation program is inadequate, then adjustments will be made (e.g. more frequent reporting, different quantification techniques).

Measure 2

This measure assumes that the monitoring and evaluation procedures are adequate and the program alternatives are properly selected, but the identified objectives are not achievable within the planning period. Under this scenario, the objectives will be revised and the difference in diversion will be covered by an increase in other targets set for the other components (i.e. source reduction and composting).

Measure 3

This step assumes that the monitoring and evaluation programs are adequate and the objectives are attainable, however, the alternatives selected for implementation are inadequate to reach the objectives. Under this scenario, the County will evaluate alternative recycling programs for implementation.

If, by the end of the short-term period, the County fails to make reasonable progress toward its year 2000 objectives, the following measures will be implemented.

* Increase the level of effort and frequency of public information.

* Add or accelerate mandatory aspects of program alternatives.

* Add other alternatives.

Specific programs were not selected as contingency measures for each selected primary alternative since it is not known at this time how each program will fail to achieve the specific diversion goals. An example of a specific program contingency for the CSD Green Waste Landfill Cover Project would be to establish sites where haulers would be required to deliver clean loads of mulched green waste for utilization as fire suppression material on fire breaks in Los Angeles County.

4.7.3.5 Contingencies For Market Development Policies

To the extent that markets for recycled materials/products can be influenced by local government actions, the County will attempt to engage in some of the following contingency measures if existing market development activities are inadequate to support recycling programs:

* Market development activities implemented in the short-term planning period will be expanded during the medium-term planning period.

* Increase the level of effort to work with other jurisdictions to lobby the State and Federal government for legislation increasing their role in the development of regional, national and international markets for recycled materials and products.

* The County can develop and distribute resource guides which can stimulate the supply of and demand for recyclable materials and products with recycled content. For example, one type of guide could identify businesses which are the end-users of recyclable materials. A second type of guide could identify companies specializing in products made with recycled content. These guides could be developed either for the unincorporated area or could be produced through the cooperative effort of the County and cities to provide information on a countywide basis.

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CHAPTER 5

COMPOSTING

CHAPTER 5
COMPOSTING COMPONENT

5.1 BACKGROUND

This chapter identifies and presents an overview of the existing activities and program alternatives to achieve diversion of organic waste from the waste stream through composting in the unincorporated areas of Los Angeles County.

Composting is defined as the controlled biological decomposition of organic wastes that are source separated from the municipal solid waste stream. Organic solid wastes include, but are not limited to, yard waste, paper, wood waste, agricultural waste and sewage sludge. The end product of the composting process is a brown or black substance rich in organic matter called compost or humus.

Compost can be applied to land as a soil conditioner. It is beneficial in increasing soil aeration, improving moisture levels, increasing nutrient retention and suppressing plant disease.

Composting as a solid waste technology has many advantages over other waste technologies. Some advantages of composting include the following:

* Low environmental impact
* Growing public acceptance and approval
* Valuable resource produced from potential waste

5.2 OBJECTIVES

5.2.1 Short-Term Objectives

The objectives for the short-term planning period include the following:

* To collect, process, and compost 1.0% of the total waste stream, or 12,537 tons by 1995.
* To develop compost quality standards and recommend application rates by 1995 in conjunction with the private sector and area cities.

* To develop collection ordinances by 1995.

* To develop public education programs related to composting by 1995 in conjunction with the private sector and area cities.

5.2.2 Medium-Term Objectives

The objectives for the medium-term planning period include the following:

* To collect, process, and compost 3.0% of the total waste stream, or 42,552 tons by the year 2000.

* To investigate the potential of implementing a local and/or regional municipal solid waste composting program in conjunction with the private sector and area cities.

* To implement yard waste disposal bans, taxes on virgin material, and financial incentives by the year 2000.

5.2.3 Targeted Materials

Based on the results of the Solid Waste Generation Study (SWGS), the County has targeted yard waste as the primary waste type of compostable organics. Table 5-1 provides the targeted waste types and the specific criteria for selection.

Table 5-1

Targeted Organic Waste Types

Waste Type	Criteria for Selection
Grass and Leaves	Weight and Volume
Prunings	Weight and Volume

In order to accomplish the stated diversion objectives, the County intends to target all yard waste including leaves, grass, prunings from all generators, including residential, commercial, industrial, and self-haul. Factors impacting yard waste generation, such as drought, xeriscaping, and backyard composting, may decrease the amount of waste that may be diverted through composting.

5.2.4 Market Development Objectives

The following are market development objectives the County will pursue in the short and medium terms to increase the demand for compost.

5.2.4.1 Short- and Medium-Term Market Development Objectives

The short-term market development objectives include the following:

* To increase markets through a County utilization and procurement program.

* To increase revegetation of degraded public land such as quarries, mines, oil fields, and gravel pits.

* To increase markets with local and regional landscapers, gardeners and nurseries through economic incentives.

* To increase markets with citizens through public education and economic incentives.

The medium-term market development objectives include the following:

* To increase markets by requiring land-developers seeking development permits within the County to use compost during the landscaping phase of the project.

* To increase markets by developing economic incentives through the State for using compost.

As markets are not sufficiently established, the sale of materials may not be feasible at this time. Therefore, the option of giving away compost will be explored for possible implementation in both the short and medium-terms. A survey may be conducted to determine how much material can be used by local residents, businesses, and industry. Interest in receiving free compost through a County program also will be measured. In addition, Senate Bill 1322 requires that State agencies (i.e. the Department of Forestry and Fire Protection, the Department of General Services, and CalTrans) use yard waste compost. Estimates of compost consumption by these and other public agencies will be obtained through further staff research.

5.3 EXISTING CONDITIONS

There are no existing composting programs or permitted facilities currently documented within the County. Therefore, the County will not receive diversion credit through composting. As such, there are also no existing market development activities within the County. As there are no existing composting programs in the County, no programs will be reduced in scope or phased out during the short- and medium-term planning periods.

5.4 EVALUATION OF ALTERNATIVES

5.4.1 Identification of Alternatives

Alternatives are identified in Table 5-2 in four general categories: 1) collection, 2) pre-processing, 3) composting, and 4) supportive measures.

Table 5-2

Composting Component Alternatives

Alternatives	Waste Stream Application (1)
Collection	
* Curbside collection	R,ICI
* Self-haul drop-off	R,ICI
Pre-Processing	
* Decentralized pre-processing and materials storage	R,ICI
* Centralized pre-processing and materials storage	R,ICI
Composting	
* Yard waste composting	R,ICI
* Municipal solid waste composting	R,ICI
Support Policies	
* Promotion and education	R,ICI
* Financial incentives	R,ICI
* Regulatory measures and policies	R,ICI

(1) R = Residential Sector; ICI = Industrial, Commercial, and Institutional Sectors

5.4.2 Description of Alternatives

5.4.2.1 Collection Alternatives

A. Curbside Collection

Specified yard waste types such as grass, leaves, and brush less than 4 inches in diameter are picked up by contracted haulers at specified times and locations. Generators who set out material for such collection are single-family households and business establishments. Collection frequency depends on quantities generated from one week to the next, and seasonal factors. Material may be transported directly off route to a processing facility or may be off-loaded for temporary storage at a transfer point, from where it is transported to a central processing facility.

The primary design parameters to be considered include the following:

* Type of households served
* Collection frequency and seasonality
* Material types collected
* Loose or contained material
* Container construction and capacity
* Number of containers
* Collection vehicle type and its capacity
* Automated or manual loading

The primary implementation issues to be considered include the following:

* Mandatory or voluntary separation of yard waste from refuse
* Household container ownership and distribution
* Promotion and education outreach
* Siting of transfer station(s)

B. Self-Haul Drop-Off

Material is transported by generators to a site designated as a yard waste drop-off site. The site may be dedicated to yard waste or may be a solid waste management facility that provides yard waste services. Generators include homeowners and business establishments. In addition, County departments such as the Department of Parks and Recreation and the Department of Public Works' Road Maintenance Division may also haul the generated trimmings from parks and roadsides to a designated site. Drop-off sites may be transfer points for movement of materials to a central processing site. They also may be processing sites, either for volume reduction only or for full processing to an end product.

The primary design parameters to be considered include the following:

* Number of sites
* Site location
* Site size
* Site schedule
* Site privilege
* Materials accepted
* Materials preparation
* Collection containers
* Mobile handling equipment
* On-site processing equipment
* Site monitoring
* Material drop-off fees
* Material transfer

The primary implementation issues to be considered include the following:

* Ownership/Operator

* Establishing adequate and equitable fees

* Zoning

* Land use planning

* Promotion and education outreach (startup and ongoing)

5.4.2.2 **Pre-Processing Alternatives**

A. Decentralized Pre-Processing and Material Storage

Yard wastes such as grass, leaves, and brush less than 4 inches in diameter are delivered to one of several remote sites for volume reduction and/or densification, referred to as pre-processing. After the materials have been pre-processed they may be stored temporarily or shipped directly for composting or other beneficial uses such as mulching.

The primary design parameters to be considered include the following:

* Type of yard wastes collected

* Volume of materials handled

* Material delivery frequency and seasonality

* Condition of materials as delivered

* Intended end-use of material

* Degree of automation

* Land availability

* Degree of source separation

The primary implementation issues to be considered include the following:

* Mandatory or voluntary separation of yard waste from refuse

* Promotion and education outreach

* Facility siting

B. Centralized Pre-Processing and Materials Storage

Yard wastes such as grass, leaves, and brush less than 4 inches in diameter are delivered to one or more central sites for volume reduction and/or densification referred to as pre-processing. After the materials have been pre-processed, they may either be stored temporarily or shipped directly for composting or other beneficial uses such as mulching.

The primary design parameters to be considered include the following:

* Type of yard wastes collected
* Volume of materials handled
* Material delivery frequency and seasonality
* Condition of materials as delivered
* Intended end-use of material
* Degree of automation
* Land availability
* Degree of source separation

The primary implementation issues to be considered include the following:

* Mandatory or voluntary separation of yard waste from refuse
* Promotion and education outreach
* Facility siting

5.4.2.3 **Composting Alternatives**

A. Yard Waste Composting

Yard waste composting involves the natural decomposition of organic materials derived from commercial landscaping and residential gardening or landscaping applications. The waste materials are pre-processed and then composted using either aerobic (requires oxygen) or anaerobic (does not require oxygen) decomposition. Composting utilizes naturally occurring microorganisms to decompose the

organic fraction of the yard wastes into a humus-like material suitable for use as a soil amendment.

The following composting techniques have been identified as appropriate alternatives for use in the County.

In-vessel: Composting takes place in an enclosed container or vessel. Mixing, aeration, temperature, moisture, and nutrient levels can be tightly controlled, significantly reducing composting time. These systems tend to have fewer odor problems and require less land than open-air operations. However, equipment costs are quite high.

Windrow: Compost materials are gathered in elongated piles (windrows) and are turned periodically to provide aeration. Moisture and temperature also are controlled to ensure optimal decomposition. Windrow composting takes longer than other methods and requires the most land.

Aerated Static Pile: Waste materials are mechanically aerated by perforated pipes, which draw-in or blow air over or through the piles. This virtually eliminates the need for periodic turning of the piles. Larger piles can be constructed because of the controlled air supply, decreasing the amount of land needed.

The primary design parameters to be considered include the following:

* Aerobic or anaerobic decomposition
* In-vessel, windrow, or aerated static pile composting
* Number of sites
* Site location and size
* Turning frequency
* Types of materials accepted

* Material preparation

* Type of handling equipment

* On-site processing equipment

* Site monitoring

* Material drop-off fees

The primary implementation issues to be considered include the following:

* Development of appropriate quality standards

* Facility ownership/operation

* Establishing adequate and equitable fee structures

* Environmental impacts

* Zoning

* Land use permits

* Promotion and education outreach (startup and ongoing)

B. Municipal Solid Waste Composting

Municipal solid waste (MSW) composting involves the natural decomposition of organic materials contained within the MSW stream. Pre-processing MSW requires two steps. First, the wastes are sorted to remove inorganic and organic contaminants. Remaining wastes are then reduced in size using any of a number of proprietary and nonproprietary methods. The remaining materials are then composted using either aerobic or anaerobic methods. This type of composting is generally referred to as high level technology, although the actual composting methodology may be in-vessel, windrow, or static pile process.

The primary design parameters to be considered include the following:

* Aerobic or anaerobic decomposition

* In-vessel, windrow, or aerated static pile composting

* Number of sites

* Site location and size

* Turning frequency

* Types of materials accepted

* Material preparation

* Type of handling equipment

* On-site processing equipment

* Site monitoring

* Material drop-off fees

The primary implementation issues to be considered include the following:

* Development of appropriate quality standards

* Facility ownership/operation

* Establishing adequate and equitable fee structures

* Environmental impacts

* Zoning

* Land use planning

* Promotion and education outreach (startup and ongoing)

5.4.2.4 **Support Measures Alternatives**

A. Promotion and Education

Promotion and education measures typically take one of two forms, general public awareness and program-specific activities. The two forms work well together; one serves to raise consciousness about waste and the other provides information pertaining to a specific program.

Residential curbside collection programs require an aggressive promotion and education campaign to be successful. Technical assistance is a form of education that typically targets the private

sector. Such programs may target yard waste generators, yard waste collectors and composters, or users of compost.

The primary design parameters and policy implications to be considered include the following:

* Sponsoring parties
* Active involvement of community and regional groups
* Material types targeted
* Targeted sector (public or private)
* Targeted entity (generator, composter, end user)
* Scheduling of activities
* Support from local and regional organizations

B. Financial Incentives

Rate structuring is the most common financial incentive used to encourage source separation and composting of yard waste. Examples include a volume-based fee for refuse collection or a reduced tipping rate for source separated yard waste. In addition to rate incentives, soil amendment products made with yard waste may be given preferential pricing. Composting operations may be given subsidies and investments in yard waste recovery operations will be encouraged. Market cooperatives for yard waste products also may be encouraged to reduce costs.

The primary design parameters and policy implications to be considered include the following:

* Responsible parties
* Material type targeted
* Targeted generators
* Enforcement methods

* Political support

* Equitable application

* Enforcement resources

C. Regulatory Measures

Optional regulatory measures include ordinances, bans, contractual provisions, codes, and licensing. These measures are most successful when they target yard waste generators, discouraging excessive waste while encouraging source separation and composting.

The primary design parameters and policy implications to be considered include the following:

* Responsible parties

* Material types targeted

* Targeted generators

* Enforcement methods

* Political support

* Equitable application

* Cooperation of contracted haulers

5.4.3 **Evaluating Alternatives**

Pursuant to Sections 18733.3(a)(1)-(6) and 18733(b)(1)-(4) of the California Code of Regulations, each alternative is evaluated based on the following criteria:

* Waste Diversion Potential

* Ability to Minimize Overall System Costs

* Minimal Barriers to Implementation

* Consistency with Existing Local and Regional Plans

* Results in Minimal Facility Impacts

* Availability of Markets for Materials Produced

* Implementability within the Planning Period

* Compatibility with Existing System

* Potential for Private Sector Participation/Ownership

* Minimizes Potential Hazards

* Flexibility

* Adaptability to Changes in the Waste Stream

* Overall Technical Reliability

5.4.4 Criteria Description and Scoring Methodology

5.4.4.1 Waste Diversion Potential

A. Collection

Existing programs throughout North America have generally experienced greater waste diversion with curbside collection of yard waste than with self-haul programs. However, when significant quantities of yard wastes are handled by commercial landscapers, convenient and efficient drop-off stations also have a high potential for waste diversion. In general, active collection programs, both curbside and self-haul, have demonstrated greater waste reduction potential than programs relying solely on promotional efforts.

B. Pre-Processing

Decentralized pre-processing, particularly where haul distance or haul time is a significant factor contributing to operating costs, is generally highly effective and efficient at diverting yard waste. Centralized pre-processing is slightly less effective, although somewhat more efficient.

C. Composting

Composting is a highly efficient and effective waste diversion methodology. Virtually all organic material is amendable to both volume and weight reduction by composting. It is of no practical consequence which level of composting methodology is employed. All levels of composting technology are equally effective at diverting waste given sufficient time. For source separated materials

diversion efficiency is greater than 95%.

Typically, MSW composting is more effective at diverting greater quantities of materials than yard waste composting due to the greater amount of mixed organics in MSW.

D. Support Measures

Regulatory measures aimed directly at waste generation, such as mandated source separation and yard waste or general organics disposal bans, are more effective at reducing waste than measures such as zoning ordinances, building codes, and permitting and licensing regulations.

5.4.4.2 **Minimizes Total System Costs**

A. Collection

Costs for curbside collection of yard waste are usually significantly higher than for drop-off stations due to the greater investment in equipment and labor.

B. Pre-Processing

Depending on specific operational design, the costs associated with decentralized pre-processing tend to be lower than those associated with a centralized pre-processing.

C. Composting

Costs associated with composting depend significantly on the type and level of technology used, degree of automation, land costs, transportation costs, and marketing costs. In general, yard waste composting is less expensive than MSW composting.

D. Support Measures

Promotional efforts directed to an entire community are typically in the range of 0.50 cent to $1.50 per household per year. The costs of financial incentives and regulations are incurred in the staff's time required to draft, propose, and enact such measures. These costs vary widely depending on the scope and magnitude of the measures as well as local and regional support.

5.4.4.3 Minimizes Potential Institutional Barriers

A. Collection

Significant barriers exist in the implementation of some types of curbside collection programs. These may include high start-up costs for equipment and planning and cooperation from haulers. Centralized drop-off or decentralized drop-off (self-haul options) are both viable provided that the facilities are unobtrusive and blend into the existing land uses.

B. Pre-Processing

Significant barriers, particularly siting and land use issues, exist in the implementation of either decentralized or centralized pre-processing facilities.

C. Composting

There are no significant barriers to the implementation of a composting program if a planned composting operation is away from population centers. Concerns about odor, dust, noise and vectors make implementation in urban areas almost impossible. The most viable locations are in or adjacent to landfills.

D. Support Measures

There are no major barriers to the implementation of aggressive support measures; however, punitive rate structures may be controversial.

5.4.4.4 Consistency with Local Policies, Ordinances and Plans

A. Collection

Self-haul, drop-off and curbside collection systems should be evaluated based on pertinent local conditions such as cost, traffic patterns, access, street width, and local and regional preferences.

B. Pre-Processing

Decentralized pre-processing and centralized pre-processing should be evaluated based on pertinent local conditions such as cost, the availability of land with sufficient size,

transportation impacts, and siting and zoning issues. Generally, siting new facilities at existing waste management operations appears most viable.

C. Composting

Yard waste composting and municipal solid waste composting should be evaluated based on pertinent local conditions such as cost, the availability of land with sufficient size, environmental impacts, and local and regional preferences.

D. Support Measures

Support measures should be evaluated based on pertinent local conditions such as cost impacts, program selections, need, and local and regional preference.

5.4.4.5 **Minimizes the Need to Expand Existing Facilities or Add New Facilities**

A. Collection

Where material will be held temporarily for transport to a compost facility, and storage and transfer station areas must be sited and prepared, points of transfer could be newly established sites or existing sites such as disposal facilities.

B. Pre-Processing

Regionally located decentralized pre-processing facilities would require numerous new facilities. Centralized pre-processing could take advantage of existing facilities and minimize the need for additional facilities.

C. Composting

At the present time, there are no existing facilities documented in the County; therefore, the need for new facilities is evident.

D. Support Measures

Not applicable.

5.4.4.6 Availability of Markets for Diverted Materials

A. Collection

Not applicable.

B. Pre-Processing

Given the strong regional demand for yard waste as compost feedstock, the availability of potential markets is good.

C. Composting

Due to the increasing population, heavy development activity, and intensive landscaping in the County, there appear to be excellent potential markets for compost products. Also, the large number of public developments, such as parks and other recreational facilities, are excellent potential markets.

D. Support Measures

Not applicable.

5.4.4.7 Ability to Implement in Short- and Medium-Term Planning Periods

A. Collection

Since relatively low costs are associated with establishing drop-off sites, and because they are more compatible with existing yard waste recovery activities, this method of collection is highly feasible in both the short- and medium-terms. It would be moderately feasible to implement curbside collection in the short-term planning period.

B. Pre-Processing

Due to the relatively low cost of establishing decentralized facilities, and their compatibility with existing yard waste recovery activities, such facilities are moderately feasible in both the short-and medium-term planning period. Centralized facilities are more capital intensive, yet they are generally less difficult to site due to their scarcity. This type of facility may also be located at existing landfills and other waste management facilities. Centralized facilities are moderately feasible in both the short- and medium-terms.

C. Composting

Because of the relatively low cost and high diversion potential of yard waste composting, it is highly feasible in both the short- and medium-terms. Although municipal solid waste composting has a relatively high diversion potential, it also has a significantly higher cost than yard waste composting. Therefore, it is not considered viable in the short-term. It may be viable in the medium-term if lower cost diversion options fail to achieve stated diversion objectives.

D. Support Measures

The implementation of various support activities, particularly regulatory measures, will require substantial coordination between the County and the region. Therefore, these may be more feasible in the medium-term planning period. Promotion and education activities are more amenable to immediate implementation in the short-term planning period.

5.4.4.8 **Compatibility with Existing Systems**

There are no existing systems so compatibility does not need to be considered.

5.4.4.9 **Potential for Private Sector Ownership and Operation**

A. Collection

Collection of all refuse in the County is done by privately owned and operated entities. It is reasonable to assume that this would continue for any type of collection service.

B. Pre-Processing

Private ownership and operation of a decentralized and centralized pre-processing facility would be economically feasible. The County will evaluate policies, regulations, and financial incentives to make private ownership and operation more attractive.

C. Composting

Private ownership of a composting facility would be economically feasible. As with pre-processing facilities, the County will evaluate policies,

regulations, and financial incentives to make private ownership and operation attractive.

D. Support Measures

Not applicable.

5.4.4.10 Potential Hazards Based on Type of Materials Diverted

A. Collection

Self-haul programs that do not involve adequate monitoring at material drop-off sites have a greater potential for collecting materials that may be contaminated with other organics. This may represent a sanitation problem at drop-off sites. Contaminants such as stones, plastics, metals, ceramics, or even hazardous wastes, hidden in the collected yard waste may present a hazard in handling and in eventual processing of the material.

B. Pre-Processing

Decentralized facilities are often unstaffed, except for periods of actual equipment operation. The unattended drop-off of waste material may lead to contamination problems that could become safety and health hazards. Proper personnel training and safety equipment will reduce the potential hazards.

C. Composting

Neither the level of technology nor the type of feedstock employed in composting is directly related to the relative degree of hazards experienced. The relative hazards experienced in composting are specifically related to the facility design used. Adherence to industry design standards and appropriate governmental regulations, as well as proper personnel, safety and training, will mitigate hazards that may exist.

D. Support Measures

Not applicable.

5.4.4.11 Flexibility to Accommodate Changing Economic, Social and Technological Conditions

A. Collection

Adapting curbside collection and self-haul programs to changing societal conditions does not present any significant problems.

B. Pre-Processing

Adapting a centralized facility is sometimes difficult because of the higher capital expenditure required for a fixed plant and equipment. A system of decentralized facilities is more readily adaptable due to smaller operational size and the reduced expenditure required for a fixed plant and equipment per site.

C. Composting

Yard waste composting is readily adaptable to changing conditions. Curbside collection of yard wastes may be increased or decreased in frequency to adjust to changes in supply. Additionally, significant long-term reductions in yard waste generation due to public education, less landscape planting, xeriscaping, or prolonged droughts may justify a re-evaluation of the program.

Municipal solid waste composting is less adaptable to changing conditions because facility design is directly related to both the quantity and quality of incoming wastes. Significant changes in either can cause major operational difficulties.

D. Support Measures

Promotion and education techniques are generally flexible to changing societal conditions because formats and target audiences can be readily altered. Financial incentives are generally flexible; rate structures and product charges are less so since political processes are needed to adjust them and the expectations of those subjected to them are usually negative. Mandates and bans aimed at waste generation tend to be irreversible. Regulatory measures such as zoning ordinances, codes, and permits tend to be more flexible to changing circumstances.

5.4.4.12 Shifting Solid Waste Generation Characteristics Due to Implementation of Alternatives

A. Collection

Both curbside and self-haul collection of yard waste, especially for landscapers, have the potential to significantly reduce the moisture and overall organic content of the local waste stream, thereby reducing the potential for methane generation at landfills.

Significant reductions of yard waste into the waste stream is conducive to processing the remaining wastes at a materials recovery facility. One negative consequence is that diversion programs can have a negative impact on source reduction efforts due to the public's perception that a disposal problem no longer exists.

B. Pre-Processing

The same concerns identified above are applicable to pre-processing activities.

C. Composting

The same concerns identified above are applicable to composting activities.

D. Support Measures

Aggressive promotion and education campaigns and financial incentives facilitate the changes described above in Section A (Collection). Regulatory measures, particularly mandates and bans promoting source separation, have an even greater capacity to bring change. Once again, a negative consequence is that diversion programs can have a negative impact on source reduction efforts due to the public's perception that a disposal problem no longer exists.

5.4.4.13 Technical Reliability

A. Collection

Both self-haul and curbside collection have excellent technical reliability. This is due to the relatively low technology employed by each alternative. However, since self-haul drop-off relies more significantly on public participation

than does curbside collection, it is considered slightly less technically reliable.

B. Pre-Processing

Both centralized and decentralized pre-processing have above average technical reliability.

C. Composting

Both yard waste and MSW composting have relatively high technical reliability. Composting is an ancient technique that has been successfully used for over 5,000 years. Difficulties have generally been the direct result of creating artificially complex systems that fail due to mechanical breakdowns or problems. Current composting systems for both yard waste and MSW are highly reliable.

D. Support Measures

The technical reliability of support measures is directly related to the effort and determination of the County to create, implement, and enforce measures necessary to the success of the composting system.

5.4.5 Evaluation Matrix

Each alternative was evaluated using a high, medium, or low rating system. Ratings were derived based on an assessment of how well each alternative met the criterion. See Appendix D for detailed description of this methodology. Table 5-3 presents the results of the evaluation.

From the results the following observations were made:

* Yard waste composting has lower total program costs and is easier to implement than MSW composting.

* Curbside collection is more effective than self-haul by generators in diverting targeted waste. Curbside collection is also more expensive.

* Centralized collection, storage, pre-processing, and composting sites are generally subject to permitting and siting constraints, versus smaller decentralized sites such as neighborhood locations.

TABLE 5-3

EVALUATION MATRIX

Criteria	Collection		Pre-Processing		Composting		Support Measures		
	Self-haul	At-Source	De-centralized	Centralized	Yard Waste	MSW	Promotion/ Education	Financial Incentives	Regulatory Measures
Waste Diversion Potential	M	H	H	M	H	H	M	H	H
Minimize System Costs	H	L	H	M	H	L	H	M	L
Minimize Barriers to Implementation	H	M	M	M	H	M	H	M	L
Consistency	H	M	H	M	H	M	H	M	L
Minimize Facility Impacts	M	M	M	M	M	L	N/A	N/A	N/A
Availability of Markets	N/A	N/A	M	M	H	M	N/A	N/A	N/A
Implementability	H	H	M	M	H	L	H	M	L
Compatibility	H	M	H	M	H	L	H	M	M
Private Sector	H	H	H	H	H	H	M	M	N/A
Min. Potential Hazards	M	M	M	M	M	M	N/A	N/A	N/A
Flexibility	M	M	M	L	H	L	H	M	L
Adaptability to Changes in Waste Stream	M	M	M	M	M	L	M	M	M
Technical Reliability	H	H	H	H	H	H	N/A	N/A	N/A

* Yard waste collection is already practiced in nearby cities and is considered to be state-of-the-art.

5.5 PROGRAM SELECTION

5.5.1 Program Description

The following alternatives have been selected for the short-term planning period based upon the 13 criteria:

* Curbside Collection

* Decentralized Pre-processing and Materials Storage

* Yard Waste Composting

* Promotion and Education

* Regulatory Measures and Policies

These alternatives will be continued through the medium-term planning period. In addition, the Financial Incentives alternative will be implemented in the medium-term.

The composting program consists of subsystems for collection, pre-processing, and supportive policies that promote citizen and business participation.

Voluntary participation and private ownership and operation will be encouraged rather than public sector initiative and mandatory compliance in the short-term. This may change in the medium-term if a diversion shortfall exists; necessitating increased regulation and public sector initiative.

The County will encourage private development of new composting facilities to serve the unincorporated County. Municipal solid waste processing will be reserved only as a contingency mechanism due to significant costs and projected difficulties in implementation.

5.5.2 Existing Diversion Alternatives

There are no documented existing diversion alternatives, so there will be no expansion.

5.5.3 New Diversion Alternatives and Justification for Selection

5.5.3.1. Curbside Collection

Curbside collection will be the primary means of collecting yard wastes during the short-term planning period. The County will explore the feasibility of entering into exclusive or limited contracts for the curbside collection of separated green waste.

The alternative is selected because it presents a high diversion rate and promotes private sector participation.

5.5.3.2 Decentralized Pre-Processing and Materials Storage

Decentralized pre-processing and materials storage sites may be developed and implemented during the short-term. Such sites could be either at public or private locations or facilities, possibly at existing or planned solid waste management facilities such as transfer stations, landfills, or material recovery facilities (MRFs).

In the short-term, the County will investigate the feasibility of operating pre-processing activities in the unincorporated County during the medium-term planning period. The County may explore implementing techniques, such as expanded use of mobile grinders, that could reduce the volume of green waste from County parks and roadside maintenance.

This alternative is selected because it diverts large amounts of green waste from landfills and makes participation easier and more convenient.

5.5.3.3 Yard Waste Composting

The County will contract with one or more compost facilities to handle separated yard waste in the short-term. The County plans to encourage private sector development of yard waste composting facilities beginning in the short-term and continuing into the medium-term planning period.

The County will encourage the development of new composting facilities through economic incentives, such as limited or exclusive contracts, and land use and facility permitting assistance. This alternative is selected because of low program costs and its ease of implementation.

5.5.3.4 Promotion and Education

Beginning in the short-term, the County plans to undertake the supportive policy of promotion and education to encourage maximum participation in composting from all sectors. The program alternative will continue in the medium-term. This alternative is selected primarily to maximize citizen and business participation in the composting program.

5.5.3.5 Regulatory Measures and Policies

During the short-term, the County plans to enact supporting policies considered necessary to implement a successful composting program. These include but are not limited to the following:

* business permit requirements to undertake composting or separation and collection of compostables
* technical assistance and public information
* zoning ordinances and building code changes to facilitate siting and development
* source separation and collection ordinance

During the medium-term the County may undertake the following measure:

* yard waste disposal bans

The policy will achieve the objective of maximizing the available yard waste for composting. Supportive policies are selected to reinforce the proposed program alternatives.

5.5.3.6 Financial Incentives

Financial incentives are aimed to be implemented in the medium-term as a measure to increase participation. The alternative actually consists of two possible policies:

* Incentive Rates
* Fines for Non-compliance

These will be implemented in a manner consistent with prevailing County conditions and abilities. This alternative is selected to increase participation to the level required to reach the diversion targets.

5.5.4 Estimated Diversion Quantities

Table 5-4 identifies the total quantity of compostable materials that the alternatives will divert in the short-term target year 1995 and the long-term target year 2000.

Table 5-4
Waste Diverted by the Yard Waste Composting Program

Waste Type	Short-Term 1995 Organic Waste Diverted (tons per year)	Medium-Term 2000 Organic Waste Diverted (tons per year)
Grass and leaves	6,540	22,200
Prunings	5,997	20,352
Total	12,537	42,552
% of Waste Generation	1%	3%

5.5.5 Anticipated End Users

Based on the existing markets for compost-related products, it is anticipated that all compost products produced will be utilized beneficially by consumers. The potential end-uses for compost are as soil amendments and as a surface application. The potential consumers of compost products are local and regional agencies for use in parks, recreation facilities, and roadways. Other potential consumers are the general public, including homeowners, landscapers, and commercial businesses for use around the home or in landscape, horticultural or agricultural applications.

5.5.5.1 Yard Waste Compost

The anticipated markets for yard waste compost include a wide range of potential applications. In the short-term planning period the County will develop and implement procurement guidelines for the preferential purchase and use of compost products. Private usage for landscape applications will also be developed based on the quality of the product and its suitability for the intended use.

As consistent with state guidelines, model specifications for various types of applications will be developed to assure consistent quality. These specifications will be made available to the public through technical assistance efforts and public education.

5.5.6 Handling, Storage, Delivery and Disposal Methods

5.5.6.1 Handling

There are no limitations on the handling methodologies of yard wastes intended for composting. If municipal solid waste is targeted in the future, the materials should be handled carefully to avoid excessive compaction that might break glass wastes. This will assist in maintaining high quality standards.

5.5.6.2 Storage

Most composting programs store materials on-site in large curing piles. The quantity of stored compost and the duration it may be stored prior to sale depends greatly on the level of composting technology employed. Like other agricultural organic commodities, compost is subject to variations in supply and demand. Physical storage requirements will depend on the type of usage and seasonal climatic variations.

5.5.6.3 Delivery

Delivery of compost products will depend primarily on the type of end users. Bulk sales should be emphasized in the short-term planning period. Bagging of compost will expand the potential market but will add cost to the operation. It is anticipated that bagging may be added in the medium-term planning period.

5.5.6.4 Residual Waste Disposal

Residual waste from the composting of yard wastes may include contaminants such as rocks, glass, plastic and yard wastes not suitable for composting (large stumps and eucalyptus). Where possible, these residuals will be recycled or processed into other reusable materials, otherwise they will be landfilled.

If a municipal solid waste composting facility is implemented as a contingency measure, such a facility could include an integral resource recovery line. This recovery line would recover for recycling noncompostable materials or organic materials whose recovery would be a

higher and better use than composting, such as high grade paper. Residuals could include noncompostable inorganics and household hazardous waste. The recovery and residual rate would be highly dependent on the waste stream content. Residual waste would be disposed in an appropriate landfill.

5.5.7 Facility Needs

5.5.7.1 Collection

None required.

5.5.7.2 Pre-Processing

The only large-scale pre-processing operation is the United Pacific Corporation (UPC) facility, located in Santa Fe Springs. No composting is conducted at this site; the materials are transported to a site near Bakersfield for composting. At this time, a number of cities within the County have indicated that they will send yard waste to the UPC site.

Since it has not been determined whether this facility has the capacity to accommodate the future supply of yard waste, the County will work with other municipalities and the private sector to site a new facility for pre-processing and/or actual composting. In general, sites need to meet nine criteria for development as a pre-processing facility. These criteria include the following:

* Vacant, flat land with a 1% - 8% slope
* Open field except for buffer area and plantings
* Sufficient size, approximately 1 acre per 50,000 to 80,000 loose cubic yards of materials collected and processed annually
* Low residential population density
* Meets the Environmental Impacts Report criteria such as no wetlands, above the flood plain, no historic sites, and impact on endangered species
* Good transportation access with minimal impact to existing transportation uses
* Potential to develop visual buffer zone, if necessary

* Availability of water and other related utilities on-site

* No drainage problems

5.5.7.3 Composting

Composting sites will need to meet the same nine criteria presented for a pre-processing facility with a slight area modification of 1 acre per 5,000 to 8,000 loose cubic yards of material collected.

5.6 PROGRAM IMPLEMENTATION

The following sections identify the persons and agencies responsible for implementation, the tasks necessary to implement the selected programs, and the timeframe required to implement each program.

5.6.1 Short-Term Implementation

The short-term implementation plan for the selected alternatives, including specific tasks, start and finish dates, and parties responsible for implementation, is presented in Table 5-5.

5.6.2 Medium-Term Implementation

The medium-term implementation plan for the selected alternatives, including specific tasks, start and finish dates, and parties responsible for implementation, is presented in Table 5-6.

5.6.3 Implementation Costs, Revenues, and Revenue Sources

This section discusses the implementation costs, revenues, and revenue sources necessary for implementation of the composting program. The program costs may include, but are not limited to, fixed costs such as program planning and development, system planning, cooperative facility development and siting, enacting ordinances, and implementation of promotion and education programs.

Variable annual operating and maintenance costs primarily consist of County staff time to conduct ongoing administrative, promotion and education activities. These costs are summarized in Table 5-7.

TABLE 5-5
Short-Term Implementation Plan

Alternative/Task	Start	Finish	Responsibility
Collection			
Curbside			
Design collection system	3/93	12/93	Private haulers
Implement collection system	1/94	7/94	Private haulers
Alternative oversight	7/94	on-going	DPW, WMD*
Pre-Processing			
Decentralized processing and materials storage			
• Develop programs and determine facility needs	6/93	9/93	Private sector
• Implement program	10/93	6/94	Private sector
• Program monitoring and review	5/94	on-going	DPW, WMD
Composting			
Yard Waste			
• Develop program and determine facility needs	7/93	2/94	DPW, WMD/Private sector
• Implement program	9/94	on-going	private sector
• Program monitoring and review	9/94	on-going	DPW, WMD
Support Measures			
• Conduct market survey	1/93	7/93	DPW, WMD
• Develop procurement guidelines	6/93	12/93	DPW, WMD
• Develop product quality standards	10/93	5/94	DPW, WMD
• Develop ordinances	7/94	6/95	Board of Supervisors
• Develop mandatory business license provisions to divert yard waste from disposal	2/94	8/94	DPW, WMD
• Develop incentive rates	9/93	4/94	DPW, WMD
• Develop and implement public education programs	6/93	on-going	DPW, WMD
• Develop and implement technical assistance programs	7/93	on-going	DPW, WMD

* Department of Public Works (DPW), Waste Management Division (WMD)

TABLE 5-6
Medium-Term Implementation Plan

Alternative/Task	Start	Finish	Responsibility
Collection			
• Continue short-term program		on-going	Private haulers
Pre-Processing			
• Review processing capacity and encourage expansion as necessary	1/96	6/96	DPW, WMD*
Composting			
• Continue short-term program		on-going	private sector
• Examine diversion of related wastes	1/96	6/96	DPW, WMD
• Program monitoring and review		on-going	DPW, WMD
Support Measures			
• Develop/implement yard waste disposal bans	1/96	6/96	DPW, WMD
• Implement fines for illegal disposal	1/96	6/96	DPW, WMD
• Develop mandatory source separation ordinances	1/97	6/97	DPW, WMD
• Develop/implement punitive rate for non-compliance	1/98	6/98	DPW, WMD

* Department of Public Works (DPW), Waste Management Division (WMD)

TABLE 5-7
Estimated Implementation Costs

Implementation Task	Private Sector		County	
	Capital Costs ($)	Operations Costs ($)	Capital Costs ($)	Annual Costs ($)
Program Development/ Implementation	-	-	0	290,000
Monitoring/Evaluation	-	-	0	55,000
Education/Public Information	-	-	0	65,000
Total	*	*	0	410,000

* Private sector costs associated with implementing composting programs have yet to be determined.

The County will encourage curbside collection of separated green waste by haulers, pre-processing activities, and composting beginning in the short-term and continuing into the medium-term. It will encourage the development of new composting facilities by the private sector beginning in the short-term and continuing into the medium-term. Continuous assessment of private sector reactions to new programs and policies will help the County to determine the appropriate level of assistance in developing the chosen activities.

Due to the variable and unpredictable market price for yard waste compost, processors typically charge a yard waste tipping fee to cover the difference between revenues from the sale of products and operating costs. This fee is designed to cover all, or nearly all, costs associated with such an operation.

Potential revenue sources for the yard waste composting activities include tipping fees at pre-processing sites and compost facilities, landscaper licensing and license renewal fees, curbside collection service rates, and taxes or fees on non-yard soil amendment products. In particular, the composting programs will receive funding from the Solid Waste Generation Service Charge.

Revenue from the Solid Waste Management Fund is also available for market development activities aimed at improving regional markets for compost materials.

5.7 MONITORING AND EVALUATION OF PROGRAMS

5.7.1 Monitoring Methods

The methods to be used to quantify and monitor the achievement of the various composting programs' objectives, including diversion from landfills and transformation facilities and reduction of hazards include the following:

* Require the haulers to keep records of the amount of waste disposed by residents and businesses.

* Arrange with the haulers to provide commercial and industrial sources with a reporting device by which they can keep records of all diversion activities.

* Provide incentives for sources to engage in these types of reporting activities.

* Keep records of attendance at all educational programs and events and follow up those events with survey forms for participants to return. Responses will be used to determine if participants engaged in any type of composting activity as a result of the program.

* Review annual purchases to determine if the County has increased its purchase of compost.

5.7.2 Diversion Program Monitoring Methods

Composting program monitoring and evaluation has already begun with the implementation of the comprehensive waste composition study conducted as a part of the Source Reduction and Recycling Element (SRRE). This study will form the baseline for measuring achievement of the SRRE's diversion objectives.

Either one or both of the following methods will be used to monitor implementation of the various composting programs and evaluate their effectiveness:

* Additional targeted waste characterization studies, involving a representative sampling of generator sites or solid waste facilities, to measure changes in the volume and weight of specific wastes.

* An assessment of any changes in the design, production, distribution, sale and/or use of

targeted materials which would affect waste generation.

5.7.3 Monitoring Program

5.7.3.1 Criteria to Evaluate Effectiveness

The criteria to evaluate the program's effectiveness include the following:

* Are the stated diversion objectives being obtained? Since the program will be implemented in phases, continuous monitoring will help determine if implementation should be modified.

* Are the responsible entities developing and implementing their program elements? The County Department of Public Works (DPW) will be responsible for monitoring the development and implementation of the necessary program elements and will take measures to attain compliance.

* Are the program elements and tasks being implemented on schedule? The County DPW will monitor the implementation schedule and take the necessary corrective actions.

* Are the diversion efforts successfully reaching targeted generators? Meeting the program's objectives will depend on successfully reaching the targeted generator groups and diverting yard wastes.

* Were the diverted/recovered materials actually composted and not just stockpiled? Successful implementation will require the actual composting of materials since excessive stockpiling can lead to health and safety hazards.

* Are the compost products being successfully marketed? The success of the program will depend on developing stable markets for compost products.

* Are program activities being implemented in an environmentally sound manner? The program activities must comply with applicable federal, state, and local laws, regulations, guidelines, ordinances, and policies for successful implementation.

5.7.3.2 Responsible Parties

Mandatory daily record keeping will be the responsibility of the haulers and owners/operators of the site. Monthly reports will be sent by the haulers and site owners/operators to the County DPW for analysis and evaluation. The County DPW will monitor the program elements and will report the necessary information to the County Board of Supervisors and the State. It will also be responsible for auditing financial performance, to determine the program costs.

5.7.3.3 Costs and Revenues

The primary annual funding requirements are for monitoring, evaluation and reporting activities by staff estimated at 78 days or 0.3 man-year. Using the full-time equivalent of $100,000 per staff member per year, the cost of monitoring and evaluation is estimated at $55,000.

The County will be responsible for funding the necessary position(s). Revenue for monitoring and evaluation will come from the Solid Waste Generation Service Charge.

5.7.3.4 Contingency Measures

Unforeseen circumstances may cause the composting program elements to fall short of expected diversion objectives. If program monitoring and evaluation show that specific program objectives are not being achieved, or if general diversion objectives are not being obtained, the following contingency measures will be implemented:

* If program monitoring and evaluation indicates that a shortfall in yard waste diversion is due to programmatic problems and not due to source reduction, one or more of the following corrective actions will be implemented:

  - Targeted waste sorting to determine the source of the shortfall

  - Program adjustment to increase diversion rates, such as mandatory participation by commercial haulers and landscapers

  - Development and implementation of ordinances to mandate participation and discourage illegal dumping

  - Revision of objectives to reflect a more

realistic diversion potential

* Assure that the responsible entities develop and implement program elements according to schedule.

  Contingency measures to assure cooperation include the following:

  - Review the program staffing levels, job descriptions, and assignments

  - Identify the facility- or equipment-related problems or inadequacies and make the necessary corrections

  - Analyze the program funding in terms of adequacy and efficient and effective utilization

* Assure that targeted generator groups are participating. If the program analysis indicates insufficient participation, determine the cause and take corrective actions, from education and technical assistance to mandatory participation.

* Assure that recovered materials are being composted and marketed. If the composting program encounters difficulty, assess the problems in terms of process or market related issues. If the problem is process related, determine the cause and take corrective actions. If the problem is market related, perform market studies to determine what additional marketing efforts are required or if modifications to the product may be required. If markets remain inadequate, other avenues for usage may have to be explored, such as erosion control on construction sites or protection of at-risk soils on public land.

* Assure that all program related activities are implemented in an environmentally sound manner. If problems are encountered, take the necessary corrective actions, including regulatory intervention.

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CHAPTER 6

SPECIAL WASTE

CHAPTER 6
SPECIAL WASTE COMPONENT

6.1 BACKGROUND

Special wastes are solid wastes that require special handling or disposal because they present either potential hazards to human health or the environment, or because they are difficult to handle in a landfill environment. For the purpose of this document, special waste includes bulky, difficult to handle items, such as white goods, tires, and construction and demolition wastes. Other types of special wastes include ash, asbestos, sewage sludge, auto shredder waste, and auto bodies.

This component addresses those special wastes identified by the solid waste generation study for the unincorporated areas of Los Angeles County as other special wastes: bulky items (including tires and white goods) and inert solids (including construction and demolition wastes). Also, sewage sludge has been identified in the County's wastestream. However, the regulations in force at this time do not allow any diversion of sewage sludge. Therefore, the diversion of sewage sludge will not be included in the County's objective, other than potential future inclusion.

6.2 OBJECTIVES

Based upon the results of the Solid Waste Generation Study, special waste diversion objectives have been developed for the short-term (1991-1995) and medium-term (1996-2000) planning periods. The objectives identify specific waste categories or waste types as priorities for waste diversion, based on analysis of solid waste generation in terms of certain criteria. The criteria include, but are not limited to, volume or weight, hazard, and material introduced into the wastestream, that is made of non-renewable resources. The objectives are as follows:

6.2.1 Inert Waste - Construction and Demolition Debris

To the extent possible, reduce or eliminate the disposal of inert waste in Class III solid waste landfill facilities within the short-term planning period.

Analysis of the solid waste generation and disposal study shows that 90,042 tons of inert waste was disposed of in regular Class III landfill facilities in 1990. This waste is primarily inert, non-decomposable construction and demolition debris. Reduction or elimination of this waste can extend the life of remaining capacity Class III landfills.

6.2.2 Tires

Analysis of the solid waste generation and disposal study shows that 15,047 tons of tires were disposed in Class III landfill facilities in 1990. While tires represent only a small percent of the waste stream by weight, they take up a disproportionately large volume of the limited landfill space.

6.2.3 White Goods

To the extent possible, reduce or eliminate the disposal of white goods in Class III solid waste landfill facilities within the short-term planning period.

An analysis of the solid waste generation and disposal study shows that 724 tons of white goods were disposed of in Class III landfill facilities in 1990. It should be noted that the 99,000 tons reported in Table 6-1 is the total tonnage of white goods (from both the incorporated and unincorporated areas of Los Angeles County) that was disposed of in the Class III landfills located solely in the unincorporated area of Los Angeles County. White goods have been handled traditionally by scrap metal dealers, since most of the appliance is composed of recyclable metals. However, many white goods built prior to 1979 include capacitors in their electric systems that contain polychlorinated biphenyls (PCBs), a hazardous waste.

6.3 EXISTING SPECIAL WASTE ACTIVITIES

6.3.1 Description of Existing Special Waste Activities

Table 6-1 presents pertinent information on existing permitted solid waste landfills operating in the unincorporated areas of the County that handle or dispose of special waste. It should be noted that the quantities shown in Table 6-1 represent Countywide total disposal quantities, and are not limited to disposal quantities generated within the County unincorporated areas alone.

TABLE 6-1

EXISTING PERMITTED CLASS III LANDFILLS OPERATING IN THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY THAT HANDLE OR DISPOSE OF SPECIAL WASTE

Landfill	Owner/Operator	Permitted Site Acreage	Permitted Capacity tons/day	Quantity of Municipal Solid Waste Disposed, million tons/year 1990									Approximate Date of Closure
				Non Hazardous Waste	Special Waste							Total	
					Inert Waste	Sewage Sludge	Tires	Ash	Asbestos	White Goods	Auto Shredder Waste		
Calabasas	County of Los Angeles/ LACSD	416 (505)	3,500	0.79	0.02	-	0.008	-	a	0.04	a	0.86	09-30-2008[b]
Chiquita Canyon	Laidlaw Waste Systems	128 (1,074)	5,000	0.65	0.13	-	a	-	a	a	a	0.78	2000
Lancaster	Waste Management of California, Inc.	100	450	0.18	0.02	-	a	-	a	a	a	0.20	12-30-1993
Scholl Canyon[c]	City of Glendale/ LACSD	314 (440)	3,400	0.65	0.08	-	0.001	-	a	0.025	a	0.76	2010
Spadra	CSPU/LACSD	105 (323)	3,000	0.89	0.13	-	0.004	-	a	0.004	a	1.03	05-01-2010[d]
Puente Hills	Los Angeles County Sanitation Districts	700 (1,365)	12,000	2.77	0.19	0.52	0.03	0.16	a	0.03	a	3.7	10-31-1993
TOTAL			23,950	5.28	0.50	0.52	0.043	0.16	a	0.099	a	6.69	

Note: a Information currently not available.
b Based on fill design.
c Facility is within the City of Glendale. Although the County of Los Angeles owns 17% of permitted landfilling areas, capacity is not included in total.
d If proposed Waste-to-Energy is not implemented.

CSPU - California State Polytechnic University, Pomona
LACSD - Los Angeles County Sanitation Districts

Source: Los Angeles County Department of Public Works, January 1991.

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6.3.1.1 Inert Waste (Construction and Demolition Debris)

Inert solids or inert wastes are non-liquid solid waste which includes soil and concrete, that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by the California Regional Water Quality Control Board pursuant to Division 7 (commencing with Section 13000) of the California Water Resources Code, and does not contain significant quantities of decomposable solid waste. Typical sources of these materials are construction and demolition debris/waste.

Construction and demolition waste include building materials; packaging and rubble resulting from construction, remodeling, repair and demolition operations on pavements, houses, commercial buildings, and other structures. Typical materials in this category include rock, concrete, brick, asphalt, sand, and fines. Of this category, asphalt and concrete are the most common. These materials make up the majority of the construction and demolition debris in the County unincorporated areas.

Inert wastes currently represents about 90,462 tons per year, or 8.2 percent of the total solid waste generated in the County unincorporated areas. Most of the inert materials disposed of at Class III landfill facilities generally have some organic constituents mixed in and are not acceptable for disposal at unclassified landfills which can receive only pure loads of inert materials. A number of Class III landfills will accept, at no charge, fill dirt for use as cover soil or asphalt/concrete which is crushed and used for roads or wet weather areas. Although it is difficult to estimate the quantity of asphalt or concrete material reused and/or recycled in the unincorporated County areas, it is clear that reuse and recycling operations do exist.

Most construction/demolition waste generated is disposed of in unclassified (inert) landfills that have strict requirements for disposal of inert materials. Toxic materials are not permitted in these landfills, and must be removed before dumping.

6.3.1.2 Sewage Sludge

Sewage sludge is the residual solids and semi-solids resulting from the treatment of wastewater, but does not include wastewater effluent discharged from such treatment processes. Countywide, about 520,000 tons of dewatered sewage sludge was disposed of at the Puente Hills Landfill in 1990.

Sewage sludge is a by-product of wastewater treatment. Generally, the higher the degree of treatment (primary, secondary, tertiary), the greater the quantity of sludge produced. Federal legislation mandates that waste water management agencies upgrade the level of wastewater treatment to produce a high quality effluent. The implementation of these secondary and advanced wastewater treatment technologies, in response to the federal legislation, causes increases in sludge quantities.

It should be noted that the quantity of sludge landfilled has been reduced and will be further reduced once the sludge-to-energy facility proposed at the Joint Water Pollution Control Plant (JWPCP) in Carson is implemented. The County Sanitation Districts are planning to build a sewage sludge incinerator (Sludge Dehydration and Energy Recovery System) at the JWPCP.

It is assumed that this incinerator will be on-line and diverting 20 percent of the sludge from Puente Hills landfill by the year 2005. Since there is no diversion credit allowed under current regulations, no sewage sludge diversion program or goals will be considered in this component.

6.3.1.3 Asbestos

Asbestos is defined as the fibrous forms of various hydrated minerals, including chrysotile (fibrous serpentine), crocidolite (fibrous reibecktite), amosite (fibrous actinolite, and fibrous anthophyllite. Asbestos may pose significant public health problems when inhaled or ingested.

Being a mineral, asbestos is a relatively inert substance and does not normally undergo change in the ambient environment. Yet, asbestos fibers, which are 1.0 to 20.0 microns in length, can be dispersed by the wind, and remain airborne for long periods of time due to the high surface area to weight ratio. While the fibers eventually settle to the ground due to gravitational pull, rain, or moisture; they can easily re-enter the air due to wind, natural, or man-made disturbances.

The asbestos containing materials (ACM) that readily release fibers into the air are classified as "friable", a term used to distinguish crumbling, damaged or deteriorated ACM. A more operational definition of friable is any ACM that can be pulverized to a dust using hand pressure.

Since the amount of fiber released from an ACM is based on its degree of friability, a fluffy asbestos-containing insulation would release more fibers (thus be considered more friable) than a few cracked acoustic asbestos-containing ceiling tiles.

As opposed to friable, nonfriable ACM refers to materials that don't readily release fibers into the air unless mechanically altered (i.e. drilled, sanded, cut or proven - which often occurs during demolition or renovations). The South Coast Air Quality Management District (SCAQMD) in their new proposed Rule 1403 define two types of nonfriable ACM, Class I and Class II. Class I nonfriable refers to any material that can become friable when physically worn or disturbed by mechanical force, improper handling, or removal and disposal. Class II nonfriable ACM are materials not considered Class I or friable as defined by proposed Rule 1403.

In buildings, ACM is found in three forms:

1. sprayed or trowelled on walls and ceilings (i.e. surfacing material).

2. thermal insulation around pipes, ducts, boilers and tanks (pipe and boiler insulation) and

3. in a number of other products including ceiling and floor tiles and wall boards (miscellaneous materials). For the most part, the ACM in the first two categories is of greatest concern, especially if it is friable.

The International Agency for Research of Cancer has identified asbestos as a human carcinogen. While the method by which asbestos causes cancer is unknown, asbestos fibers can enter the body by either inhalation or ingestion. These fibers, which can remain airborne for long periods of time, can break into shorter, microscopic pieces, the size of which determines its capability of being inhaled deeply into the lungs. In addition, these fibers are needle-like in shape and can penetrate body tissues and be preserved intact in the body for years after exposure.

ACM can only be disposed of in any landfill that has a special permit to handle/accept such wastes. Currently, there is no such landfill within the unincorporated areas of Los Angeles County. The California Department of Health Services, Toxic Substances Control Program, is proposing to adopt regulations for treatment standards for ACM.

Section 67702 of the California Code of Regulations is amended to add hazardous ACM to the list of restricted hazardous wastes subject to land disposal restrictions.

Several of the landfills have established a waste load checking program designed to prevent disposal of hazardous and other unacceptable waste from the site.

6.3.1.4 Ash

Ash is defined in this chapter as the residue from the combustion of any solid waste material in a transformation/waste-to-energy facility. In 1990, approximately 160,000 tons of ash was disposed of at Puente Hills Landfill. While the ashes are disposed of in a landfill located in the unincorporated County area, the wastestream generating these ashes are in the cities of Commerce, Long Beach, Lakewood, and Signal Hill. The transformation facilities producing the ashes are the Waste-to-Energy Facility in Commerce and the Southeast Resource Recovery Facility in Long Beach.

Ash produced in transformation facilities may contain heavy metals (e.g. lead, cadmium, etc.) but is currently not classified as toxic waste by the California Department of Health Services. This has allowed the material to be dumped at the Puente Hills Landfill. However, current State regulation requires that ash generated from Waste-to-Energy facilities be treated prior to disposal.

The California Regional Water Quality Control Board, (CRWQCB) Los Angeles Region, which regulates the disposal of waste into land in accordance with Subchapter 15, Title 23, of the State Water Resources Control Code, permitted the landfill to accept a maximum of 780 tons of ash per day. However, the CRWQCB has adopted regulations prohibiting the disposal of untreated ash into land.

There is no ash-generating plant within the County unincorporated areas, but landfills accept wastes generated in other jurisdictions based on the existing Countywide/regional integrated waste disposal system. While the cities that generate the waste stream producing these ashes are also required to comply with the mandates of the California Integrated Waste Management Act of 1989 (Chapter 1095 of the State Statute), a reduction in the quantity of ashes disposed of at the Puente Hills Landfill is not anticipated due to possible exemption specified in Section 41786 of the California Public Resources Code. Also, the quantity of ash produced is not directly

proportional to the quantity of waste incinerated. As such, no ash diversion program or goals will be considered in this component.

6.3.1.5 Tires

Waste tires currently represent 16,839 tons per year (1.5%) of the waste generated within the County unincorporated areas. Table 6-1 shows that 43,000 tons of tires were disposed of in existing permitted solid waste landfills operating in the unincorporated areas of the County. The quantity of tires indicated may not represent the actual quantity of tires disposed, since the landfills only keep records of unshredded whole tires brought directly to the landfills. A tipping fee of $33.35 per ton is levied at the landfills to compensate for handling difficulties, the tire "float" phenomenon, fire hazard potential, and vector problems.

While tires represent only a small percent of the wastestream, by weight, they take up a disproportionately large volume of badly needed landfill space. Landfills that accept tires experience problems. For example, the tires bury unevenly, causing voids and uneven settlement. The tires also have a tendency to float back to the surface after being buried, breaking through the cover in completed, compacted landfill cells. When not landfilled, tires in large stockpiles support infestations of mosquitoes, as well as posing an ever present fire risk.

The wastestream represents a valuable resource that would be particularly susceptible to waste diversion programs. While tire recycling solutions still lag behind the ample supply, there are factors unique to the tire industry that simplify collection and processing. Tires are reasonably easy to sort, eliminating the need for costly separation operations, since most are generated by a network of retailers who, in turn arrange for disposal by the truckload.

Newly enacted Legislation, AB 1843 (Section 42800 et seq. of the California Code of Regulations), may bring about change. The bill, among other things, requires the California Integrated Waste Management Board to adopt regulations for major waste tire facilities effective July 1, 1991. The law also requires the State to achieve a 20 percent reduction in landfilled tires within four years of the implementation of a state-wide tire recycling program.

6.3.1.6 White Goods

White goods is a term used for bulky household appliances such as refrigerators, stoves, air conditioners, and washing machines. They have been handled traditionally by scrap metal dealers, since most of the appliance is composed of recyclable metals. However, many white goods built prior to 1979 include capacitors in their electrical systems that contain Polychlorinated Biphenyls (PCBs), a hazardous waste. PCBs are a human carcinogen and, therefore, have been classified as a hazardous waste by the U. S. Environmental Protection Agency under the Federal Resource Conservation and Recovery Act. In addition, Chlorofluorocarbons (CFCs) are present in refrigeration and cooling systems. CFCs deplete the stratospheric ozone and, therefore, are a potential hazard.

As a result of the EPA's classification, many scrap dealers have become unwilling to accept white goods at the risk of becoming a hazardous waste site. Currently, to get white goods taken away, residents/owners must pay to remove the capacitors before they are accepted by scrap dealers for shredding. The common procedure is for the white good dealers to remove the old white goods when installing new items. Some dealers dismantle the old unit and sell the metal for scrap value. Other dealers haul the white goods to the landfill without removing the hazardous components. In some cases, the hazardous components are dismantled prior to the shredding or landfilling. When the white goods are landfilled or shredded with the hazardous components intact, the capacitors and cooling units are damaged and release hazardous substances.

The primary source of white goods are residences. Residents can also directly transport their white goods to the landfills for disposal. Table 6-1 shows that 99,000 tons of white goods were disposed of in landfills operating in the County unincorporated areas in 1990.

6.3.2 Existing Special Waste Diversions

The special wastes targeted in the Solid Waste Generation Study are inert wastes (construction and demolition debris), white goods and tires. Based on existing information (Solid Waste Management Status and Disposal Options in Los Angeles County dated February 1988, page 17), there is existing asphalt and concrete material recovery at the landfills.

° Inert Waste (Construction and Demolition Debris)

Current regulations do not permit the County to consider the amount of diversion of inert waste, due to material recovery activities existing at solid waste landfills located within the County unincorporated areas. However, analysis of the solid waste generation and disposal study shows that 420 tons of inert waste was diverted by other methods in 1990.

° Tires and White Goods

As identified in the Solid Waste Generation Study, bulky items such as tires and white goods are currently being diverted from disposal. The total quantity of this special waste currently being diverted is 2,073 tons per year.

6.3.3 Special Waste Phase-out or Reduction in Scope

There is no identified special waste diversion program in the County unincorporated areas that is expected to decrease in scope, phase out, or close during the short-term and medium-term planning periods. In reality, the County's public awareness campaigns and numerous public presentations on waste recycling and diversion programs are expected to enhance special waste diversion programs in the future. Hence, the existing programs can be easily quantified and also be more effective in diverting special waste from landfills. Future decisions to decrease the scope of, phase out, or close a County-sponsored diversion or recycling alternative will be based on a determination of the County at the time that the alternative did not prove to be feasible. Feasibility factors shall include cost effectiveness, technical requirements, and an available timeframe for achieving identified special waste objectives.

6.3.4 Discussion of Special Waste with no Permitted Handling or Disposal Methods in the County Unincorporated Areas

The Solid Waste Generation Study identified special 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. These wastes include asbestos, ash, automobile shredder waste, inert waste (construction and demolition debris), tires, and white goods. Of these special wastes, asbestos-containing waste (ACM) is the only waste with no permitted handling or disposal methods in the County unincorporated areas. There are no existing (nonhazardous) Class III solid waste landfills in the County unincorporated areas

permitted by the California Regional Water Quality Control Board to dispose of asbestos-containing waste into land. Asbestos-containing waste is discussed on page 5 of this Chapter.

ACM generated in the County unincorporated areas may be disposed of at BKK Landfill in West Covina, or at any such facility that has a special permit that allows it to accept and/or dispose of ACM. Other facilities which may accept ACM include hazardous waste management facilities like Casmalia Resources in Casmalia, Santa Barbara County; Chemical Waste Management, Kettleman Hills Site, Kings County; and Petroleum Waste, Inc., in Kern County.

6.4 EVALUATION OF SPECIAL WASTE PROGRAM ALTERNATIVES

6.4.1 Description of Special Waste Alternatives

Based on the result of the Solid Waste Generation Study and discussions in Section 6.3 of this Chapter, the following special wastes were targeted for potential development of diversion and/or recycling programs:

a) Inert Waste (Construction and Demolition Debris)
b) Tires
c) White Goods

6.4.1.1 Alternative 1 - Construction and Demolition Waste Program

The inert solids portion of construction and demolition waste would be the focus of this special waste program. These inert solids are comprised of rock, concrete, brick, sand, soil, asphalt, and sheetrock. Much of this material can be recycled for reuse in the construction industry. Currently, the County requires permits for most construction and demolition projects. As part of this alternative, each applicant for these permits would be required to prepare a plan for how inert solid waste that is generated during the project would be segregated and recycled. As a condition of approval, a minimum recycling rate would be established for each project. The developer would be required to provide documentation at the completion of the project of the quantity and types of waste disposed and diverted, and the destination of those diverted materials. To ensure compliance, reports could be required as part of the final inspection of new construction. A deposit could be required for demolition permits. When the waste documentation report is submitted, the deposit would be refunded.

Effectiveness in Reducing Waste Quantity

This alternative would be effective in reducing the amount of recyclable inert solids disposed as a result of construction or demolition projects.

Absence of Hazards

No hazards are directly associated with this alternative.

Flexibility

This alternative is moderately flexible in adapting to changing conditions. The amount of inert solid waste generated depends upon the amount of construction activity in the County. This alternative also may be affected by shifts in market conditions for the diverted materials.

Limited Shift in Waste Type Generation

No shifts in waste type generation are expected.

Implementability

This alternative could be implemented in the short-term planning period.

Facility Needs

No new facilities are expected to be required. Existing privately owned recycling operations could be used to process the material.

Consistency with Local Policies

Several of the County's existing policies and ordinances may require revision before implementing this alternative. The planning ordinances and the demolition and construction permit process would require revision consistent with existing material recovery activities at landfills. Current material recovery at landfills include the on-site reuse of asphalt and concrete materials for constructing roads in wet weather operating areas, and the use of clean solid fill loads for daily cover of the disposal areas.

Absence of Institutional Barriers

There are no known institutional barriers to this alternative; however, resistance from private developers could be expected.

Estimated Cost Rating

This alternative would increase staff time in processing construction and demolition permit applications. However, the time required for application processing would depend upon a variety of factors, including staff experience and level of detail of the requirement.

End Uses

Building and road construction activities are the anticipated end uses for this material. Landfill operators also use clean asphalt to stabilize their access roads and tipping areas during the rainy seasons.

6.4.1.2 Alternative 2 - Used Tire Program

i) Used Tires

This alternative involves developing a program within the County to increase the recycling of used tires. The program would consist of three parts:

- Encouraging the existing tire reuse programs being conducted by the private sector
- Developing educational materials for tire vendors and purchasers
- Fostering the development of local markets for used tires

Service stations and tire stores would be requested to provide used tires for resale and to participate in tire recapping and retreading by separating out suitable tires. Educational materials encouraging the purchase of longer-lasting tires or retreaded tires would be developed. Local markets would be assisted by developing County procurement policies specifying the purchase of, and allowing or requiring the use of, rubberized asphalt for road construction and repair projects.

ii) Rubberized Asphalt

This alternative would create a regional market for the use of waste tires through their utilization as a constituent of rubberized asphalt. The greatest advantage of this alternative is that it has the potential for utilization of the total tire wastestream. The total market for asphalt in the State is 5.0 million

tons per year. It would require only half of this asphalt to be converted to rubberized asphalt, to utilize all of the State's waste tire (based on 3 percent waste tire usage; see **NOTE** on page 6-16).

Effectiveness in Reducing Waste Quantity

This alternative would be effective in reducing the amount of used tires currently being disposed within the County.

Diverting 50 percent of the tires currently being disposed would represent diversion of 7,523 tons, or 0.68 percent of total current waste generation.

Absence of Hazards

Stockpiled tires can collect rainwater, and serve as breeding grounds for mosquitoes or other insects, or they can pose a fire hazard.

Flexibility

Used tire programs are somewhat flexible in adapting to changing conditions. However, the program is dependent on the development of specific markets for the product. If market conditions for road construction and repair projects were to turn unfavorable, the ability to recycle used tires may decrease.

Limited Shift in Waste Type Generation

No shift in waste type generation is expected.

Implementability

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

Facility Needs

No new facilities are required by this alternative. All asphalt production is in the hands of the private sector and is expected to remain there. No new facilities or processing equipment are required for production of the material; therefore, implementation of rubberized asphalt production is not a problem. Modifications to existing asphalt plants may be required by this alternative.

Consistency with Local Policies

This alternative is generally consistent with local plans, policies, and ordinances.

Absence of Institutional Barriers

There are no significant institutional barriers to this alternative. However, a potential problem for widespread implementation of this solution is the lack of California Department of Transportation's standard on how the product should be used. There are several Federal (EPA guidelines) and State legislations advocating the use of reclaimed crumb rubber to produce rubberized asphalt for use in road projects.

Specifically, AB 1305, Killea (Chapter 1092 of 1989 State Statute) requires the State Department of Transportation, in consultation with the California Integrated Waste Management Board, to modify all bid specifications for paving and other related materials used in State contracts, to maximize use of recycled materials. In addition, AB 1843 (Brown) encourages the use of rubberized asphalt, by making grants or loans available to public agencies and businesses using tire rubber products.

Estimated Cost

The current cost for rubberized asphalt is approximately 40 percent more than regular asphalt. However, current data indicates up to a third less material can be used without compromising the integrity of the application. Furthermore, this cost differential is expected to decrease as the industry becomes more accustomed to working with this material.

End Uses

Used tires in good condition can be resold, and casing usable for retreaded tires can be marketed to tire distributors. Used tires can also provide the raw material for tire-derived products, such as playground equipment or surfacing, floor mats, dock bumpers, floor tiles, rubberized asphalt, or artificial reefs.

Furthermore, rubberized asphalt could be used for the construction and repair of roadways, parking lots, playgrounds, etc. The potential for rubberized asphalt is great because the opportunity for internal governmental markets exists through Federal, State, and County road building and paving projects. Market development is inherent in the implementation of this alternative.

NOTE: Three different technologies for rubberized asphalt are currently being utilized in the marketplace. All involve the processing of the heavy constituents from petroleum production. This includes processing (heating) the heavy constituents, followed by the addition of aggregate, i.e., gravel.

--The Arizona Method (proprietary): An asphalt utilizing 1 percent waste tires, involving the utilization of chipped tires as a partial replacement of heavy petroleum during initial processing. Special equipment must be installed at the asphalt plant to accommodate the change in feedstock. Manhole Adjusting Inc., Monterey Park, California is a local supplier for this material.

--The Plusride Method (proprietary): An asphalt utilizing 3 percent waste tires, involving replacement of a portion of filtered 1/4 inch aggregate with the same amount of filtered shredded tires. This is done during the blending process, subsequent to the petroleum processing described above. This does not require changes to the process plant, but does require the addition of filtering equipment for the aggregate and the rubber. However, these filtering requirements could be handled by changing the specification of the raw materials delivered to the asphalt plant.

--The B.A.S. Method (not proprietary): An asphalt utilizing 3 percent waste tires, involving replacement of a portion of the aggregate with the same amount of shredded tires (no filtering required as in the Plusride method). This is done during the blending process subsequent to the petroleum processing described above. This does not require changes to the process plant, nor filtering equipment for the aggregate or the rubber.

6.4.1.3 Alternative 3 - White Goods Program

The white goods program is intended to divert large appliances from disposal by providing alternative collection and repair options to residents. The program consists of offering periodic collection of bulky items, then separating out white goods, and either donating them to charity for repair and reuse, or recycling them through scrap dealers. Relaxing the requirements for business licenses or fees for repair shops could encourage these types of businesses to locate in the County, thus increasing the opportunities to repair white goods.

Effectiveness in Reducing Waste Quantity

This alternative would be effective in reducing the amount of white goods currently being disposed by generators within the County. Since white goods were observed in the disposal stream and not directly sampled, the effectiveness of this alternative cannot be measured. The amount of white goods currently being diverted through recycling is 281 tons.

Absence of Hazards

Due to their size and weight, white goods pose physical hazards to the workers. Chemical hazards include the presence of Polychlorinated Biphenyls (PCBs) that might be contained in electrical capacitors, or chlorofluorocarbons (CFCs) that are in the cooling units.

Flexibility

A program for white goods is somewhat flexible in adapting to changing conditions; however, the program is dependent on the development of markets for recycled products. If market conditions for discarded white goods (either as scrap metal or as reusable items) were to turn unfavorable, the ability to divert these materials may decrease.

Limited Shift in Waste Type Generation

No shift in waste type generation is expected.

Implementability

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

Facility Needs

No new facilities are required by this alternative. The County is relying on existing facilities owned by the private sector or by nonprofit charitable organizations.

Consistency with Local Policies

This alternative is generally consistent with local plans, policies, and ordinances.

Absence of Institutional Barriers

There are no significant institutional barriers to this alternative.

Estimated Cost

The cost for implementing this program is considered moderate. Collection costs depend upon the frequency of events. If charitable organizations are unwilling or unable to accept the collected materials, it may be possible to sell the discarded appliances to scrap metal dealers, thus offsetting the cost of the program.

End Uses

End users of white goods would include local charitable organizations, thrift shops, or scrap dealers. The scrap metal industry is relatively strong in Los Angeles County and nationwide. However, the history of the scrap metal market is such that supply does not necessarily influence demand.

6.5 SELECTION OF SPECIAL WASTE PROGRAMS

The programs selected to address the special waste diversion in the County are the Construction and Demolition Waste Program, the Used Tire Program, and the White Goods Program. These programs were selected because they address the County's objectives to reduce the amount of special waste that must be disposed.

6.5.1 Justification of Selection

6.5.1.1 Inert Waste (Construction and Demolition Debris) Program

Construction and demolition debris, from which asphalt and concrete materials are recovered, constitutes 8.2 percent of solid waste generated in the County unincorporated areas. However, it constitutes 7.5 percent by weight of the total quantity of solid waste disposed of in Class III landfills in 1990.

Thus, asphalt and concrete materials are selected for recycling and diversion because the materials are easy to recycle and sell. They are generated mostly from the building and road construction and/or demolition industry, and are normally separated at the generation site.

Currently, there is extensive asphalt and concrete recycling and reuse in the private building and road construction and/or demolition industry. Many clean loads of asphalt and concrete materials are being recycled and delivered to building materials companies. In addition, material recovery at landfills currently consists of the on-site reuse of asphalt and concrete loads for constructing roads in the wet weather operating areas, and the use of clean solid fill loads for daily cover of the disposal area.

To increase the level of participation and subsequent diversion levels during the short-term and medium-term planning periods, the County plans to:

- encourage private sector involvement by revising construction specifications and educating contractors and haulers on their options to landfilling;

- encourage landfill operators to increase their current material recovery efforts and adopt measures which discourage disposal of inert waste in Class III solid waste landfills. (It should be noted that inert waste disposal is not critical because there is adequate disposal capacity for inert wastes in unclassified (inert) landfills in Los Angeles County);

- encourage contractors and haulers, through education, to source-separate their asphalt and concrete, and deliver it to the building material companies for recycling.

The construction and demolition waste program will increase the diversion of these materials as well as establish a reporting system to quantify the amount of material being diverted.

6.5.1.2 Used Tire Program

Tires constitute less than one percent, by weight, of the total quantity of solid waste generated in the County unincorporated areas. However, it should be noted that this quantity does not represent the actual quantity disposed in Class III landfills in unincorporated County areas, because the landfills accept waste tires from other jurisdictions in Los Angeles County. Also, the landfill operators only keep records of whole (unshredded) tires brought to the landfills for disposal.

The used tire program will encourage the reuse and recycling of tires, as well as help develop markets for products made from used or recycled tires.

6.5.1.3 White Goods Program

White goods constitutes 0.09 percent, by weight, of the total quantity of solid waste generated in unincorporated County areas or 1.5 percent, by weight, of the total quantity of solid waste disposed of in Class III landfills in 1990. Although the percentage total weight of white goods disposed is small, the bulkiness of the goods occupies a significant percent by volume of valuable landfill space, and makes wastestream management more difficult.

Currently, there are established scrap metal recovery markets and extensive scrap metal recycling activities within the private sector. Most of the white goods generated do not end up in landfills. However, there is currently no system in place for the management of those white goods going to the landfills.

In order to implement this alternative within the short-term and medium-term planning periods and increase the current diversion level, the County plans to:

- encourage landfill operators to include white goods recovery in their materials recovery efforts, and adopt measures to discourage white goods disposal in landfills; and

- encourage scrap metal dealers and haulers, through education, on options to landfilling.

The white goods program will divert material from disposal and increase options for repair and reuse of discarded appliances.

6.5.2 Estimates of Anticipated Diversions

6.5.2.1 Inert Waste (Construction and Demolition Debris)

The total amount of asphalt and concrete materials diverted in 1990 was 420 tons. Successful implementation of the diversion programs could increase the quantity of inert waste being diverted from 0.04 percent to 1.8 percent in 1995 and 6.5 percent in 2000. This is equivalent to diverting 22,289 tons in 1995 and 92,925 tons in 2000.

6.5.2.2 Used Tires

The quantity of tires and rubber diverted in 1990 amounted to 1,792 tons. It is projected that the diversion program could increase the amount of used tires being diverted from 0.16 percent to 0.86 percent (10,827 tons) in 1995 and 1.04 percent (14,700 tons) in 2000.

6.5.2.3 White Goods

The quantity of white goods diverted in 1990 was 281 tons. Successful implementation of diversion programs could increase the quantity of diversion from 0.02 percent to 0.06 percent in 1995 and 0.08 percent in 2000. This is equivalent to diverting 819 tons in 1995 and 1,081 tons in 2000.

6.5.3 List of Anticipated End-Users

6.5.3.1 Inert Waste (Construction and Demolition Debris)

Inert solids removed from the wastestream can be recycled for reuse in the construction industry. Screened fines, such as soil or sand, can be used as engineered fill. Crushed concrete, with the reinforcing steel removed, can be used as aggregate or road base material. The salvaged steel can be sold as scrap. Asphalt can be reheated for reuse in new asphalt mixes.

6.5.3.2 Used Tires

Used tires in good condition can be resold, and the casings usable for retreaded tires can be marketed to tire distributors. Used tires can also provide raw material for tire-derived products, such as playground equipment, floor mats, dock bumpers, crash barriers, roofing, adhesives, floor tiles, rubberized asphalt, or artificial reefs.

6.5.3.3 White Goods

End users of white goods would include local charitable organizations, thrift shops, or scrap dealers.

6.5.4 Handling and Disposal Requirements for Implementation

Not applicable.

6.5.5 Required Facilities for Implementation

No new facilities are required for development and implementation of selected programs.

6.6 SPECIAL WASTE PROGRAM IMPLEMENTATION

This section identifies the parties responsible for program implementation, the tasks necessary to implement the programs, the implementation schedule, and the implementation costs.

6.6.1 Government Agencies Responsible for Implementation

The County of Los Angeles Department of Public Works, Waste Management Division, is the agency responsible for the preparation, administration, and implementation of the various mandates of the California Integrated Waste Management Act of 1989, and subsequent amendments. It is also the lead County agency for advising the County Board of Supervisors on waste management issues.

6.6.2 Implementation Tasks and Schedule

The implementation tasks and schedule necessary to ensure the successful implementation of the selected programs are identified in Table 6-2, Special Waste Program Implementation Plan. The diversion amounts (in terms of residential, commercial, industrial, and other waste generators) for each program are found in Table 6-3, Special Waste Diversion.

6.6.3 Implementation Costs and Revenues

The annual costs associated with implementing the programs are shown in Table 6-4. Based on three years (1993-1995), the average annual cost is $60,000. No revenues are expected from these programs.

TABLE 6-2
SPECIAL WASTE PROGRAM IMPLEMENTATION PLAN

The programs implemented in the short-term planning period should be continued in the medium-term planning period.

Alternative	Start	Finish	Diversion Goals %	
			1995	2000
1-Construction and Demolition Waste Program			1.78	6.55
°Develop educational materials	10/93	4/94		
°Review County procurement guidelines	9/93	12/93		
°Revise County procurement guidelines	1/94	1/95		
2-Used Tire Program			0.86	1.04
°Contact existing tire vendors	7/93	8/93		
°Develop educational materials	10/93	4/94		
°Develop permit application instructions	1/94	5/97		
°Revise County ordinance for permit review	5/94	7/98		
°Adopt revised ordinance	8/98	9/98		
°Implement new process	10/98	12/2000		
3-White Goods Program			0.06	0.08
°Contact private hauler, negotiate collection costs	1/94	5/94		
°Contact local charities, thrift shops, and scrap dealers	1/94	5/94		
°Schedule collection	10/94	12/94		
°Advertise collection	1/95	3/95		
°Implement program	4/95	8/95		
°Develop educational materials	6/94	12/94		
TOTAL DIVERSION (%)			2.70	7.67

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TABLE 6-3
SPECIAL WASTE DIVERSION GOALS

	1995				
	Res. Waste Diversion (tons)	Com. Waste Diversion (tons)	Ind. Waste Diversion (tons)	Other Waste Diversion (tons)	Total Waste Diversion (tons)
Construction and Demolition Waste Program	8,715	1,962	11,055	557	22,289
Used Tire Program	3,497	3,410	3,844	76	10,827
White Goods Program	629	0	0	190	819
All Special Waste Programs	12,841	5,372	14,899	823	33,935

	2000				
	Res. Waste Diversion (tons)	Com. Waste Diversion (tons)	Ind. Waste Diversion (tons)	Other Waste Diversion (tons)	Total Waste Diversion (tons)
Construction and Demolition Waste Program	36,334	8,177	46,091	2,323	92,925
Used Tire Program	4,748	4,630	5,219	103	14,700
White Goods Program	830	0	0	251	1,081
All Special Waste Programs	41,912	12,807	51,310	2,677	108,706

Table 6-4
Special Waste Program Implementation Costs

Special Waste Component Costs	Average Annual Cost ($)[1]			
	Construction and Demolition Waste Program	Used Tire Program	White Goods Program	Total
Program Development/ Implementation	12,000	11,000	8,000	31,000
Monitoring/Evaluation	7,000	5,000	4,000	16,000
Education/Public Information	6,000	4,000	3,000	13,000
Total	25,000	20,000	15,000	60,000

[1]County cost only. Private sector costs are unknown at this time. The annual cost may vary depending upon agreement with haulers and staff support.

6.7 SPECIAL WASTE PROGRAM MONITORING AND EVALUATION

In order to measure the effectiveness of selected programs, the County must identify the methods to quantify and monitor achievement of the diversion objectives. This is necessary to provide the data needed to prepare an annual implementation report to the CIWMB; to identify any problems in the original program design; and to accommodate changing conditions which may warrant adjustments in the program.

6.7.1 Method to Quantify and Monitor Achievement of Objectives

To effectively monitor the success of the programs, the following tasks should be performed:

- Record total tonnage of material recycled by the tire, construction and demolition, and white goods programs.
- Tabulate the amount of inert solids reported by private contractors as being recycled from construction and demolition programs.
- Monitor special waste diversion markets to verify amount of recycling.

6.7.2 Criteria for Evaluating Program Effectiveness

The County will evaluate the effectiveness of the special waste program by the following criteria:

- Compare tonnage being recovered through the new programs with the current baseline. Quantities should increase, unless documented source reduction efforts result in decrease in quantity being generated.
- Did the program present any negative environmental impacts?
- How receptive are people to the program? What is the level of cooperation/participation of the private sector and landfill operators in implementing the program?
- Did landfill operators develop programs which discourage the disposal of selected alternatives?
- Did landfill operators develop or intensify material recovery efforts which includes selected alternatives?
- Were the tasks implemented on schedule?
- Were all the recovered materials successfully marketed and/or used?
- Did the responsible entities execute the tasks required?
- How successful is the awareness and education campaign?
- Were the anticipated special waste diversion objectives attained?

6.7.3 Responsible Parties for Monitoring, Evaluation, and Reporting

As previously identified, the Los Angeles County Department of Public Works, Waste Management Division, is the responsible agency for monitoring, evaluating and reporting, and for the preparation, implementation, and administration of the various mandates of the California Integrated Waste Management Act of 1989, and subsequent amendments.

6.7.4 Monitoring and Evaluation Funding Requirements

The monitoring and evaluation funding requirements and other pertinent information are presented in Table 6-4, Special Waste Program Implementation Cost.

6.7.5 Contingency Measures

Short-term Planning Period

If the County fails to make reasonable progress toward its special waste objectives within one year, three steps will be taken:

Step 1 This step assumes that the special waste program objectives are reasonable, and that the selected alternatives are adequate to achieve the objectives. In this case, the monitoring and evaluation program will be re-evaluated to determine if sufficient and timely information is available to accurately evaluate the special waste program's progress. If the monitoring and evaluation program is adequate, Step 2 will then be followed. If the program is inadequate, then adjustments will be made (e.g., more frequent reporting, different quantification techniques).

Step 2 This step assumes that the monitoring and evaluation procedures are adequate, and the program alternatives are properly selected but the identified objectives are not achievable within the planning period. Under this scenario, the objectives will be revised downward, and the difference in diversion will be taken up with increases in other targets set for the other components (i.e., recycling and composting).

Step 3 This step assumes that the monitoring and evaluation program is adequate, and the objectives are attainable; however, the alternatives selected for implementation are inadequate to reach the objectives. Under this scenario, the County will evaluate other alternative special waste programs for implementation.

Medium-Term Planning Period

If the County fails to make reasonable progress toward its year 2000 objectives, three steps will be taken. These three steps will be identical to those for the short-term planning period.

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CHAPTER 7

EDUCATION AND PUBLIC INFORMATION

CHAPTER 7

EDUCATION AND PUBLIC INFORMATION PROGRAM

7.1 BACKGROUND

The current situation regarding remaining landfill capacity is a realized indication that there exists a need for public participation, education, and awareness in the area of solid waste management.

The Education and Public Information Component of the SRRE of provides a guideline for implementing the source reduction, recycling, composting, and special waste educational programs. Education and public information programs that are well planned and executed can be one of the most cost effective methods to reach the desired goals. This component will provide programs for building awareness of the garbage crisis and methods on reducing wastes and recoverable resources that have been deposited in the landfills, and the preservation of natural resources. The success of this component is essential in attaining the goals and objectives of the other components and programs.

Public education and awareness is essential for public participation. The public includes a mixture of people from many different ethnic backgrounds, income levels, ages, education levels, etc. To reach this wide array of people in the unincorporated area of Los Angeles will require a variety of educational and informational programs. With the dissemination of information and educational programs to the public and a strong plan to encourage compliance, the diminishing capacity of the landfills will be averted and positive, constructive utilization of resources will prevail. The effort will partially entail modifying the purchasing and waste disposal behavior of the public to develop more environmentally responsible habits.

This component will target those entities that are large generators of waste and attempt to educate them on the alternatives available for reducing and diverting solid and hazardous waste from landfills. The component will also focus on smaller generators and develop methods of accomplishing various tasks to affect positive waste management results.

7.2 EDUCATION AND PUBLIC INFORMATION PROGRAM OBJECTIVES

The educational and public informational objectives for both the short-term and medium-term will focus on increasing public awareness and participation in areas of source reduction, recycling, composting, and special waste. The efforts will also include improving methods and techniques for the safe handling and disposal of solid wastes.

The objectives will focus on educating the general public and business interests on many different aspects of integrated waste management. This will include promoting the concept that thoughtful waste management practices are the "right thing to do" to protect the environment and conserve resources. The practices to be discussed will demonstrate cause and effect relationships and also demonstrate health and safety concerns. They will be presented so as "to train or develop the knowledge, skill, mind, or character" of the public by effectively informing, communicating, and motivating.

Essentially, the goals of the education and public information programs are to maximize participation in the selected source reduction, recycling, composting, and special waste component programs. This can be accomplished by a strong building of awareness among the public and motivating them to freely participate in programs without reservations.

To phrase them somewhat differently, the goals of this section are to provide the education and public information necessary to ensure success of the component programs. In the short-term this would mean expending an effort that will result in an overall diversion rate of 25% by 1995. In the medium-term it would mean putting forth an effort that will achieve a 50 percent diversion rate by the year 2000. To accomplish these goals the following objectives have been established:

The vast majority of the educational/informational tasks and activities will be initiated in the short-term. For certain tasks, once initial phases have been implemented, they will require little effort to remain effective. Other tasks, however, will require much attention during their existence and are planned to be ongoing.

Generally, the educational and promotional strategies aimed at the residential audience will be focused on changes that will result in a decrease of the amount of waste going to the landfills. The strategies will attempt to increase the awareness of the residents about source reduction (packaging, disposability/ reusability of products, etc.), recycling (explaining the need and benefits/advantages of recycling and its ramifications, etc.), composting (demonstrating the need for this program and developing a market for the final product), and special wastes (proper handling and disposal, implement recycling where possible, etc.)

The strategies aimed at the commercial, industrial, and "other" categories will increase the awareness and benefits from manufacturing and purchasing reusable and environmentally safe/friendly products, modifying procurement policies to encourage the purchase of products with recycled materials, and promoting positive changes in the quantity and type of material being disposed. Source reduction will be given a strong emphasis because of its hierarchical position. Many of the strategies for the residential group are also applicable to the commercial, industrial, and "other" groups. For this reason the tasks will be coordinated so as to minimize any duplication and waste of materials and resources.

7.2.1 Short-Term Objectives

- By 1994, to develop short- and medium-term detailed plans that are coordinated and consistent with other jurisdictions in the region.

  Details will include the design, development, and implementation schedule of the specific education and public information programs for each of the targeted groups within the County unincorporated areas. The plans will significantly expand and enhance the existing education and public information programs.

- By 1994, to develop an extensive program that trains interested personnel from waste generators to become SRRE representatives who can provide information and technical assistance. Development will be oriented toward the selected audiences.

- By 1994, to develop an extensive Technical Assistance program that will provide a variety of materials and technical assistance. Development will be oriented toward the selected audiences.

- By 1993 through 1994, to conduct waste evaluations for selected businesses and publicize results.

- By mid-1995, to establish a source reduction, recycling, composting, and special/hazardous waste education program management that is introduced in 75 percent of the schools. This would include developing communication channels for informing students of the diminishing capacity of landfills and the necessity for changing waste generation and disposal habits.

- By 1995, reach an awareness level of 75 percent among residents in the unincorporated areas in regards to the waste reduction, recycling, and composting programs being promoted by the County. This would also include the importance of high participation rates.

- By 1995, to attain a 75 percent awareness level among the commercial, industrial, and "other" sectors regarding the significance of source reduction and recycling and their affects on waste generation/ diversion and natural resources.

7.2.2 Medium-Term Objectives

- By 1997, to have in place source reduction and recycling education programs in all county, state, and federal buildings located within the unincorporated areas of the County.

- Between 1995 - 2000, conduct a series of meetings/ workshops with representatives from appropriate schools/districts to improve recycling education programs.

- Between 1995 - 2000, will continue aggressive educational programs, including seminars and workshops.

- By 2000, to implement a source reduction, recycling, composting, and special/hazardous waste management program that is used in 90 percent of the schools in the County's jurisdiction. This would include communication channels for informing students of the diminishing capacity of landfills and the necessity for changing waste generation and disposal habits.

- By 2000, create an 85% awareness level by unincorporated area residents regarding the source reduction, recycling, composting, and waste reduction programs being presented by the County. Also included would be the safe and proper handling of special wastes.

7.3 EXISTING EDUCATION AND PUBLIC INFORMATION ACTIVITIES

The County of Los Angeles has extended a great promotional effort and gained valuable experience from the development, administration, adoption, and implementation of the Los Angeles County Hazardous Waste Management Plan in 1988. This effort was demonstrated through the development and distribution of fact sheets, brochures, and pamphlets regarding hazardous waste materials and its disposal. There have been approximately 40 public presentations made by the Department of Public Works in this regard, many of which included a slide show.

The Department of Public Works is frequently involved in press conferences and news releases promoting recycling and other solid waste disposal alternatives, which has included distributing public service announcements. In December 1990, there was a large community event/grand opening in the County park in Lennox promoting a State-certified Recycling Buy-Back Center. It was supported by flyers, posters, press release, newspaper ads, games, radio announcements, contests, prizes, and well known personalities.

A toll-free 800 telephone "hotline" number to the Department of Public Works is presented on all public information materials relating to recycling and household hazardous waste so that residents can easily address their concerns. Numerous calls are received daily from throughout the County with a variety of waste related questions and comments.

At the present time, there are recycling programs within eight of the larger unincorporated areas of Los Angeles County, including the areas of Altadena, East Pasadena, Hacienda Heights, La Crescenta/Montrose, Rowland Heights, Topanga Canyon, Bassett/Valinda, and Marina del Rey. The recycling programs in the first seven areas target single-family homes while the eighth, Marina del Rey, is the location of a multi-residential recycling program. These areas and their programs require and utilized various forms of promotion with good results, such as flyers, posters, letters, newspapers, brochures, and fact sheets.

The Department of Public Works also works and consults with haulers, especially when a specific area has been targeted for the implementation of a recycling program. There is a County Recycling Ordinance, Title 20, Division 4, Chapter 20.72, Section 20.72.189, which requires the haulers in an area targeted for recycling to provide a public awareness program and reads as follows: "20.72.189 Recycling education program. Waste collector haulers shall provide a public awareness program for their customers, which shall include, but is not limited to, literature and other information designed to promote public participation and awareness in community for the need, benefits, and availability of recycling services (Ord. 89-0145 § 22, 1989)." The haulers have typically provided fact sheets to their customers explaining the benefits and operations of the program.

There is currently a Countywide Departmental Recycling Coordinator who aids in the planning, coordinating, and implementing of recycling activities within the County government organization. The County Board of Supervisors recently authorized a Countywide departmental office recycling program involving all 42 departments of the County government. Implementing this program is being done by careful employee training via a training aid packet and by designing a collection system that makes employee participation as easy as possible. The total tonnage of paper recycled during the phasing-in of the program has increased steadily as additional County buildings and sites have implemented the program, and currently averages approximately 80 tons of paper per month.

The Department of Public Works in cooperation with the Southern California Gas Company, local radio station KIIS-FM/AM, MCA/Universal Merchandising Inc., and AIMS Media will produce an eight-minute English and Spanish video teaching children about the new three R's (Reduce, Reuse, Recycle). The video, "Let's All Recycle", is targeted to children, kindergarten through sixth grades. In addition to the video program, English/Spanish activities packet will reiterate the importance of solid waste disposal, recycling, and preservation of natural resources.

Distribution of the Video, "Let's All Recycle", will be given to all public and many private elementary schools throughout the County.

In progress are the development of brochures promoting commercial recycling and source reduction as well as a comic book for children. Exhibits presenting information relevant to waste management are now being planned for use at trade shows and shopping centers. Most County waste related promotional efforts now include using the well known and respected image of Woody Woodpecker, who has recently been adopted as the County's official recycling mascot.

The above are some examples of the education and public information efforts that the County has put forth. It will integrate and expand these efforts and its resources as part of the implementation of the education and public information tasks for this SRRE.

7.4 SELECTION OF PROGRAM ALTERNATIVES

The choosing of the specific educational alternatives for implementation involves several considerations. One important consideration in the selection process is the effectiveness of an educational program measured against its relative costs. There are some educational approaches which could be very narrow in scope and targets only a small segment of society. While this may result in accomplishing the desired goal, it may not be a cost-effective approach. A more financially responsible choice is to combine or integrate, where feasible, the educational avenues for all of the component programs so as to minimize cost and maximize effectiveness. One result of this approach is to consolidate the educational and outreach efforts and thus reduce or eliminate redundancies.

Utilizing the established school systems will be extremely important and will open up and develop communication channels with the students on waste issues. The County will work closely with other cities and school districts in developing the SRRE educational materials for the schools. Department of Public Works will coordinate its educational programs with State, and Regional recycling educational materials. In addition, keeping abreast of changes implemented by these agencies/organizations.

The school system is an exceptionally good medium to utilize because it will instill habits and develop lifestyles that will benefit society well into the future. In most cases, Countywide and regional programs for schools would be more practical than localized ones because of the problems of students not attending school near their residence because of the differences between

schooldistrict boundaries and city boundaries. These differences also make it difficult to accurately determine the County unincorporated school population, which roughly equals 171,000 at this time. It is anticipated that the programs for elementary and/or secondary schools can be modified to include many hours on waste and resource management. The emphasis will be to increase awareness and to stress the importance of thoughtful waste management activities using an enjoyable yet educational method.

The County Department of Public Works, Waste Management Division, has accumulated valuable experience from the programs it has carried out over the last few years. These have been mostly centered around recycling and hazardous waste, but the experience is easily transferable to the additional needs of the SRRE. Also, because of the efforts, time, and money that the County has already expended, it is in a good position to continue with even more impetus toward the pursuit of the SRRE's educational objectives. The Public Works Department also possesses a large reprographics units which provides a wide variety of high quality services.

Targeted Audiences

The education and public information programs will be targeted to four different groups. The following groups have been selected upon the quantity or specific type of waste they generate:

- Residential
- Commercial
- Industrial
- "Other"

7.4.1 Residential

Based upon the waste characterization study of the County unincorporated areas, the residential group is the largest waste generator. For this reason, the educational and public information plans will give high priority to this group. More specifically, single-family and multi-family dwellings will be targeted.

The County has used and will continue to use the following media to reach and educate residents: flyers, post cards, letters, posters, brochures, newspapers, press conferences, public services announcements on radio and television, video presentations, and others. The educational emphasis for the residential group will be on source reduction, residential recycling, and composting.

7.4.2 Commercial

The second largest waste generation group is the commercial sector. This group includes a vast array of establishments, including transportation, wholesale and retail trade, landscaping, and numerous other services. Many of these currently dispose of valuable and recycled wastes, such as restaurants/bars discarding empty beverage bottles and cans. Where and when appropriate, commercial office parks will be targeted first since there is a concentration of businesses within them. Also, retail shopping centers will be approached because of the volume of waste they produce and because they often share trash containers. The emphasis of the educational activities for this group will be on source reduction, commercial recycling, and composting.

7.4.3 Industrial

The industrial group is the third largest waste generation group in the study. It includes businesses engaged in construction and manufacturing as well as other industrial-type businesses. The educational activities for this group will focus on industrial warehouses, industrial parks, and large manufacturers. Included in the recycling activities will be the recycling of construction/demolition debris.

7.4.4 Other

The "other" groups consists primarily of institutions, such as hospitals, convalescent or nursing homes, and schools. Government agencies would also be a part of this group and would include all city, county, state, and federal offices and departments located in the unincorporated areas of Los Angeles County. These would all be pursued as participants in the SRRE educational programs. A great deal of emphasis will be placed on

implementing programs through the school system. Based upon the type of waste generated, the emphasis of the educational program for this group would center on source reduction and recycling.

7.4.5 Description of Programs

Based upon the waste characterization study the following specific alternatives/programs have been established. For many of these programs the County plans on working jointly with other local governments to reduce costs and to have a coordinated effort.

Program 1 - Residential Promotion/Education/Information Program

This program will be aimed at the residential sector and to some extent has already been initiated, but will be expanded and enhanced in the short-term. The program's expansion will utilize methods that promote awareness and participation in the appropriate diversion programs. This program will promote and publicize all of the selected programs resulting from this SRRE.

The program will be developed and coordinated with other cities within the County which have similar programs to promote. This will reduce costs for the County and increase the efficiency of those jurisdictions involved.

In the medium-term this program will be further expanded to accomplish the specified additional objectives for this time period. This program will include the educational methods of seminars, demonstrations, and workshops. This program will be quite effective because it will be reaching large numbers of people in public places. These places would include libraries, shopping centers and malls, supermarkets, schools, banks, hospitals and clinics, and post offices.

The following is a list of methods or techniques that the County will primarily utilize in implementing its educational and public information for Program 1:

- Block Leader Programs - This would be somewhat similar in organizational structure to "Neighborhood Watch" programs, where trained volunteers distribute information throughout their neighborhoods. In this case, it would involve distributing information about source reduction, recycling, composting, and the safe handling and disposal of wastes.

- Contests and Reward Programs - This would consist of a plan that would reward entities for a highly successful recycling program. Contests would be based on number of pounds per person recycled or some system that was equitable. Recycling oriented games for children have been used at County events with good participation and results. Pinatas were also used as a reward for participation.

- Hotline Number - 1-800-552-5218 to answer recycling and household hazardous waste disposal questions.

- Community Presentations - A group of a few individuals from the Department of Public Works, Waste Management Division, will be responsible for presentations to community organizations, businesses, and schools. To derive the greatest benefit, the meetings need to be well attended, which may necessitate advertising/promoting.

- Developing an instructional/training program for community organizations and businesses, so that they can make presentations themselves, may be a possibility. This would be a financial advantage to the Department of Public Works because less of their staff would be needed.

- Develop a speakers' bureau for community meetings, clubs, Chamber of Commerce, etc., to discuss recycling measures.

- Information Booth/Displays - A portable educational booth promoting waste disposal alternatives is being planned. This booth will be employed at events which reach large numbers of people, such as the Los Angeles County Fair and community celebrations. Displays will also be utilized. They can be designed for set up in shopping centers and office building lobbies, among other places.

- Litter Containers - Currently, there are numerous sidewalk litter containers in the County unincorporated areas, which are serviced by the DPW, Road Maintenance Division. There are also many trash receptacles located in areas which are administered by the County Department of Beaches and Harbors. Placing a slogan or picture promoting recycling on the sides of the litter containers will increase public awareness and act as a reminder to recycle. This could be done with other types of refuse receptacles as well, such as the trash cans located in County parks.

- Logo - Develop a logo for use in all SRRE programs which would bring more unity to the programs. Businesses could adopt the logo if they are helping fulfill the SRRE objectives.

- Media Campaign - This could involve several mediums--television, radio, newspapers, magazine articles, press conferences. Public Service Announcements could also be included in this group. The County will be developing a theme utilizing Woody Woodpecker, that will increase public awareness about the problems and concerns of solid waste.

- Printed Materials - There is a wide array of materials that will be used. They include booklets, brochures, comic books, fact sheets, flyers, guides, leaflets, letters, manuals, newsletters, pamphlets, postcards, posters, and other forms of literature. Many of these will be used for the presentation of "how to" information. There are several methods of distribution that can be used for these, ranging from direct mail to hand-outs at shopping centers to being on display at County libraries.

Program 2 - Development of Video Program/Material for Schools

This program will entail the development of a program, including materials, which will educate students about source reduction, recycling, composting, and special wastes.

In the County there are 82 school districts and their boundaries rarely coincide with any city or county boundaries. For this reason the coordination by the County Office of Education with other cities is important so as to most effectively/efficiently implement the desired changes. The changes in the programs that are sought will be developed largely by the Los Angeles County Office of Education with the assistance of the Department of Public Works and the school districts. Much of the framework for programs is provided by the State and thus their input will also be of significance.

In the medium-term the emphasis will be refinement of the programs in place and providing new materials that seem appropriate. Any school districts that have not introduced environmental/waste programs by 1995 will be strongly urged/encouraged to do so.

Methods or techniques the County will primarily utilize in implementing its educational and public information for Program 2:

- School Curricular Materials - Providing school systems with a source reduction manual is one item of material to be provided. Others include activity packets, fact sheets, videos, etc., many of which are available from State and Federal agencies. Working with groups, such as the PTA, will provide a means of feedback for the improvement of programs and materials. Encouraging and implementing informative classes in waste diversion activities is also planned, which may include providing a seminar or workshop for the educators.

- Video Presentation - The DPW has much experience with videos, including the one currently in production and discussed in the existing educational conditions section. The video is directed at K through 6 grade levels. Others could be developed for businesses and noneducational institutions. One such tape may discuss performing waste evaluations and their benefits.

- Recycling/composting video - To create a video to be shown in high school and/or junior high science classes.

Program 3 - Commercial/Industrial/Other - Promotion/ Education/Information Program

In the short-term a program will be developed which targets the larger waste generators and all government buildings and encourages/motivates them to implement waste diversion programs. The methods will be largely educational and will involve the dispersion of promotional materials to the larger generators.~~would be reached~~.

In the medium-term the program will expanded to reach "medium" waste generators and ensure that all large waste generators have been contacted. There will also be the promotion of other diversion programs which will enable the County to meet its goals.

Methods or techniques that the County will primarily utilize in implementing its educational and public information for Program 3:

- Employee Training - This would be utilized mostly for businesses and government. It would provide instruction and training in source reduction, including procurement preferences, recycling, and composting.

- Logo - Develop a logo for use in all SRRE programs which would bring more unity to the programs. Businesses could adopt the logo if they are helping fulfill the SRRE objectives.

- Printed Materials - There is a wide array of materials that will be used. They include booklets, brochures, comic books, fact sheets, flyers, guides, leaflets, letters, manuals, newsletters, pamphlets, postcards, and other forms of literature. Many of these will be used for the presentation of "how to" information. There are several methods of distribution that can be used for these, ranging from direct mail to hand-outs at shopping centers to being on display at County libraries.

Program 4 - Technical Assistance/Waste Evaluations

In the short-term the County will develop detailed plans for the implementation of the various technical assistance tasks. The County will also perform waste evaluations for selected businesses and publicize results. The businesses chosen will be from many different fields. Developing a brochure which instructs businesses how to perform their own waste audits will also be developed. In this brochure will be a section describing how to interpret the results so that the participants better understand their waste generating habits.

In the medium-term the results of waste audit data will be compiled and analyzed. The results will be separated by business group and may show results before and after implementation of the diversion programs. This will help promote the use of waste audits and promote the effectiveness of diversion programs.

Methods or techniques that the County will primarily utilize in implementing its educational and public information for Program 4:

- Technical Assistance - This will take the form of seminars, workshops, and demonstrations dealing with source reduction, recycling, composting, and

special waste. A telephone hot-line for inquiries is also a means of providing technical and public informational service.

- Included in technical assistance will be training for businesses on the procedures for performing a reliable waste audit, which will need to be one of the first steps a business takes in managing its wastes. A business can most effectively design and implement a waste management program only after a waste audit/characterization study has been performed. The training may be an instructional packet or, for large businesses, on-site instruction/training including a video. Additional details on technical assistance are provided in the Source Reduction chapter.

- "Environmental" award/certificate- Acknowledgements would be presented to local businesses for a job well done in recycling.

Program 5 - Commercial/Industrial/Other - Training SRRE Representatives

In the short-term this program will develop a system whereby persons from business and industry will be recruited to become SRRE representatives. These representatives will be persons who will provide information and assistance on various methods of waste diversion as well as waste audits and evaluations.

In the medium-term the program will be expanded to increase the duties of the representatives to include implementing the additional tasks required by selected SRRE programs.

Methods or techniques that the County will primarily utilize in implementing its educational and public information for Program 5:

- Employee Training - This would be utilized mostly for businesses and government. It would provide instruction and training in source reduction, including procurement preferences, recycling, and composting.

  Developing an instructional/training program for community organizations and businesses so that they can make presentations themselves is a possibility. This would be a financial advantage to the Department of Public Works because less of their staff would be needed.

- Technical Assistance - This will take the form of seminars, workshops, and demonstrations dealing with source reduction, recycling, composting, and special waste. A telephone hot-line for inquiries is also a means of providing technical and public informational service.

- Included in technical assistance will be training for businesses on the procedures for performing a reliable waste audit, which will need to be one of the first steps a business takes in managing its wastes. A business can most effectively design and implement a waste management program only after a waste audit/characterization study has been performed. The training may be an instructional packet or, for large businesses, on-site instruction/training including a video. Additional details on technical assistance are provided in the Source Reduction chapter.

7.5 PROGRAM IMPLEMENTATION

This selection will discuss some of the considerations in deciding which programs to implement, the methods and techniques used to implement the programs, and finally the estimated costs and funding for implementation.

7.5.1 Considerations

The implementation of the programs requires careful planning so that each dollar spent yields the greatest and most productive result. The planning phase includes identifying the following items for implementation: the responsible agency, the appropriate tasks and their time schedules, and determining all costs, revenues, and revenue sources.

These items are identified and shown for the source reduction, recycling, composting, and special waste components in Tables 1 through 4, which follow. Also shown in tables is a column listing the group or groups that will be targeted for each of the educational/public information activities to be implemented. The costs shown are approximate, but to ensure success, a margin of safety has been built into them to allow for such things as printing overruns.

There are several methods or alternatives that may be utilized in the execution of an educational activity. Some activities to be utilized will include targeting elementary school children because their habits can best be influenced in their formative years. For the school children, this can involve play things, textbooks, games. activity packets, and other audio/visual materials.

This chapter will not select the exact method(s) or specific technique(s) for conveying educational/ informational material, as this can be decided at the time the details of the programs are being formulated.

7.5.2 Implementation Methods/Techniques/Strategies

In implementing the educational and public information programs, the exact one(s) to be used for each task to be implemented will be decided shortly before that task/ activity is to be undertaken. Some methods are best suited for one type of activity and/or groups while others are much more generalized and can be used for several activities and reach several groups simultaneously.

7.5.3 Implementation Tasks and Responsible Agencies

The education and public information implementation tasks are shown on Tables 7-1 through 7-4, 7-7 and 7-8. In these six tables are shown the specific educational and public information tasks to be implemented. There is one table for each of the following components: Source Reduction, Recycling, Composting, and Special Wastes. Each component table is broken down into programs, and then specific implementation tasks are shown for each program.

These same four tables also list the agency responsible for the implementation of the specified tasks, which in all cases is Los Angeles County, Department of Public Works, Waste Management Division.

These tables also list the waste generator groups that the programs will target. In addition, the tables list implementation costs and funding sources. These two items are described in greater detail in Section 7.5.4, Estimated Costs and Funding.

The time of implementation of the tasks to be carried out are summarized in two tables. Table 7-7 summarizes and schedules those tasks that will take place in the short-term while Table 7-8 represents those to be exercised in the medium-term.

7.5.4 Estimated Costs and Funding

The estimated implementation costs for education and public information for this SRRE are shown in the Funding Component. In that chapter are Tables 9-3 through 9-6 which show all of the various estimated costs, including education and public information, for each component. In this Component, Table 7-6 provides a summary of the estimated education and public information costs for each of the SRRE components.

However, the costs for monitoring and evaluation of the education and public information component are not borne by or incorporated into the other components. These costs stand on their own and are shown in Table 7-5 and 7-6 in this chapter as well as Table 9-7 in the Funding Component.

The Public Education and Information Programs that are specific to the unincorporated County are be funded through the Solid Waste Generation Service Charge. There is an additional discussion of this in the Funding Component.

7.6 MONITORING AND EVALUATION

This section will identify the methods utilized to measure the achievement of the educational program objectives described in Section 7.2.

This will be accomplished by first establishing a set of written criteria that will be able to measure and evaluate the effectiveness of the programs toward fulfilling the objectives.

7.6.1 Methods Used to Measure Achievement of Objectives

The methods used to measure the achievement of the stated education and public information objectives will revolve around the use of surveys. The survey questions will be carefully formulated and phrased to eliminate ambiguity and to ease the tabulation process. Most of the questions asked in the initial survey will be used in subsequent surveys so that valid comparisons of the results can be made. The questions will also attempt to illicit responses that can be categorized and quantified, which will aid in the tracking of the results. The initial survey results will serve as the basis for evaluating the effectiveness of the programs. It will examine the public's awareness of the existence of the programs and include asking how often they have participated in the programs and their motivation for using/not using the programs.

Since four different groups (residential, commercial, industrial, and other) are being targeted for educational programs, there will be four separate versions of the survey/questionnaire. Some questions will be common to all versions, while others may be unique to one or two. Surveying haulers may also be done to gain additional information and provide input on the effectiveness of the programs.

The surveys will be distributed by mail and/or taken by phone calls to those targeted in the unincorporated areas of the County. The number of completed surveys will be sufficient so as to yield statistically reliable and accurate data for each targeted audience.

Other surveys may be given to participants in certain programs to determine quickly the amount of influence of the educational methods. These surveys will be taken just before and immediately after the program. Attendance records will be kept so that follow-up surveys/questionnaires can be redistributed for further evaluation.

7.6.2 Criteria for Evaluating Program Effectiveness

The results of the surveys will be compiled and tabulated into quantifiable figures with results that clearly express "levels" of awareness and participation. The "levels" will be a series of percentages that will gauge each group's awareness and participation. These levels are shown below in the "Criteria Used to Evaluate Effectiveness" as suggested by the County Sanitation Districts.

Criteria Used to Evaluate Effectiveness

Participation/Awareness	Effectiveness
0 - 25%	Ineffective
26 - 50%	Somewhat Effective
51 - 75%	Effective
76 - 100%	Very Effective

The tabulation of the surveys/questionnaire will measure, among other things, level of awareness, participation, and satisfaction. Measuring changes in behavior and habits will also be done. Where practical this will be done for each individual component. The interpretation of all data will be important and the conclusions will be a result of straight forward decisions and findings.

In addition to the quantifiable questionnaires, there will be other items of input/criteria to judge the overall effectiveness of the educational and public information programs. These additional items including measuring the accuracy with which the tasks were implemented according to the time schedules shown in the other components. Another item of consideration deals with the question of whether or not the specified tasks were performed by the specified responsible agency. Also entering into the measurement of effectiveness will be the amount of money spent versus the budgeted amount. The last item of input deals with the concern of whether or not each of the proposed tasks were performed as expected and to the extent planned.

7.6.3 Responsible Agencies

The educational and public information program monitoring, evaluating, and reporting will all be performed by the Department of Public Works, Waste Management Division. This division will also beresponsible for conducting the surveys for each of the targeted groups. It is planned that the questionnaire be administered every 12 months so that the amount of time between surveys is regular and consistent.

After reviewing and analyzing the data, a written report will be produced which will, among other things, summarize and report the findings in terms of accomplishment toward program objectives. It will also discuss the relative success in advancing public awareness and participation for the programs.

If the findings indicate the public education program is not achieving its goals, then the appropriate contingency measures described in Section 7.6.6 will be taken.

7.6.4 Monitoring and Reporting Schedule

It is planned that the initial survey processing, monitoring, evaluating, and reporting will take place during February-March 1993. It is necessary to perform this initial survey before any of the program tasks are implemented so that a valid reference point can be established and measured. The subsequent surveys and findings will be on-going and performed every 12 months, and hence, will be during February-March of each year.

7.6.5 Funding Requirements

As stated earlier, the monitoring and evaluating will be performed by the Department of Public Works, Waste Management Division. The number of dollars estimated to perform these tasks, plus conducting the surveys and preparing an annual review document, are shown in Table 7-5 and Table 7-6. The source of funding for the education component monitoring and evaluating is the Solid Waste Generation Service Charge, which is also discussed in the Funding Component.

The funding for the educational activities and tasks, excluding monitoring and evaluation, is incorporated into a part of each of the individual components. This includes the cost estimates, revenues, and revenue sources which are shown in table(s) within each of the appropriate components.

7.6.6 Contingency Measures

If the monitoring and evaluating of criteria and/or items of input indicate a shortfall in achieving the educational objectives, then contingency measures will be implemented. This will hold true for both the short-term as well as the medium-term and assumes the objectives and programs remain reasonable. It is additionally assumed that the monitoring and evaluation methods are appropriate. If they are not they will be modified so as to better fit the programs and methods. Also, if the stated objectives seem unrealistic and non-achievable then the objectives will be modified. The exact action that will be taken in response to a problem will be determined only after a close examination of the problem, its cause, and the proposed solutions or alternatives. If the measured levels of awareness and participation are below those forecasted, then the following corrective steps may be implemented:

a. After identifying the scope and depth of the problem, then implement actions based largely on survey findings, which will overcome the shortfalls and restore the performance level of the programs. This may include modifying original tasks and activities based in their relative effectiveness to accommodate changing conditions and/or increasing or redirecting efforts to alleviate the detected weakness.

b. If the educational tasks and activities are not following the time schedule specified, then increasing the frequency of monitoring and evaluating may be done. Modifying the alternatives or changing the schedule of subsequent tasks may be taken so that they too do not get off course.

c. Next, the question of whether or not the specified tasks were performed by the designated responsible agency. If they were not, then the issue of why not needs to be addressed. This may include evaluating and revising the tasks and activities and modifying the number of the responsible individuals so as to prevent future problems.

d. If the shortfall in the accomplishments of objectives can be attributed to a shortage of money or staff manpower, then revised budgets and manpower schedules will be produced.

e. Should the shortfall in meeting objectives be related to improper or inadequate execution, then corrective measures will be taken. The exact corrective measure(s) will be determined after the origin of the shortfall is clearly determined and possibly include redesigning the programs or providing additional training.

It is expected that some fine tuning of educational methods will take place over time to accommodate changing behavior and conditions. With this inherent flexibility to the programs and with quality planning, the County will be able to accomplish the goals and objectives of AB 939 and the SRRE.

TABLE 7-1
EDUCATION AND PUBLIC INFORMATION
IMPLEMENTATION TASKS/RESPONSIBLE AGENCY
FOR SOURCE REDUCTION ACTIVITIES

SOURCE REDUCTION

Program	Tasks/Activities	Funding Sources	Responsible Agency	Targeted Group
Purchase Preferences	°Educate businesses about advantages of buying materials with recycled content. °Develop purchasing specifications and preferences for products with recycled content. °Promote durability and repairability of products as well as extending their life expectancy. °Make known the benefits of bulk purchases.	Solid Waste Generation Service Charge	Department of Public Works, Waste Management Division	Commercial, Industrial, Other (Institutional)
Technical Assistance	°Promote availability and methods of performing waste audits/ characterization. Includes development of forms. °Establish mobile waste audit team. °Telephone hotline to assist/inform callers. °Hold workshops and seminars promoting source reduction, i.e., double sided copies, electronic mail.			Commercial, Industrial, Other (Institutional)

TABLE 7-1 (CONT.)
EDUCATION AND PUBLIC INFORMATION
IMPLEMENTATION TASKS/RESPONSIBLE AGENCY
FOR SOURCE REDUCTION ACTIVITIES

SOURCE REDUCTION

Program	Tasks/Activities	Funding Sources	Responsible Agency	Targeted Group
Domestic Practices	°Explain benefits of giving articles to thrift stores. °Inform public on how to stop junk mail. °Promoting reuse of all types of bags, boxes, and containers. °Switching from disposable to non-disposable goods.	Solid Waste Generation Service Charge	Department of Public Works, Waste Management Division	Residential
Consumer Practices	°Increase knowledge of packing materials, i.e., multi-resin, styrofoam. °Encourage purchases that are environmentally friendly. °Buying products that are recyclable or made from recyclable materials. °Making purchases in bulk. °Giving to/buying from thrift stores. °Produce Environmental Shopping Guide. °Promote logo program for products meeting specified standards.			Residential

TABLE 7-1 (CONT.)
EDUCATION AND PUBLIC INFORMATION
IMPLEMENTATION TASKS/RESPONSIBLE AGENCY
FOR SOURCE REDUCTION ACTIVITIES

SOURCE REDUCTION

Program	Tasks/Activities	Funding Sources	Responsible Agency	Targeted Group
Backyard Composting	°Develop "How To" pamphlet. °Establish local demonstration sites. °Promoting xeriscaping and mulching.	Solid Waste Generation Service Charge	Department of Public Works, Waste Management Division	Residential, Other (Institutional)
	°Switching from disposable to non-disposable goods.			Commercial, Industrial, Other (Institutional)
Award Programs, Contests	°Give public recognition to those businesses with outstanding source reduction achievements.			Commercial, Industrial, Other (Institutional)
Other	°Educate business shippers about materials available and establishing a deposit system for containers. °Develop guidebooks for teachers to educate elementary and secondary students.			Commercial, Industrial, Other (Institutional)

TABLE 7-2
EDUCATION AND PUBLIC INFORMATION
IMPLEMENTATION TASKS/RESPONSIBLE AGENCY
FOR RECYCLING ACTIVITIES

RECYCLING

Program	Tasks/Activities	Funding Sources	Responsible Agency	Targeted Groups
Recycling	Develop Curbside Collection At-Source Separation and Collection Buy-Back Centers Drop-Off Facilities Materials Recovery Operations Multi-family Collection Green Waste Cover Project	Solid Waste Generation Service Charge	Department of Public Works, Waste Management Division	Residential, Commercial, and Industrial

TABLE 7-3
EDUCATION AND PUBLIC INFORMATION
IMPLEMENTATION TASKS/RESPONSIBLE AGENCY
FOR COMPOSTING ACTIVITIES

COMPOSTING

Program	Tasks/Activities	Funding Sources	Responsible Agency	Targeted Group
Yard Waste Composting	°Explain and implement a yard waste collection program. °Present benefits and use of composted yard wastes. °Promote incentives and availability for use of final composted product.	Solid Waste Generation Service Charge	Department of Public Works, Waste Management Division	Residential
	°Promote incentives and availability for use of final composted product.			Commercial, Industrial
	°Explain and promote a yard waste collection program. °Promote incentives and availability for use of final composted product. °Educate and develop markets, especially with the following County Departments: - Arboreta and Botanic Gardens - Forester and Fire Warden Forestry Division - Parks and Recreation			Other (Institutional)

TABLE 7-4
EDUCATION AND PUBLIC INFORMATION
IMPLEMENTATION TASKS/RESPONSIBLE AGENCY
FOR SPECIAL WASTE ACTIVITIES

SPECIAL WASTE

Program	Tasks/Activities	Funding Sources	Responsible Agency	Targeted Group
Asphalt and Concrete Recycling	°Promote benefits, uses, and availability for reuse and recycling of asphalt and concrete - place emphasis with Department of Public Works, Road Maintenance Division. °Promote implementing a purchase preference and establish specifications to increase usage. °Promote recycling and other alternatives to disposal. °Encourage separation of asphalt and concrete at construction site.	Solid Waste Generation Service Charge	Department of Public Works, Waste Management Division	Commercial, Industrial
White Goods - Scrap Metal Recycling	°Educate/promote the benefits, uses, and availability of recycled material goods. °Promote recycling and other alternatives to disposal.			Residential
Used Tire Recycling	°Encouraging the existing tire reuse programs being conducted by the private sector. °Developing educational materials for tire vendors and purchasers. °Fostering the development of local markets for used tires. °Promote the use of rubberized asphalt.			Commercial, Industrial

TABLE 7-5

EDUCATION AND PUBLIC INFORMATION
ESTIMATED COSTS FOR MONITORING AND EVALUATION

	1991	1992	1993	1994	1995
Operating Expenses: Labor: Program design, Monitoring and Evaluating	0	0	$66,500	$70,000	$73,500
TOTAL	$ 0	$ 0	$66,500	$70,000	$73,500

Education Component Assumptions:

[1] The estimated costs/funding for the educational activities and tasks (materials, printing, mailing, etc.), excluding those for monitoring and evaluation, are incorporated into and are a part of each of the individual components cost estimates.

TABLE 7-6

EDUCATION AND PUBLIC INFORMATION
SUMMARY OF ALL ESTIMATED EDUCATIONAL IMPLEMENTATION AND MONITORING/ EVALUATION COSTS

	1991	1992	1993	1994	1995
Source Reduction Component-Implementation	33,000	25,000	122,000	128,500	135,000
Recycling Component-Implementation	130,000	90,000	475,000	500,000	525,000
Composting Component-Implementation	20,000	13,000	62,000	65,000	68,000
Special Waste Component-Implementation	5,000	3,000	12,500	13,000	13,500
Education and Public Information Component-Monitoring and Evaluation	0	0	66,500	70,000	73,500
	$188,000	$131,000	$738,000	$776,500	$815,000

TABLE 7-7

EDUCATION AND PUBLIC INFORMATION
SHORT-TERM IMPLEMENTATION SCHEDULE

Program No.	Name	Tasks	Start Date	End Date	Responsible Agency
1	Residential Promotion/ Education/ Information Program	°Develop short and medium-term detailed plans °Develop campaign and materials °Publicize campaign °Distribute materials	In progress In progress In progress In progress	12/94 12/95 12/95 12/95	Department of Public Works
2	Development of Recycling Educational Programs/ Materials for Schools	°Encourage and aid school districts to develop/adopt recycling program	6/92	12/94	Department of Public Works, County Office of Education
3	Commercial/ Industrial/ Other - Promotion/ Education/ Information Program	°Develop campaign and materials °Publicize campaign °Distribute materials	6/92 1/93 1/93	12/92 12/95 12/95	Department of Public Works
4, 5	Technical Assistance/ Waste Evaluations	°Develop technical assistance detailed plans °Select targeted businesses for waste evaluations °Perform waste audits on businesses selected °Develop training program for SRRE representative °Promote SRRE program and recruit representatives °Publicize results of waste evaluations °Instruct/train SRRE representatives °Supervise/monitor SRRE representatives	4/93 7/93 5/94 7/94 8/94 2/95 9/94 9/94	1/94 3/94 11/94 3/95 12/95 5/95 12/95 12/95	Department of Public Works

TABLE 7-8

EDUCATION AND PUBLIC INFORMATION
MEDIUM-TERM IMPLEMENTATION SCHEDULE

Program No.	Name	Tasks	Start Date	End Date	Responsible Agency
1	Residential Promotion/ Education/Information Program	°Redefine campaign and materials °Publicize campaign °Distribute materials °Expand programs °Develop and conduct seminars and workshops	1/96 1/96 1/96 1/96 11/97	12/99 12/99 12/99 12/99 12/99	Department of Public Works
2	Development of Recycling Educational Programs/ Material for Schools	°Refinement and continued development of educational recycling program by school districts °Hold workshops/discussions for/with school districts to improve curricula	1/96 1/96	12/99 12/99	Department of Public Works, County Office of Education
3	Commercial/Industrial/ Other - Promotion/ Education/Information Program	°Expand campaign and materials °Develop and conduct seminars and workshops	4/96 1/97	12/99 12/99	Department of Public Works
4,5	Technical Assistance/ Waste Evaluations	°Publicize results of short-term monitoring and evaluation program °Expand role of SRRE representatives	7/96 11/97	12/99 12/99	Department of Public Works

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CHAPTER 8

DISPOSAL FACILITY CAPACITY COMPONENT

CHAPTER 8
SOLID WASTE DISPOSAL FACILITY CAPACITY

8.1 BACKGROUND

This chapter presents an overview of the existing, planned, and proposed solid waste disposal facilities available to various communities in the unincorporated areas of Los Angeles County. Existing facilities now serving the solid waste disposal needs of the unincorporated County areas consist primarily of Class III, non-hazardous waste landfills. There are no unclassified (inert) landfills or transformation facilities existing or proposed in the unincorporated areas of Los Angeles County.

The chapter also includes a solid waste disposal facility needs projection which estimates the additional disposal capacity needed to accommodate anticipated solid waste generation for a 15-year period commencing in 1991. Anticipated solid waste facilities to be phased-out, closed, planned for expansion, proposed or newly established are also discussed in the chapter.

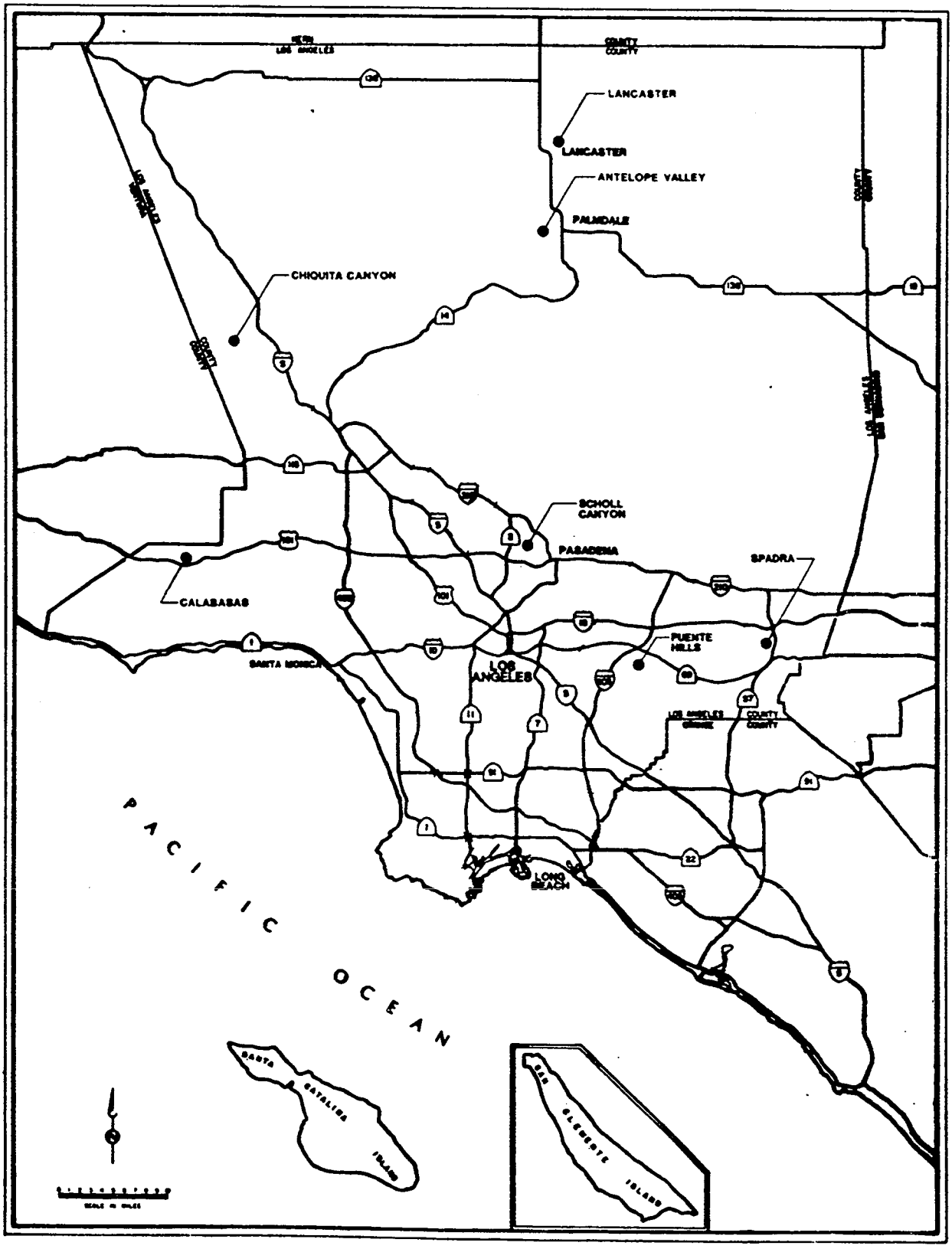
An "existing" solid waste disposal facility is defined in this chapter as a permitted landfill for which there exists a current Solid Waste Facilities Permit issued by the local enforcement agency and concurred in by the California Integrated Waste Management Board. "Planned" solid waste facilities are defined as those that are not yet in operation but have filed for all necessary discretionary permits as required by Section 44001 of the California Public Resources Code. "Proposed" solid waste facilities are those for which a definitive project location is known or information as to the project's inception has been made available to the public for review, although not all of the appropriate permits have been filed. These solid waste facilities are included as potential facilities only and should not be construed as definite project locations or having received prior approval or endorsement from the respective local jurisdictions. As such, even though some specific locations are listed under proposed facilities, environmental impact evaluations will be completed or proposed for each of the projects.

8.2 EXISTING PERMITTED SOLID WASTE FACILITIES

Figure 8-1 shows the locations of major existing permitted solid waste landfills in the unincorporated areas of Los Angeles County. Table 8-1 and Table 8-2 provide pertinent information which identify and describe all existing permitted solid waste landfills in the County unincorporated areas.

FIGURE 8-1

Locations of Existing Permitted Class III Landfills in the Unincorporated Areas of Los Angeles County



Source: Los Angeles County Department of Public Works, November 1990.

TABLE 8-1
EXISTING PERMITTED SOLID WASTE FACILITIES IN THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY

Facility Type	Name	Address	Owner/Operator (Permit Number)
Class III Landfills	Calabasas	26919 Ventura Freeway Agoura, CA 91301	County of Los Angeles/ CSD (19-AA-0056)
	Chiquita Canyon	29201 Henry Mayo Drive Newhall, CA 91322	Laidlaw Waste Systems (19-AA-0052)
	Lancaster	600 East Avenue F. Lancaster, CA 93534	Waste Management of California, Inc. (19-AA-0050)
	Puente Hills	2800 South Workman Mill Road Whittier, CA 90607 (located outside City of Whittier)	CSD (19-AA-0053)
	Pebbly Beach	Santa Catalina Island Avalon, CA 90704	Catalina Disposal Company (19-AA-0061)
	Pitchess Honor Rancho	29300 The Old Road Saugus, CA 91350	Sheriff's Department County of Los Angeles (19-AA-0057)
	San Clemente (U.S. Navy)	San Clemente Island Los Angeles County CA 92135	U.S. Navy Air Station CE-183 (19-AA-0063)
	Scholl Canyon[1]	7721 North Figueroa Los Angeles, CA 90041	City of Glendale/CSD
	Spadra	4125 West Valley Boulevard Walnut, CA 91789	CSPU/CSD (19-AA-0015)
	Two Harbors	Two Harbors Avalon, CA 91106	Two Harbors Company (19-AA-0062)

FOOTNOTE:

"Permitted Solid Waste Facility" means a solid waste facility for which there exist a current Solid Waste Facilities Permit issued by the local enforcement agency and concurred in by the former California Waste Management Board (now the California Integrated Waste Management Board).

CSPU means California State Polytechnic University, Pomona.
CSD means County Sanitation Districts of Los Angeles County.

[1]Facility is within the City of Glendale. Although the County of Los Angeles owns 17% of the permitted landfilling areas, capacity will not be considered.

Source: Los Angeles County Department of Public Works, November 1990.

TABLE 8-2
EXISTING PERMITTED CLASS III LANDFILLS OPERATING IN THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY

Landfill	Owner/Operator	Permitted Site Acreage (Total Acreage)	Permitted Capacity tons/day	Municipal Solid Waste Quantity of Waste Disposed, million tons/year 1990				Projected remaining permitted capacity		Remaining Permitted Years of Operation	Land Use Permit Expiration Date	Approximate Date of Closure	Current Tipping Fee, dollar/ ton
				Non-Hazardous Waste	Inert Waste	Sewage Sludge	Total	million tons	million[a] cubic yards				
Calabasas	County of Los Angeles/LACSD	416(505)	3500	0.84	0.01	-	0.85	15.155	21.6	18	-	09-30-2008[b]	21.70
Chiquita Canyon	Laidlaw Waste Systems	128(1074)	5000	0.46	0.09	-	0.55	1.78	2.2	8	11-24-1997	2000	26.00
Lancaster	Waste Mgmt. of California Inc.	100	1000	0.083	0.009	-	0.092	0.15	0.5	5	01-02-1995	12-30-1993	7.00/Cu yards
San Clemente	U.S. Navy		1	0.002		-	0.002	0.024	0.034	5	-	-	-
Scholl Canyon[c]	City of Glendale/LACSD	314(440)	3400	0.61	0.07	-	0.68	13.32	19	18	2008	2010	21.70
Spadra	CSPU/LACSD	105(323)	3000	0.74	0.11	-	0.85	6.95	9.93	20.5	-	05-01-2010[d]	14.55
Pebbly Beach	Catalina Disposal Company		30	0.003	-	-	0.003	0.097	0.16	-	-	-	-
Puente Hills	LACSD	700(1365)	12000	2.99	0.19	0.52	3.7	7.5	10.7	2.8	10-31-1993	10-31-1993	14.55
Pitchess Honor Rancho	L.A. County Sheriff		23	0.0054	-	-	0.0054	2.24	3.73	-	-	1994	-
Two Harbors	Two Harbors		3.5	0.000088	-	-	0.000088	0.0073	0.0104	-	-	-	
TOTAL			24557	5.123	0.409	0.52	6.052	33.903	48.864				

Note: [a] Assume density of fill of 1,400 pounds per cubic yards as conversion factor for LACSD operated landfills.
[b] Based on fill design.
[c] Facility is within the City of Glendale. Although the County of Los Angeles owns 17% of permitted landfilling areas, capacity is not included in total.
[d] If proposed Waste-to-Energy is not implemented.
CSPD - California State Polytechnic University, Pomona
LACSD - Los Angeles County Sanitation Districts

Source: Los Angeles County Department of Public Works, June 1991.

The County unincorporated areas are in scattered locations throughout the entire County. As such, there are some landfills not within the unincorporated areas whose wasteshed covers certain portions of the unincorporated County areas. These landfills include Scholl Canyon, BKK, and Bradley West Landfills. Except for Scholl Canyon Landfill, these landfills are not included in Table 8-1 and Table 8-2. Although Scholl Canyon Landfill has a defined wasteshed which includes certain areas of the County unincorporated areas, its capacity is not included in the disposal capacity analysis/projections. On December 12, 1987, the City of Glendale adopted an ordinance which defines the Scholl Canyon Landfill wasteshed, including unincorporated County communities of Altadena, East Pasadena, La Crescenta, and Montrose.

8.3 SOLID WASTE DISPOSAL FACILITY NEEDS PROJECTION

The solid waste disposal facility needs assessment provides an estimate of the disposal capacity required to accommodate the projected solid waste generation within the unincorporated areas of the County for a 15-year period. The disposal capacity was calculated using the following equation:

$$\text{Additional Capacity - year}_n = [(G+I) - (D+TC+LF+E)] \text{ year } n$$

where

G= The amount of solid waste projected to be generated in the specified County areas.

The amount of solid waste generated in the specified County areas in 1990 was 1.108 million tons or 1.583 million cubic yards (see the Solid Waste Generation Study and Analysis, Chapter 2, Table 2-3), assuming an average density of 1,400 pounds per cubic yard. For landfills owned by the County, we have the authority to limit its use to waste generated within the unincorporated area.

I = The amount of solid waste which is expected to be imported to the unincorporated County areas for disposal in permitted solid waste disposal facilities.

The total amount disposed of at the 10 landfills for 1990 was 6.052 million tons as shown in Table 8-2. The amount attributed to the County unincorporated areas was 1.043 million tons as shown in Table 2-2 of the Solid Waste Generation Study and Analysis. The difference between these figures, 5.009 million tons or 7.156 million cubic yards, is the estimated solid waste quantity imported into the landfills.

In the projection of solid waste quantities imported into the County unincorporated areas, it is assumed that the full wastestream will continue to arrive for disposal from the existing wasteshed in other jurisdictions. As such, the reduction in disposal wastestream from those jurisdictions, as mandated by the California Integrated Waste Management Act of 1989, as amended, was not considered in Tables 8-3A and 8-3B. However, since the jurisdictions exporting these wastes to the County unincorporated areas currently do not have a solid waste export/import agreement with the County, these quantities are assumed to be zero in Table 8-4.

Furthermore, approximately 156,000 tons per year of wastes are imported into the County from Orange and Ventura Counties. Specifically, about 78,000 tons per year of waste is disposed of at Calabasas Landfill from the Thousand Oaks area in Ventura County. This is because Calabasas is closer to Thousand Oaks than any Ventura County Landfill. In return, a small service area contiguous to Ventura County is allowed to dispose of its waste in Ventura County at their Simi Valley Landfill. As such, this is also not included in this analysis.

D = The amount diverted through the implementation of the proposed source reduction, recycling, composting and special waste programs.

As described in the Solid Waste Generation Study and Analysis (Chapter 2, Table 2-3), the amount of solid waste diverted from disposal through existing diversion programs in 1990 was approximately 0.065 million tons or 0.093 million cubic yards.

TC = The amount of volume reduction occurring through permitted transformation facilities.

There is currently no permitted waste-to-energy or transformation facility in the County unincorporated areas. As such, the amount of volume reduction occurring through transformation facility is zero.

LF = The amount of permitted solid waste disposal capacity that is available for solid waste generated within the specified areas within the County.

The amount of permitted solid waste disposal capacity, which is currently available for disposal in the unincorporated County areas is 33.903 million tons or 48.864 million cubic yards as shown in Table 8-2. It should be noted that a significant proportion of the landfill capacities is used for disposal by other jurisdictions within Los Angeles County.

E = The amount of solid waste generated in the specified areas of the County that is exported to solid waste disposal facilities in other jurisdictions.

The County of Los Angeles has a Joint Powers Agreement with the City of Glendale and the Los Angeles County Sanitation Districts regarding the ownership and/or operation of the Scholl Canyon Landfill located in the City of Glendale. The County owns 17 percent of the landfilling areas.

The Scholl Canyon Landfill wasteshed is defined by the City of Glendale to include unincorporated County communities of Altadena, East Pasadena, La Crescenta, and Montrose. The quantity of solid waste generated in these communities which is exported for disposal at Scholl Canyon Landfill is currently estimated at 0.105 million tons or 0.150 million cubic yards per year.

Result of the Solid Waste Generation Study and Analysis show that about 100 tons or 166.7 cubic yards per day (308 days per year) of solid waste is exported from the unincorporated County areas. The result also indicate that private haulers operating in the County unincorporated areas use landfills other than those located in the unincorporated areas. These landfills include: BKK, Bradley Avenue West, Commerce Waste-to Energy, and Southeast Resource Recovery Facilities. Presently, there is no sufficient data to determine the quantity of waste exported to each of these landfills. As such, their individual quantities and impacts will not be considered.

n = Each year of a 15-year period commencing in 1991.

8.4 DISPOSAL FACILITIES NEEDS ASSESSMENT

The solid waste disposal capacity needs projection for the 15-year period is shown in Tables 8-3A and 8-3B. The results show that the County unincorporated areas will have a disposal capacity shortfall of 2.77 million tons or 3.95 million cubic yards beginning in 1994, and the total remaining permitted capacity of existing landfills will virtually be exhausted by 1997, if new or expansion of existing landfills are not permitted. This is assuming that all exporting jurisdictions have a solid waste export agreement with the County. Table 8-4 shows the disposal capacity needs of the County without importation of waste.

8.5 SOLID WASTE LANDFILL FACILITY PHASE-OUT OR CLOSURE

Results of Tables 8-3A and 8-3B show that there are solid waste disposal facilities within the County unincorporated

TABLE 8-3A
PROJECTED SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS FOR THE UNICORPORATED AREAS FOR LOS ANGELES COUNTY

TITLE	SOLID WASTE QUANTITIES, MILLION TONS/YEAR															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
SOLID WASTE GENERATED - G[1]	1.11	1.14	1.17	1.20	1.23	1.26	1.29	1.32	1.35	1.39	1.42	1.44	1.45	1.46	1.48	1.49
SOLID WASTE IMPORTED - I	5.01	5.13	5.26	5.39	5.53	5.67	5.81	5.95	6.10	6.26	6.41	6.48	6.54	6.61	6.67	6.74
SOLID WASTE DIVERTED - D[2]	0.07	0.12	0.19	0.25	0.32	0.40	0.44	0.55	0.60	0.67	0.74	0.74	0.75	0.76	0.77	0.78
TRANSFORMATION REDUCTION - TC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERMITTED DISPOSAL CAPACITY - LF[3]	7.56	7.56	7.56	7.56	3.56	3.56	3.56	3.56	3.56	2.02	2.02	2.02	2.02	2.02	2.02	2.02
REMAINING PERM. DISP. CAPACITY - RC[4]	33.90	27.95	21.91	15.78	9.55	6.00	2.44	0	0	0	0	0	0	0	0	0
SOLID WASTE EXPORTED - E	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14
ADDITIONAL CAPACITY NEEDS[5]	0	0	0	0	2.77	2.85	2.97	3.04	3.17	4.84	4.95	5.02	5.09	5.17	5.24	5.31

Note: Assume density of fill of 1400 pounds per cubic yards as conversion factor.

[1] Assume historical trend represents an annual rate of increase in municipal solid waste of 2.5% per annum.
[2] Assume diversion rate of 5% in 1990, 4% yearly 1991-1995, and 5% yearly 1996-2000 satisfying AB 939 mandates.
[3] Available annual permitted capacity based on 6 working days/week or 312 days/year.
[4] Remaining capacity at end of year. Not included in additional capacity needs.
[5] Additional Capacity - Year n = [(G+I)-(D+TC+LF+E)] Year n

Source: Los Angeles County Department of Public Works, September 1992

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TABLE 8-3B
PROJECTED SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS FOR THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY

TITLE	SOLID WASTE QUANTITIES, MILLION CUBIC YARDS/YEAR															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
SOLID WASTE GENERATED - G[1]	1.58	1.62	1.66	1.70	1.74	1.79	1.83	1.88	1.93	1.97	2.02	2.04	2.06	2.08	2.10	2.13
SOLID WASTE IMPORTED - I	7.16	7.34	7.52	7.71	7.90	8.10	8.30	8.51	8.72	8.94	9.17	9.26	9.35	9.44	9.54	9.63
SOLID WASTE DIVERTED -D[2]	0.09	0.17	0.26	0.36	0.45	0.56	0.63	0.78	0.85	0.96	1.05	1.06	1.07	1.08	1.09	1.10
TRANSFORMATION REDUCTION - TC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERMITTED DISPOSAL CAPACITY - LF[3]	10.80	10.80	10.80	10.80	5.08	5.08	5.08	5.08	5.08	2.88	2.88	2.88	2.88	2.88	2.88	2.88
REMAINING PERM. DISP. CAPACITY - RC[4]	48.86	40.37	31.73	22.97	14.08	9.00	3.92	0	0	0	0	0	0	0	25.72	28.60
SOLID WASTE EXPORTED - E	0.15	0.15	0.16	0.16	0.17	0.17	0.17	0.18	0.18	0.19	0.19	0.19	0.20	0.20	0.20	0.20
ADDITIONAL CAPACITY NEEDS[5]	0	0	0	0	3.95	4.08	4.25	4.35	4.53	6.89	7.07	7.17	7.27	7.37	7.47	7.57

Note: Assume density of fill of 1400 pounds per cubic yards as conversion factor.

[1] Assume historical trend represents an annual rate of increase in municipal solid waste of 2.5% per annum.
[2] Assume diversion rate of 5% in 1990, 4% yearly 1991-1995, and 5% yearly 1996-2000 satisfying AB 939 mandates.
[3] Available annual permitted capacity based on 6 working days/week or 308 days/year.
[4] Remaining capacity at end of year. Not included in additional capacity needs.
[5] Additional Capacity - Year n = [(G+I)-(D+TC+LF+E)] Year n

Source: Los Angeles County Department of Public Works, September 1992

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TABLE 8-4
PROJECTED SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS FOR THE UNICORPORATED AREAS FOR LOS ANGELES COUNTY
(ASSUMING NO IMPORTATION OF WASTE)

TITLE	SOLID WASTE QUANTITIES, MILLION TONS/YEAR															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
SOLID WASTE GENERATED - G1	1.11	1.14	1.16	1.19	1.22	1.25	1.28	1.32	1.35	1.38	1.42	1.43	1.46	1.46	1.48	1.49
SOLID WASTE IMPORTED - I_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOLID WASTE DIVERTED -D[3]	0.07	0.12	0.19	0.25	0.32	0.39	0.44	0.55	0.60	0.67	0.74	0.74	0.75	0.76	0.77	0.77
TRANSFORMATION REDUCTION - TC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERMITTED DISPOSAL CAPACITY - LF4	7.56	7.56	7.56	7.56	3.56	3.56	3.56	3.56	3.56	2.02	2.02	2.02	2.02	2.02	2.02	2.02
REMAINING PERM. DISP. CAPACITY - RC[5]	33.90	32.97	32.08	31.19	30.36	26.80	23.25	19.69	16.14	12.58	10.56	8.55	6.53	4.52	2.50	0.48
SOLID WASTE EXPORTED - E	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.14	0.14	0.14	0.14	0.14
ADDITIONAL CAPACITY NEEDS6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Assume density of fill of 1400 pounds per cubic yards as conversion factor.

[1] Assume historical trend represents an annual rate of increase in municipal solid waste of 2.5% per annum.
[2] Based on a lack of Import/Export agreement between jurisdictions.
[3] Assume diversion rate of 5% in 1990, 4% yearly 1991-1995, and 5% yearly 1996-2000 satisfying AB 939 mandates.
[4] Available annual permitted capacity based on 6 working days/week or 308 days/year.
[5] Remaining capacity at end of year. Not included in additional capacity needs.
[6] Additional Capacity - Year n [(G+I)-(D+TC+LF+E)] Year n

Source: Los Angeles County Department of Public Works, September 1992

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areas which will all be phased-out or closed during the short-term and medium-term planning periods unless they are repermitted to continue operation. These landfills include Lancaster and Puente Hills Landfills.

The effect from such phase-out or closure will increase the disposal capacity needs of the County unincorporated areas and may lead to Countywide municipal solid waste disposal crisis beginning in 1994. This is because 50 percent of the municipal solid waste landfills in Los Angeles County, with 48 percent of the total quantity of waste disposed, are located in the County unincorporated areas.

As shown in Table 8-2 and Table 8-3, additional disposal capacity will be needed in 1993 to offset the anticipated closure of Puente Hills Landfills. The projected additional disposal capacity needs beginning 1994 is 2.77 million tons or 3.95 million cubic yards. However, there are efforts within the County to ensure adequate disposal capacity beyond short-term and medium-term planning periods by establishment of new or expansion of existing solid waste disposal facilities.

8.6 FUTURE SOLID WASTE DISPOSAL AND TRANSFORMATION FACILITIES

8.6.1 General Strategy for Maintaining Adequate Disposal Capacity

Recognizing the impending waste disposal shortfall and the need to work cooperatively towards a common solution, the County Board of Supervisors directed the Department of Public Works, in cooperation with the County Sanitation Districts, the Chief Administrative Office, and the City of Los Angeles, to identify management options and to recommend an action plan.

The study, completed in January of 1988, analyzed 101 potential landfill sites based on a complex set of technical, environmental, and social factors (service, urban uses, conservation). This study resulted in the listing of the six highest ranking sites currently not being used in the County. (This includes Blind, Browns, Elsmere, Mission-Rustic-Sullivan, Townsley and Toyon II). Browns and Toyon II were subsequently deleted due to geological considerations. The program EIR for the sites, "Draft Program Environmental Impact Report for the Integrated Waste Management for Los Angeles County, dated August 1990", is currently undergoing public review. The study also considered expansion of the existing landfills, namely Azusa Land Reclamation, Chiquita Canyon, Puente Hills, and Sunshine Canyon.

Subsequently, the Board adopted the Solid Waste Management Action Plan (Action Plan) on April 5, 1988, as an integrated solid waste management strategy for maintaining adequate solid waste disposal capacity in the County. A copy of the Action Plan is included as Appendix F. Specifically, the Board included the following actions:

a. A policy of managing solid waste in Los Angeles County through a reasonable balance of public and private operations and facilities including a regional public landfill system.

b. A policy providing for 50 years of permitted landfill capacity to be held in public ownership, with appropriate land use protections, for use through public, private or public/private joint venture operations as necessary to achieve the policy in Recommendations No. A.

c. Initiate concurrent studies necessary to determine the feasibility of public ownership and permitting of landfill sites identified in the alternate site study; initiate discussions with property owners regarding availability of property; and secure purchase options as appropriate.

d. Implementation of Countywide residential/commercial recycling and composting programs and a household hazardous waste program.

e. Request each city in the County to provide for each household, whether single or multi-family residences, and each business to be billed directly for the full cost of refuse collection and disposal.

f. Implementation of Statewide public education/awareness programs regarding solid waste issues and the necessity for recycling.

g. Support the revision of all existing permits at the Azusa Land Reclamation, Chiquita Canyon, North Valley (Sunshine Canyon), Puente Hills, and Scholl Canyons Landfills to provide for the maximum, technically and environmentally feasible expansion of the sites.

h. Request the Council and Mayor of Los Angeles to proceed with actions necessary to open the Toyon II landfill and expand Lopez Canyon Landfill to fully realize the available capacity of these locations. (Toyon II Landfill site was subsequently deleted due to geological deficiency).

i. Request the Council and Mayor of Los Angeles and the Sanitation Districts Board to support the Action Plan and participate equally with the County in the cost of feasibility studies and request these agencies, in cooperation with the Director of Public Works and Chief Administrative Officer, to recommend a method of financing acquisition of landfill capacity.

Committed to provide a solution to the crisis, the Board of Supervisors continues to direct and monitor current efforts including:

- Negotiations through various agencies and representatives to site new landfills or expansion of existing ones.

- Progress of the program environmental impact report for the identified landfills.

- Quarterly status report on the Action Plan.

8.6.2 Projected Additional Capacity of New or Expanded Facility

8.6.2.1 Planned Site

Sunshine Canyon Sanitary Landfill expansion is the only planned landfill facility in the County unincorporated areas. The expansion location encompasses the portion of Sunshine Canyon which is in the unincorporated area of Los Angeles County, northwest of the Los Angeles city/county border. Sunshine Canyon Landfill expansion has obtained all necessary discretionary permits to commence landfilling operations but the Conditional Use and Oak Tree Permit granted February 19, 1991 was challenged in a judicial court. On July 28, 1992, the County Board of Supervisors considered and certified the final Environmental Impact Report and its May 1992 addendum; and readopted the resolution previously adopted on February 19, 1992, reapproving the Conditional Use and Oak Tree Permit.

8.6.2.2 Proposed Expansion of Existing Landfill Sites

Table 8-5 presents information on the proposed solid waste landfill expansions in the unincorporated areas of Los Angeles County. The term "expansion" means the continuation of existing landfilling operations beyond the current Land Use Permit (LUP) limit, by filling either over previously filled areas to a higher elevation or in new area contiguous to the existing operating areas.

TABLE 8-5
PROPOSED CLASS III LANDIFLL EXPANSIONS IN THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY

Landfill	Expansion capacity		Daily capacity (tons)	Years of additional capacity	Expansion location	Proponent	Remarks
	million tons	million cubic yards[a]					
Antelope Valley[b]	3.2	9.14	600	20	Adjacent	Palmdale Disposal Co.	Proposing an expansion of 108 acres in the unincorporated county area. Applicant has filed for a CUP with Los Angeles County Regional Planning Commission and currently a Draft EIR has been prepared.
Chiquita Canyon[c]	30	42.86	6,000	10	Adjacent	Laidlaw Waste Systems	Filed application for CUP on 2/17/89 with Los Angeles County Regional Planning Commission.
Lancaster[d]	0.9	1.4	1,000	N/A	Adjacent	Waste Management of California, Inc.	Based on revised grading plan. Also proposing an expansion of 250 acres. Expect to obtain all necessary permits.
Puente Hills[e]	70	100.0	12,000	15	Adjacent	LACSD	Expects to start processing permit applications in 1990.
Sunshine Canyon[f] (North Valley)	70	100	6,000	29	Sunshine Canyon and East Canyon	Browning-Ferris Industries (BFI)	A CUP for 16.9 million tons was granted by the Los Angeles County Board of Supervisors, for the portion within the unincorporated area. Total expansion considered Countywide is 215 million tons.
Total	174.10	253.40	25,600				

Note:

[a] Assume density of fill of 1,400 pounds per cubic yards as conversion factor.
[b] Preliminary Draft EIR for Antelope Valley Landfill Expansion dated August 1991.
[c] Samuel Sambo, Laidlaw Waste Systems, Inc.
[d] Douglas Corklin, Waste Management of California, Inc. and CUP application Case No. 90494-(5)
[e] County Sanitation Districts of Los Angeles County.
[f] Planned Expansion Facility.
LACSD - Los Angeles County Sanitation Districts
AQMD - Air Quality Management District
CRWQCB - California Regional Water Quality Control Board
EIR - Environmental Impact Report

Source: Los Angeles County Department of Public Works, December 1991.

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TABLE 8-6
PROPOSED NEW CLASS III LANDFILL SITES IN THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY

Landfill	Land capacity		Site life (years)[b]	Landfill location or General Vicinity	Proponent	Permit acquisition status	Remarks
	million tons	million cubic yards[a]					
Blind Canyon	130	186	25	North of Simi Valley freeway near Los Angeles/ Ventura County line	Co. Sanitation Districts of Los Angeles County and County of Los Angeles		Program EIR in public review
Elsmere Canyon	190	271	38	East of Antelope Valley freeway at San Fernando road	Elsmere Corp. (BKK)	CUP Application filed with County of Los Angeles Department of Regional Planning	EIR under preparation
Towsley Canyon	225	321	44	West of Interstate 5 near Newhall	Co. Sanitation Districts of Los Angeles County and County of Los Angeles		Program EIR in public review
Total	545	778					

Note:

[a] Assume density of fill of 1,400 pounds per cubic yards as conversion factor.
[b] Fill capacity and site life are based on a landfilling rate of 16,500 tons per day.
EIR - Environmental Impact Report
CUP - Conditional Use Permit
CRWQCB - California Regional Water Quality Control Board

Source: Los Angeles County Department of Public Works, June 1991. Based on Draft Program Environmental Impact Report for Integrated Solid Waste Management System for Los Angeles County, dated August 1990.

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TABLE 8-7
EFFECT OF ADDITIONAL CAPACITY ON
PROJECTED SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS FOR THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY

TITLE	SOLID WASTE QUANTITIES, MILLION CUBIC YARDS/YEAR															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
SOLID WASTE GENERATED - G	1.58	1.62	1.66	1.70	1.74	1.79	1.83	1.88	1.93	1.97	2.02	2.04	2.06	2.08	2.10	2.13
SOLID WASTE IMPORTED - I	7.16	7.34	7.52	7.71	7.90	8.10	8.30	8.51	8.72	8.94	9.17	9.25	9.35	9.44	9.54	9.63
SOLID WASTE DIVERTED -D	0.09	0.17	0.26	0.36	0.45	0.56	0.63	0.78	0.85	0.96	1.05	1.06	1.07	1.08	1.09	1.09
TRANSFORMATION REDUCTION - TC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERMITTED DISPOSAL CAPACITY - LF	10.80	10.80	10.80	10.80	13.88	13.88	13.88	13.88	13.88	13.88	13.88	13.88	13.88	13.88	13.88	13.88
REMAINING PERM. DISP. CAPACITY - RC	48.86	40.39	31.77	23.03	138.16	124.28	110.40	96.52	125.50	111.62	97.74	83.86	69.98	56.10	42.22	28.34
SOLID WASTE EXPORTED - E	0.15	0.15	0.16	0.16	0.17	0.17	0.17	0.18	0.18	0.19	0.19	0.19	0.20	0.20	0.20	0.20
ADDITIONAL CAPACITY NEEDS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Based on Table 8-3 and assuming that proposed expansion of existing solid waste facilities in Table 8-4 are implemented.

Source: Los Angeles County Department of Public Works, July 1991

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8.6.2.3 Proposed New Landfill Sites

Table 8-6 presents pertinent information on the proposed new landfills in the unincorporated areas of Los Angeles County. Locations of these sites are shown in Figure 8-2.

8.6.2.4 Transformation Facilities

There is no transformation or waste-to-energy facilities currently operating or proposed in the County unincorporated areas. However, waste-to-energy is still considered a viable option and is technically and economically feasible. At this time, consideration or implementation of this technology seems unlikely due to lack of political and public support in conjunction with current energy surplus.

8.6.3 Effect of New and/or Expanded Disposal Facilities on Projected Disposal Capacity Needs.

The additional capacity that will be gained if proposed expansion of existing and new landfills are permitted are 174 million tons (Table 8-5) and 545 million tons (Table 8-6), respectively. These capacities, distributed over several years (10-29 years minimum) are more than adequate to meet the County unincorporated area's needs beyond the short-term and medium-term planning periods.

Given the fact that developing a new landfill will take five to seven years and that uncertainty exists as to what potentially new landfill will ultimately be approved, expansions of existing landfill sites are the only feasible method of averting the shortfall or disposal crisis. As such, only additional capacity shown in Table 8-5 will be considered to abate the disposal shortfall shown in Table 8-3. Table 8-7 presents the additional capacity effect on solid waste capacity needs projection for the 15-year period. It is important to note that daily capacity is limited due to permit restrictions and operational constraints.

8.6.4 Rail-haul Alternative

The removal of solid waste from the County to a remote out-of-basin site by rail-haul has received much attention during recent years. The County currently sends no waste to remote locations by rail-haul, but may make use of this option in the future as a part of its

contingency plan for waste disposal. The proposals currently under study for technical and economic feasibility include:

° Rail-Cycle Project - San Bernardino County

This project is proposed by a limited partnership between Waste Management of North America and the Atchison, Topeka, and Santa Fe Railway Company. The project draft EIS/EIR for development and operation of a rail-served Class III sanitary landfill complex on a 4,800-acre site in San Bernardino County (near Amboy) is estimated to be released for public review by mid-1992. The proposed minimum capacity of the site is 3,500 tons per day.

° Eagle Mountain Project - Riverside County

The Eagle Mountain Landfill Project EIS/EIR for Mine Reclamation Corporation's (MRC) waste-by-rail landfill was released in July 1991. This site has a proposed minimum capacity of 3,000 tons per day. The Federal Bureau of Land Management held public hearings in Riverside County in August 1991, and the review period for comments on the EIS/EIR ended in September 1991.

° Mesquite Mine - Imperial County

Western Waste Industries, Southern Pacific Environmental Systems, Inc., and Gold Fields Mining corporation, as a partnership, have applied for a Conditional Use Permit for a disposal facility 38 miles east of Brawley, in Imperial County.

The following are pertinent information on the proposals:

a. Waste Quantity and Types Accepted:

Non-hazardous Municipal Solid Waste. It is estimated that approximately 16,000 tons per day (tpd) out of the 43,245 tpd currently generated by the County will be accepted from Los Angeles County. If the same fraction of waste (32%) is accepted from the County in 2000, this will amount to about 19,520 tons per year by the year 2000.

b. Future Rail Haul Capacity

Depending on site and contractor selected and limits set on daily tonnage, site life will be in

the range of 50 - 100 years, based on quantities shown above.

c. Projected Disposal Fees

Tipping fees may be in the range of $45-50 per ton.

8.7 SOLID WASTE EXPORT AGREEMENTS

There are no plans to develop export agreements. There is adequate disposal capacity and resources within the County unincorporated areas to meet the needs of waste generated in these areas throughout the short- and medium-term planning periods.

Although some haulers serving the County unincorporated areas export waste to other jurisdictions for disposal, these quantities are very small (less than 3% of the wastestream). They are due to the close proximity of those areas to these jurisdictions. Portions of the unincorporated County areas are in scattered locations throughout the County, and it is economical for some haulers to use the nearest landfill in other jurisdictions for disposal.

On December 12, 1987, the City of Glendale adopted an ordinance which defines the Scholl Canyon Landfill wasteshed to include unincorporated County communities of Altadena, East Pasadena, La Crescenta, and Montrose. The Ordinance No. 4855 is included in Appendix G.

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CHAPTER 9

FUNDING

CHAPTER 9
FUNDING COMPONENT

9.1 BACKGROUND

The purpose of the funding component is to demonstrate that the County of Los Angeles has sufficient funds and allocation of resources for the implementation of programs identified in the Source Reduction and Recycling Element (SRRE). The various programs that are discussed and will be implemented in this SRRE, will allow the County to fulfill its SRRE specified goals and objectives for its unincorporated areas. The fulfillment of these goals and objectives is dependent upon the success of the individual programs. Moreover, the success of the individual programs is heavily dependent upon adequate funding, because without it, failure will most likely result.

On August 2, 1991, the County of Los Angeles Board of Supervisors sent a letter to Assemblyman Byron Sher, author of Assembly Bill 939 (AB 939), outlining proposed amendments to the law to reduce non-implementation functions such as planning and reporting. These reductions are intended to reduce the costs of non-implementation tasks to allow efficient funding to specifically implement programs that will reduce our dependence on disposal of waste in landfills and transformation facilities. Therefore, the Funding Component only identifies revenues for the tasks required to implement the intent of AB 939.

This Chapter will analyze and describe the various aspects of funding for the programs that are under consideration, as well as the existing funding structure and conditions. Included in this discussion will be an evaluation demonstrating sufficient funding and other resources for the development and implementation of the proposed component programs to ensure financial soundness in this critical endeavor.

A section of this Chapter will also deal with monitoring and evaluation during the development and implementation stages of the component programs that will, among other things, compare actual costs and revenues to the forecasted figures. In addition, cost estimates for the various stages of the component programs in the short-term planning period will be examined and will most likely weigh heavily in the decision making process, and be quite important in program evaluation. Finally,

sources of revenue sufficient to support the component programs will be identified, as well as an examination of contingency funding sources, which will provide and bring a high degree of financial stability and certainty to the programs.

9.2 EXISTING FUNDING STRUCTURE AND CONDITIONS

The predominant method of financing public solid waste management systems in Los Angeles County is with current revenues. The County plans and prefers to use a pay-as-you-go funding method. Debt limitations, elections, and interest costs are avoided by this and, thus, save the public substantial amounts of money. This type of financing, however, dictates careful long-term planning so that capital needs are identified and budgeted for well in advance, which will allow sufficient funds to be accumulated, if necessary.

Described below are the current sources of funding for solid waste management programs, in general, and a brief description of waste collection methods in the County unincorporated areas. This is followed by a short account of the County's organization for solid waste management activities.

9.2.1 Solid Waste Management Fee

At this time, one of the principle sources of current revenue/funding for the solid waste management activities for Los Angeles County is referred to as the Solid Waste Management Fee. The Solid Waste Management Fee is collected from all operators of disposal sites which are located within Los Angeles County. The fee usually is paid on the amount (tonnage or volume) of solid waste received at landfills and transformation facilities. It is applicable to all operators of disposal sites and transformation facilities located within the County in accordance with County Code, Title 20, Division 4, Chapter 20.88, which was originally approved in 1983. The fee applies also to transfer/processing stations if they transport waste out of Los Angeles County for disposal or transformation.

Recently the amount of the fee has been increased to help provide the necessary revenue for the implementation of Countywide programs that will be needed to meet the requirements of AB 939 and subsequent legislation. These Countywide programs include those related to the Household Hazardous Waste Element, the Countywide Siting

Element, and the County Integrated Waste Management Plan. The new rate for the fee is $0.86 per ton or $0.52 per cubic yard of waste landfilled, or ten percent of a landfill operator's gross receipts for waste received. Prior to the increase on September 15, 1991, the rate was $0.035 per ton or 0.875 percent of gross receipts.

9.2.2 General Fund

To a much lesser extent there are monies available from the Los Angeles County General Fund for solid waste management. However, the amount that is budgeted, when compared to the amount generated by the Solid Waste Generation Service Charge and the Solid Waste Management Fee, is normally not substantial. The money in the general fund comes from many varied sources. Property taxes are the largest source of (local discretionary) revenue for the County. For Fiscal Year 1990-91, this source amounted to approximately $1.9 billion. Vehicle license fees are the second largest discretionary revenue source to the County's General Fund. Approximately $369 million was received in Fiscal Year 1990-91 from this source. The tax is collected by the State and then distributed to all cities and counties based on population.

Other revenues for the County include license and permit fees. These fees are not to exceed the cost of issuance and are collected from the users of the programs. The County also receives a share of fines and forfeitures from traffic, parking, and other violations. In addition, the County receives deed transfer taxes collected by the Registrar-Recorder when there is a transfer of property ownership and a portion of sales taxes collected in the unincorporated areas of the County.

The General Fund may also receive funds from outside the County's jurisdiction. At this time, there are various California State programs under the direction of the Department of Conservation and the California Integrated Waste Management Board to provide funding to local governments. However, the amount and predictability of receiving these monies is quite uncertain, and thus, they are not seen as a dependable financial source for the SRRE programs. This will be especially true in the next several years when increased competition among cities and counties for money to implement their SRRE programs will exist. This would also hold true for State grants, many of which the County has applied for in past years for various solid waste programs.

9.2.3 Solid Waste Generation Service Charge

For the Unincorporated County Area Programs, funding is acquired by imposing a Solid Waste Generation Service Charge (SWGSC) on each parcel of real property within the unincorporated County areas. This charge is relatively new and became effective on October 4, 1991, after being passed and approved by the Board of Supervisors. The charge appears on each property owner's property tax bill, and will have to be annually approved by the Board of Supervisors. The collection of this fee is relatively easy to administer because the appropriate County organizational structure exists in the County Tax Assessor's Office, and consequently, a minimum of new administrative costs have been incurred. The amount of incoming money is quite predictable (approximately $1.0 million per year) with a minimum amount of non-payment or late payments. Revenues derived from this service charge are held in a specific account and are utilized for the preparation, administration, and implementation of the County (unincorporated area) SRRE. Since the management of household hazardous waste generated in the County unincorporated area (collection, disposal, and public awareness/education) is an integral part of the Countywide Household Hazardous Waste Management Program, costs involving implementation of the County HHW Element are not included with the SWGSC.

The amount of the annual SWGSC levied upon each parcel of real property within the County unincorporated area is based on the parcel's current land use and, as stated above, is collected via the tax roll. Based on the number and use of parcels in the unincorporated area, along with projected funding requirements, the first year amount of the annual charge assessed to each single-family residence is $3.51. Of this amount, $3.29 will be used for development and implementation of SRRE programs, while the remaining $0.22 will be used for the preparation and administration of the HHW Element. Multiple residential and certain commercial and industrial properties are assessed higher amounts based on the Assessor Land Use Codes, while vacant lands are not assessed an amount.

The amount of revenue that is planned to be generated from this fee in the short-term, along with other data, is shown in Table 9-1, Projected Revenue vs. Expenditure. The funds generated will provide and be used for SRRE programs for the unincorporated areas only.

TABLE 9-1

PROJECTED REVENUE VS. EXPENDITURE IN SHORT-TERM

	1991	1992	1993	1994	1995	ADDITIONAL REVENUES/ EXPENDITURES	TOTAL
REVENUE †							
Solid Waste Generation Service Charge	$ 512,500	$1,025,000	$1,025,000	$1,025,000	$1,025,000	$3,180,000*	$ 7,792,500
EXPENDITURES ††							
Costs developed via Table 9-8	$ 512,500	$ 380,000	$2,185,000	$2,300,000	$2,415,000	$ 0	$ 7,792,500
REVENUES LESS EXPENDITURES (Running Balance)	$ 0	$ 645,000	($515,000)	($1,790,000)	($3,180,000)	$ 0	$ 0

Notes: † The short-term totals for revenue, excluding the possible additional Solid Waste Generation Service Charge amount, have generally been apportioned evenly over the five year collection period.

†† The short-term totals for expenditures have been apportioned evenly over the period of scheduled implementation.

* Attaining the goals described in this SRRE and meeting the requirements of AB 939 and subsequent legislation are of paramount importance to the County and the Department of Public Works. In order to achieve/accomplish the SRRE goals it is anticipated that revenues will need to be increased in the latter part of 1993 to balance the projected costs. If this is borne out by program evaluation indicating that a shortfall in diversion percentage exists, then the Solid Waste Generation Service Charge per unit amount will be sufficiently increased so as to generate additional revenue to provide a balance of costs and revenues. If, on the other hand, program evaluation indicates diversion rates achieved early on are greater than expected, then estimated future costs will be scaled back in order to balance future costs with existing revenue sources and rates.

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9.2.4 Waste Collection Systems

There are two types or systems for waste collection in the unincorporated County areas for collection of wastes from the residential, commercial, and industrial sectors.

Geographically, the unincorporated areas for waste collection fall into either those areas within the garbage disposal districts or those areas outside the districts' boundaries.

Currently, there are six garbage disposal districts serving approximately one-third of all property owners in the County unincorporated areas. Within each district, a waste collector or hauler is selected on a competitive bid basis to provide exclusive service within a defined area under a multi-year contract. The County Department of Public Works, as of January 1, 1992, provides the administration of the garbage disposal districts, including making monthly payments to the contractor(s). Prior to January 1, 1992, this function was performed by the County Department of Health Services. The money to pay the contractor(s) comes from, and is a result of, a direct assessment on individual property tax bills. The contractor/hauler is required to have a waste collector permit, and is also subject to the regulations under County Code, Title 20, Division 4A (Garbage Disposal Districts) and others. In addition, compliance with contract terms, conditions, and specifications is required as part of the service contract.

In the unincorporated areas outside the boundaries of the garbage disposal districts in Los Angeles County, solid waste is collected and disposed of by approximately 240 different private hauling companies. These haulers operate in a free-enterprise system and provide service for approximately two-thirds of all property owners in the County unincorporated areas. They establish their own service areas and fees and transfer waste to disposal facilities of their own choice. The individual property owners/residents in these areas decide which waste collection/hauling company will provide disposal service for them. The company selected then directly invoices each property owner/resident, usually on a monthly or quarterly basis.

Furthermore, the County of Los Angeles does not operate any municipal solid waste landfills, transformation facilities, or transfer stations that accept wastes from the residential, commercial, or industrial sectors. The

County does have a limited vested interest in a small number of landfills throughout the County, which are operated by the County Sanitation Districts of Los Angeles County. The CSD also operates one transfer station and determines the tipping fee rates that are charged at the facilities it owns/operates. The CSD is an entity apart from the County government organization, and works closely with the County in regards to the operation of these and other landfills. Most of the other landfills in the County are privately owned, and the operators of these landfills set their own fee schedule.

9.2.5 Solid Waste Management

The Department of Public Works is the lead County agency for advising the Los Angeles County Board of Supervisors on waste management issues. The Director of Public Works, under the guidance of the Los Angeles County Solid Waste Management Committee/Integrated Waste Management Task Force (Task Force) and the Los Angeles County Hazardous Waste Management Advisory Committee, recommends policies and action plans to the Board of Supervisors.

The Waste Management Division of the Los Angeles County Department of Public Works is the lead agency for solid waste management planning on a Countywide basis, and also serves as staff to the CoSWMC/Task Force and the CoHWMAC. All proposals are subject to review by County Counsel and approval by the Board of Supervisors prior to implementation. The Waste Management Division currently has eleven budgeted staff positions in the Solid Waste Unit, which are filled by individuals with engineering and/or administrative backgrounds. The Division also contains a Recycling Unit and a Household Hazardous Waste Unit, among others.

9.3 FUNDING AND ALLOCATION OF RESOURCES

This section will demonstrate that, in addition to the private enterprize waste handling activities and funding, there is adequate funding and allocation of resources for implementation of the selected programs included in the SRRE. The adequacy of funding is vital to the success of the individual programs. Much of the information pertaining to the funding and allocation of resources lends itself to being presented in tabular format. Table 9-2 presents the funding source(s) opposite the estimated costs on a program-by-program basis. This Chapter contains additional tables which show the known

TABLE 9-2

FUNDING SOURCES
(Component costs and funding/revenue sources)

COMPONENT NAME/PROGRAM	TOTAL SHORT-TERM COMPONENT COSTS † (1991-1995)	PRIMARY FUNDING SOURCE(S)
SOURCE REDUCTION	$2,755,500	SWGSC
RECYCLING	$3,227,000	
- Residential Curbside Collection		SWGSC
- Buy-Back Centers		SWGSC
- Drop-Off Programs		SWGSC
- Commercial/Industrial At Source S & P		SWGSC
- Material Recovery Facilities		PRIVATE
- Salvaging at Solid Waste Facilities		SWGSC
- CSD Green Waste Cover Project		SWGSC, CSD, PRIVATE
- Public Education and Outreach		SWGSC
- Christmas Tree Recycling		SWGSC
- Supportive Programs #12 - #24		SWGSC
COMPOSTING - Yard Waste Composting Program	$1,395,000	SWGSC
SPECIAL WASTE	$ 205,000	SWGSC
EDUCATION AND PUBLIC INFORMATION (Monitoring - Evaluation)	$ 210,000	SWGSC
FACILITY CAPACITY	----	----
	TOTAL $ 7,792,500	

Notes: † - These costs are shown and developed in Table 9-8.
CSD - County Sanitation Districts
SWGSC - Solid Waste Generation Service Charge

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estimated costs and funding sources for each program during the development and implementation stages.

The estimated costs and funding sources shown in Table 9-2 are discussed in their respective sections, Program Cost Estimates (Section 9.4) and Program Revenue (Section 9.5).

9.3.1 Development and Implementation

The costs for developing the SRRE programs are incorporated into, and are a part of, the total costs for each component. The costs for implementation are also included and shown in those tables in this Chapter dealing with the costs of the components.

9.3.2 Monitoring and Evaluation - General

The main objective of monitoring and evaluating the funding sources is to ensure that all program financial activities proceed as planned. The monitoring and evaluation process will take place during the development and implementation stages for the component programs and then will become an on-going activity. To some degree, this process is already being utilized due to the fiscal management processes and procedures of the County. The status of the programs, with regard to the accomplishment of the program objectives, will also be monitored and evaluated.

Not only will there be financial monitoring and evaluation for the programs during their various stages and phases, but there will also be adjustments and/or corrective measures taken based upon these findings. This is a very important and critical process which will help assure that schedules and objectives proceed as planned. It also allows for "fine tuning" the individual programs, and provides for improvement on a continual basis. In addition, it provides the ability to implement measures which would compensate for changes in the economy, technology, and social behavior. This would include market fluctuations for recyclables, new collection technology, and new and different consumer products.

Generally speaking, the monitoring section deals with gathering data and information. The evaluation section deals with reviewing, analyzing, and interpreting the information and then presenting recommendations. The adjustments section involves implementing the recommendations that are based on the evaluation. The

following paragraphs present more information about each of these areas.

9.3.2.1 Monitoring

The financial monitoring of the programs is the first of three steps for keeping the financial plans on track. It will involve inspecting and reviewing several different financial reports, most of which will be produced by the Fiscal Division of the Department of Public Works. The reports that will be examined are all those that have a significant impact on the performance of each program. Included in these would be reports that detail the income/funding sources and the costs/expenses for the programs. To make this process more expedient, new reports may be designed which consolidate the needed information.

All relevant financial funds, accounts, and data will include the recording of all transactions, including all appropriate dates. All sources of revenue will be promptly and accurately recorded, and all expenditures will be scrutinized and paid, only after passing through the required approval processes.

Adequate and accurate data are vital to a successful monitoring program. If the figures are incomplete, ambiguous, or unsubstantiated, then there will be a problem in evaluating the data accurately. Also, the progress toward meeting financial goals and objectives cannot be measured or evaluated if there is weak or missing information.

The reports and figures will be retrieved and compiled on a regular monthly basis by staff of the Department of Public Works. To gain additional control and insight into the interpretation of the figures, there will also be quarterly and yearly figures collected.

9.3.2.2 Evaluation

The second step for keeping the financial goals and objectives on their prescribed path is the evaluation stage, which will entail taking the information provided in the monitoring stage, and evaluating it according to established guidelines, procedures, and written criteria. The written criteria for evaluating the financial condition and effectiveness of the programs will include and address the following questions and areas:

1. Were actual funding/income levels as projected/expected?

2. Were actual cost/expense levels as projected/expected?

3. How does the dollar amount from funding source(s) compare to the amount of incurred costs/expenses? (Also the comparison expressed as a ratio.) This would include tracking the difference between actual and forecasted revenues and costs.

4. How do the results of the above impact financial objectives?

5. How do the results of the above and other financial data compare to previous months, quarters, and years, and what are the trends?

6. How do the evaluation results of the other financial criteria compare/relate to the effectiveness, performance, and schedule of the programs and their objectives?

7. Are the programs performing efficiently and financially on schedule?

8. What are the results of increased diversion upon income/expenditure?

The evaluation process will be done on a month-by-month basis, as well as quarterly and yearly. Performing quarterly and yearly evaluations will provide for a different and larger perspective of the financial condition of the programs and, more specifically, will aid in identifying trends.

The evaluation step will largely be performed by the staff of the Department of Public Works, Waste Management Division, with oversight provided by Department administration. Assistance from the Department of Public Work's Fiscal Division and the Auditor-Controller's Department will also be a part of the evaluation process.

9.3.2.3 Adjustments

Adjustments to the financial management details of the programs should be expected for several reasons. First, there is the difficulty in accurately forecasting variations in solid waste disposal/diversion quantities

caused by source reduction, recycling, and composting programs. In addition, changes due to seasonal variation in the waste disposal rates is another factor which may need to be considered. Other variables, difficult to precisely predict, include population growth and waste generation per capita figures.

If the monitoring and evaluation indicates there is a shortfall of funds for a program, then the following adjustment measure(s) may be implemented to alleviate the problem. These include increasing the frequency or depth of program monitoring and evaluation, or perhaps modifying the objectives of the programs. Also, the balancing of monies among programs may be necessary, which may in turn require program objectives to be revised.

The adjustments will be executed using suitable measures by the proper County departments, after consulting with appropriate groups and agencies. This could possibly involve the Board of Supervisors if ordinances need to be adopted and implemented, or if the Solid Waste Generation Service Charge rate needs to be amended.

9.3.2.4 Reporting

The reporting of the financial monitoring and evaluation findings for the programs will be performed by personnel from the Waste Management Division of the Department of Public Works with cooperation and financial expertise from the Fiscal Division. Data analysis, evaluation, and annual reporting of program effectiveness will be performed by the Fiscal Division, as part of their internal auditing functions and duties.

9.3.4 Funding Requirements

The costs for financial monitoring and evaluation of the SRRE programs are borne by each of the individual components and are incorporated into their total estimated costs figures. For this reason, no specific revenues will be needed just for monitoring and evaluating.

The funds allocated for financial monitoring and evaluating will be used to pay for Waste Management and Fiscal Divisions' staff to review, analyze, and evaluate financial data, and to prepare reports and other documents.

9.3.5 Contingency Measures

Due to circumstances unforeseen at this time (1992) there may be a need to implement contingency measures, if or when, the aforementioned evaluation criteria detects a problem.

Listed below are the eight financial criteria questions for evaluating the major financial aspects of the programs. Below each question is an explanation describing what contingency measures or actions would be generally taken to correct the negative evaluation results.

1. Were actual funding/income levels as projected/expected?

   If a shortfall in revenue is indicated by monitoring the funding/income levels for all programs as a whole, and the cause is not one that is due to problems in program execution, then the individual programs will be evaluated. The key to solving the monetary shortfall will be to identify the exact cause(s) of the problem. Program adjustments may be necessary to increase income, which may mean implementing certain programs or their phases sooner than planned to draw in additional money. Legislation creating new fees or increasing existing ones may be necessary. Perhaps the revision of individual program objectives to reflect more realistic diversion objectives may be the approach taken. Also included, if appropriate, would be an analysis of the Solid Waste Generation Service Charge receipts. This may include evaluating the dates that the money is received and, if necessary, instituting a more aggressive collection and auditing process.

2. Were actual cost/expense levels as projected/expected?

   If the costs are greater than projected, much of what is stated immediately above would be applicable. Here, the key would be to identify the exact cause for the excessive costs and take appropriate action to remedy the situation. This would include examining and identifying all expenses and rating and analyzing the efficiency of the programs.

3. How does dollar amount from funding source(s) compare to the amount of incurred costs/expenses?

   This is essentially combining Items #1 and #2 above, to see if they balance/offset one another. If there is a problem, then the solution may be one of those items mentioned above, or a combination of them. One course of action may be to perform an audit to determine the exact nature of the problem.

4. How do the results of the above impact financial objectives?

   If the results of the first three criteria indicate problems, then immediate action will be taken to mitigate the negative financial impact. One of the first steps will be to identify the cause of the problems so that potential/additional problems can be averted. Also, the corrective measure(s) taken will attempt to not adversely affect the other programs and tasks.

5. How do the results of the above and other financial data compare to previous month(s), quarters, and years, and what are the trends?

   Examining the financial data should provide a solid basis for managing the funds and expenses of the programs. By analyzing the data, including ratios, over a period of time, current trends can be seen and future ones projected. Any negative trends, once recognized, will be investigated and rectified. The analysis of the data can also determine the stability and adequacy of the funding for the programs.

6. How do the evaluation results of the other financial criteria compare/relate to the effectiveness, performance, and schedule of the programs and their objectives?

   This would involve looking at the performance of the programs both individually and collectively. The impact of programs upon one another will also be analyzed, as well as diversion rates and scheduling. Much of the information listed under the other criteria questions would also be applicable here.

7. Are the programs performing efficiently and financially on schedule?

   If monitoring and evaluating demonstrate financial delays in the successful completion of any tasks, then the schedule of the tasks within a program may be adjusted so that subsequent tasks also do not miss scheduled deadlines. Making schedule changes that would impact meeting diversion objectives on time would only be done if no other feasible method can be used to create improvement. Rearranging the tasks of other programs may also be considered if deemed practical and beneficial.

8. What are the results of increased diversion upon income/expenditures?

   This would involve looking closely at funding sources and expenses which are directly or indirectly related to the amount of waste disposed of and the amount of waste diverted and the amount recycled. This would definitely include looking at the Solid Waste Management Fee, since it is directly related to and based solely on the quantity of waste disposed.

9.4 FUNDING COMPONENT PROGRAM COST ESTIMATES

This section will present the estimated costs for development and implementation of the proposed alternatives. Also included will be figures showing the anticipated costs for monitoring, evaluation, and education for each program. The implementation costs will be presented primarily in the form of tables.

A large portion of the costs for the selected programs are for staff time. The calculation for the average man-year costs are based on existing staff in the Solid Waste Unit, Waste Management Division, of the Department of Public Works. It is further explained, in the assumptions which follow the tables, how the staff time figures were calculated.

From the anticipated personnel needs and other expenditures, a total of $7.8 million is projected to be required for the short-term period to support the activities mandated by the California Integrated Waste Management Act of 1989 (Public Resources Code, Section 40000, et seq.) and subsequent amendments.

The functions that will be performed in carrying out the Los Angeles County SRRE include: preparation, administration, adoption, program development, implementation, monitoring, and evaluation. All of the functions and activities related to this SRRE will only be directed at and intended for the unincorporated areas.

Overall, the Department of Public Work's staff will be responsible for the preparation, administration, and implementation of the County SRRE. Also included in the budget is the cost for the use of consultant services to conduct waste characterization studies and assistance in the implementation of public education/awareness programs.

For the short-term planning period, the cost estimates for each of the individual components are listed below:

Table 9-3 Source Reduction Component Estimated Costs
9-4 Recycling Component Estimated Costs
9-5 Composting Component Estimated Costs
9-6 Special Waste Component Estimated Costs
9-7 Education Component Estimated Costs
9-8 Summary of Estimated Costs, All Programs, Short-term

9.5 FUNDING COMPONENT PROGRAM REVENUE

The Solid Waste Generation Service Charge fee and the General Fund will be the two primary sources of revenue for the implementation of the unincorporated area programs within this SRRE. These two funding sources are discussed at length in Sections 9.2.3 and 9.2.2, respectively. Other possible funding sources and mechanisms are considered and evaluated further on in this section.

It should be noted that the budget for waste management activities is approved on an annual basis by the Board of Supervisors. As the programs progress, there may be a need to increase the amount of money authorized by the Board of Supervisors in order to meet the goals and objectives stated herein.

According to AB 939, the County and other local agencies are authorized to impose fees on solid waste generators in amounts sufficient to pay for development, adoption, and implementation of their Source Reduction and Recycling Element. "A city, county, or city and county may impose fees in amounts sufficient to pay the costs of

TABLE 9-3

ESTIMATED TOTAL SHORT TERM COSTS
SOURCE REDUCTION COMPONENT

	COUNTY							PRIVATE SECTOR	
SOURCE REDUCTION COMPONENT COSTS:	1991	1992	1993	1994	1995	Total Costs (1991-95)	Average Annual Costs (1993-95)	Total Costs	Average Annual Costs (1993-95)
Demonstration Projects[1]	$ 0	$ 15,000	$ 76,000	$ 80,000	$ 84,000	$ 276,000	$ 80,000	Private sector costs are unknown at this time.	
Program Development/ Implementation/ Administration	152,500	100,000	482,000	507,500	533,000	1,754,000	507,500		
Education/Public Information	33,000	25,000	122,000	128,500	135,000	443,500	128,500		
Monitoring/Evaluation	0	0	89,500	94,000	98,500	282,000	94,000		
TOTAL	$ 185,500	$ 140,000	$ 769,500	$ 810,000	$ 850,500	$2,755,500	$ 810,000	UNKNOWN	UNKNOWN

Notes:

- Average annual costs over three-year period (1993-95) is $810,000.
- In general, the short-term costs for each expense item have been summed together and then apportioned evenly over the three-year (1993-95) implementation period. Included in the calculation of the 1993-1995 figures is a five percent annual increase for inflation. The costs for 1991 and 1992 have not been included in the calculation of average annual costs, since a significant amount of the costs incurred are for the preparation of this SRRE.
- Refer also to Table 3-10 in Source Reduction Component.
- Refer also to Table 7-6 in Education and Public Information Component.

[1] Demonstration projects include programs relating to backyard composting and litter control.

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TABLE 9-4

ESTIMATED TOTAL SHORT TERM COSTS
RECYCLING COMPONENT

	COUNTY							PRIVATE SECTOR	
RECYCLING COMPONENT COSTS:	1991	1992	1993	1994	1995	Total Costs (1991-95)	Average Annual Costs (1993-95)	Total Costs	Average Annual Costs (1993-95)
Demonstration Projects[1]	$ 12,000	$ 9,000	$ 45,000	$ 47,500	$ 50,000	$ 163,500	$ 47,500	UNKNOWN	UNKNOWN
Program Development/ Implementation/Administration	60,000	45,000	230,500	242,500	254,500	832,500	242,500	$ 6,000 plus additional unknown costs	$ 2,000 plus additional unknown costs
Education/Public Information	130,000	90,000	475,000	500,000	525,000	1,720,000	500,000	UNKNOWN	UNKNOWN
Monitoring/Evaluation	15,000	16,000	152,000	160,000	168,000	511,000	160,000	UNKNOWN	UNKNOWN
TOTAL	$ 217,000	$ 160,000	$ 902,500	$ 950,000	$ 997,500	$3,227,000	$ 950,000	$ 6,000	$ 2,000

Notes:

- Average annual costs over three-year period (1993-95) is $950,000.
- In general, the short-term costs for each expense item have been summed together and then apportioned evenly over the three-year (1993-95) implementation period. Included in the calculation of the 1993-1995 figures is a five percent annual increase for inflation. The costs for 1991 and 1992 have not been included in the calculation of average annual costs, since a significant amount of the costs incurred are for the preparation of this SRRE.
- Refer also to Table 4-15 in Recycling Component.
- Refer also to Table 7-6 in Education and Public Information Component.

[1] Demonstration projects include such programs as recycled Christmas tree mulch, and possibly fire break mulch and/or Christmas tree sand dune mitigation.

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TABLE 9-5

ESTIMATED TOTAL SHORT TERM COSTS
COMPOSTING COMPONENT

	COUNTY							PRIVATE SECTOR	
COMPOSTING COMPONENT COSTS:	1991	1992	1993	1994	1995	Total Costs (1991-95)	Average Annual Costs (1993-95)	Total Costs	Average Annual Costs (1993-95)
Demonstration Projects	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Private sector costs are unknown at this time.	
Program Development/ Implementation/Administration	75,000	57,000	275,000	290,000	305,000	1,000,000	290,000		
Education/Public Information	20,000	13,000	62,000	65,000	68,000	230,000	65,000		
Monitoring/Evaluation	0	0	52,500	55,000	57,500	165,000	55,000		
TOTAL	$ 95,000	$ 70,000	$ 389,500	$ 410,000	$ 430,500	$1,395,000	$ 410,000	UNKNOWN	UNKNOWN

Notes:

- Average annual costs over three-year period (1993-95) is $410,000.
- In general, the short-term costs for each expense item have been summed together and then apportioned evenly over the three-year (1993-95) implementation period. Included in the calculation of the 1993-1995 figures is a five percent annual increase for inflation. The costs for 1991 and 1992 have not been included in the calculation of average annual costs, since a significant amount of the costs incurred are for the preparation of this SRRE.
- Refer also to Table 5-7 in Composting Component.
- Refer also to Table 7-6 in Education and Public Information Component.

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TABLE 9-6

ESTIMATED TOTAL SHORT TERM COSTS
SPECIAL WASTE COMPONENT

	COUNTY							PRIVATE SECTOR	
SPECIAL WASTE COMPONENT COSTS:	1991	1992	1993	1994	1995	Total Costs (1991-95)	Average Annual Costs (1993-95)	Total Costs	Average Annual Costs (1993-95)
Demonstration Projects	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	Private sector costs are unknown at this time.	
Program Development/ Implementation/Administration	10,000	7,000	29,500	31,000	32,500	110,000	31,000		
Education/Public Information	5,000	3,000	12,500	13,000	13,500	47,000	13,000		
Monitoring/Evaluation	0	0	15,000	16,000	17,000	48,000	16,000		
TOTAL	$ 15,000	$ 10,000	$ 57,000	$ 60,000	$ 63,000	$ 205,000	$ 60,000	UNKNOWN	UNKNOWN

Notes:

- Average annual costs over three-year period (1993-95) is $60,000.
- In general, the short-term costs for each expense item have been summed together and then apportioned evenly over the three-year (1993-95) implementation period. Included in the calculation of the 1993-1995 figures is a five percent annual increase for inflation. The costs for 1991 and 1992 have not been included in the calculation of average annual costs, since a significant amount of the costs incurred are for the preparation of this SRRE.
- Refer also to Table 6-4 in Special Waste Component.
- Refer also to Table 7-6 in Education and Public Information Component.

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TABLE 9-7

ESTIMATED TOTAL SHORT TERM COSTS
EDUCATION COMPONENT

	COUNTY							PRIVATE SECTOR	
EDUCATION COMPONENT COSTS:	1991	1992	1993	1994	1995	Total Costs (1991-95)	Average Annual Costs (1993-95)	Total Costs	Average Annual Costs (1993-95)
Demonstration Projects	NA†							Private sector costs are unknown at this time.	
Program Development/ Implementation/Administration	NA†								
Education/Public Information	NA†								
Monitoring/Evaluation	0	0	66,500	70,000	73,500	210,000	70,000		
TOTAL	$ 0	$ 0	$ 66,500	$ 70,000	$ 73,500	$ 210,000	$ 70,000	UNKNOWN	UNKNOWN

Notes:

- ° Average annual costs over three-year period (1993-95) is $70,000.
- ° In general, the short-term costs for each expense item have been summed together and then apportioned evenly over the three-year (1993-95) implementation period. Included in the calculation of the 1993-1995 figures is a five percent annual increase for inflation. The costs for 1991 and 1992 have not been included in the calculation of average annual costs, since a significant amount of the costs incurred are for the preparation of this SRRE.
- ° Refer also to Table 7-6 in the Education and Public Information Component.

† All education and public information costs, except monitoring and evaluating, have been incorporated into, and are a part of, each component's total costs.

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TABLE 9-8

SUMMARY OF ESTIMATED TOTAL PROGRAM COSTS (SHORT-TERM)†

Component/Program	Total County Program Costs							Private Sector	
	1991	1992	1993	1994	1995	Total short-term costs by Component (1991-95)	Average Annual Costs (1993-95)	Total Costs	Average Annual Costs (1993-95)
SOURCE REDUCTION	$ 185,500	$ 140,000	$ 769,500	$ 810,000	$ 850,500	$2,755,500	$ 810,000	UNKNOWN	UNKNOWN
RECYCLING - Residential Curbside Collect. - Buy-Back Centers - Drop-Off Programs - Commercial/Industrial At Source S & P - Material Recovery Facilities - Salvaging at S.W. Facilities - CSD Green Waste Cover Project - Public Education and Outreach - Christmas Tree Recycling - Supportive Programs #12 - #24	217,000	160,000	902,500	950,000	997,500	3,227,000	950,000	$ 6,000 plus additional unknown costs	$ 2,000 plus additional unknown costs
COMPOSTING Yard Waste Composting	95,000	70,000	389,500	410,000	430,500	1,395,000	410,000	UNKNOWN	UNKNOWN
SPECIAL WASTE	15,000	10,000	57,000	60,000	63,000	205,000	60,000	UNKNOWN	UNKNOWN
EDUCATION (Monitoring-Evaluate)	0	0	66,500	70,000	73,500	210,000	70,000	UNKNOWN	UNKNOWN
TOTAL	**$ 512,500**	**$ 380,000**	**$2,185,000**	**$2,300,000**	**$2,415,000**	**GRAND TOTAL $7,792,500**	**$2,300,000**	**$ 6,000**	**$ 2,000**

Notes: † This table includes costs shown and developed in Tables 9-3 through 9-7.

° Average annual costs over three-year period (1993-95) is $2,300,000.

° In general, the short-term costs for each expense item have been summed together and then apportioned evenly over the three-year (1993-95) implementation period. Included in the calculation of the 1993-1995 figures is a five percent annual increase for inflation. The costs for 1991 and 1992 have not been included in the calculation of average annual costs, since a significant amount of the costs incurred are for the preparation of this SRRE.

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preparing, adopting, and implementing an integrated waste management plan...The fees shall be based on the amounts of the solid waste, and shall be used to pay the actual costs incurred by the city or county in preparing, adopting, and implementing the plan, as well as in setting and collecting the local fees. In determining the amount of the fees, a city or county shall include only those costs directly related to the preparation, adoption, and implementation of the plan and the setting and collection of the local fees" (Public Resources Code, Section 41901). This allows for various approaches or alternatives for funding mechanisms, and serves as the basis for the Solid Waste Generation Service Charge.

The franchising and creation of Garbage Disposal Districts for all the County unincorporated areas may provide a funding mechanism under existing law to fund a portion of the County costs to implement SRRE programs. A disadvantage to franchising is the establishment of the bureaucracy necessary to develop, implement, and administer a larger franchise system, including enforcement. Although it may be possible to contract out this function, it would represent creation of an additional County operation that is now handled, for the most part, by individual refuse haulers.

The following funding mechanisms are some of the possible alternatives that have been considered for funding the SRRE programs listed herein with a brief discussion/evaluation of each. Some of these are also mentioned in other components. Generally, all of these alternatives have public opposition, although the degree of opposition ranges from mild to severe. These mechanisms are seen as not being viable at this time. However, they may be considered for development into workable contingency funding sources.

- Utility Tax - This alternative would impose a tax on all utility companies who provide utility services to customers in the unincorporated areas. The utility would, in turn, pass the tax on to their customers. Such a tax, from the County's standpoint, would be easy to administer with relatively low administration costs, due to the small number of utility companies involved. However, there are many negative aspects to such a tax. These would include strong opposition by the utility companies because of the administrative/ processing costs that they would incur, as well as the fact that the tax is unrelated to the

operations of the utility. Also, there would be no relationship between the quantity of solid waste disposed of by each customer and the amount of the tax that they are charged. Such a tax is not specifically provided for by AB 939, and therefore, the revenue from this fee must be credited into the County General Fund while costs for the mandated programs would be debited from it. Proposed legislation may actually invalidate or nullify the County's authority to impose such a tax on utility companies.

- Quantity-based User Fees or Variable Can Rates - This funding mechanism alternative would entail that each hauler in the unincorporated areas charge its customers based upon the number of trash cans utilized by the customer. The haulers would then be required to pay a portion or percentage of the monies collected to the County. There would be opposition by the waste haulers as this proposal would impose a significant increase in their administrative costs. It may require that they also provide trash containers so as to standardize the container size that is put out for collection, which would also increase their costs. Additionally, it would be difficult to administer and enforce the waste hauler's payment to the County. Among the problems the County would possibly encounter would be determining the accuracy of each hauler's business records, as well as receiving payments in a timely manner.

  A slight variation of this fee would be to base the fee on the weight of waste picked up. This would be a very equitable solution; however, the administrative problems and the equipment costs inhibit its implementation. Additional discussion regarding this alternative is provided in the Source Reduction Component.

- Waste Collector Fees - This proposed alternative would consider increasing the Los Angeles County Waste Collector's Permit Fee, which is collected by the Los Angeles County Department of Health Services, and renewed annually. The increase could be on a small scale with the additional money raised being used to implement nonresidential programs. Perhaps the County, working jointly and cooperatively with the haulers, could use the monies generated for those programs that would be

most cost-effective for the waste haulers. However, if the increase were on a large scale to raise a large amount of money, the amount of the proposed fee would seem exorbitant to the waste haulers. Since there are over 240 permitted waste collector companies for the County unincorporated areas, the fee would have to be well over $15,000 for each hauler. This would have an inequitable impact on the waste haulers since their ability to pay is generally related to the number of customers they have. Under this scenario, the smaller companies could be especially hurt because of their limited financial resources and their smaller customer base over which to distribute their costs. Imposing the fee could cause some waste haulers to go out of business and thus result in a lack of waste collection service in certain unincorporated areas. Public opposition would also be strong because of the additional financial burden placed upon them. There would be a minimum amount of new administration costs incurred by the County, since the permit process and fee mechanism are already in place.

Another possible alternative would be to impose a new fee, in addition to the existing annual permit fee, on the private haulers who operate in the unincorporated County areas. They could be charged a fee based on the amount of waste that they haul or dispose of, since they engage in a business which impacts the County's responsibility to meet the State mandates. Such a fee would not require additional data to be collected by refuse haulers, and therefore, would be easier to implement than some other alternatives.

- Surcharges/Taxes on Landfills - There are three primary avenues that could be pursued as funding mechanisms in this regard, and they are:

  1. Tax on Landfill Operators Gross Receipts or Income - This would be a tax on landfill operators located within the County unincorporated areas. Such a tax was enacted in January 1991 by the Board of Supervisors, when they adopted Ordinance 91-0017. Pursuant to this ordinance, a tax of 10% of gross receipts is imposed on those disposal facilities operating in the unincorporated area of the County. All of the proceeds from

this tax are "placed in the County's general fund and used for the usual current expenses of the County", Section 4.63.030.

The tax rate could be increased (by ordinance) with the additional proceeds used for SRRE programs in the unincorporated areas. This option would involve a minimum of new administration costs although the funds must first be credited to the General Fund and then transferred to the appropriate accounts. There could be opposition by cities since these landfills receive their waste from both the unincorporated and incorporated areas. That is, the cities would feel that their residents will be charged for programs that do not benefit them, but rather benefit only the unincorporated areas.

2. Tipping Fee Surcharge on a Countywide Basis - Impose a tipping fee surcharge on all disposal and/or transformation facilities within Los Angeles County. From the monies collected, each city would be reimbursed based upon the quantities of waste disposed of as shown in its SRRE and verified by landfill and/or transformation facility records. This fee would be easy to administer with a minimum amount of non-payment. There could be opposition by those cities which have disposal or transformation facilities within their jurisdiction, and the fee would require the city's consent. There would be an increase in administrative costs in order to distribute some of the monies back to the cities and there could be opposition by owner/operators of the landfills and transformation facilities, as well as haulers.

3. Tipping Fee Surcharge for County Unincorporated Areas - This option would impose a tipping fee surcharge on each ton of solid waste disposed of at those landfills located in the unincorporated areas. Such a fee would be easy to administer with a minimum expense. However, like the tax on landfill operator's gross income, there could be opposition by cities who feel that they are paying for programs which do not benefit them.

Based on the foregoing discussion and evaluation, and the analysis included in other sections of this component, it is expected that the two major sources of revenue will be the Solid Waste Generation Service Charge fee and the General Fund, with their use eliminating several of the above alternatives from serious consideration. These two funding sources generally have the following features: 1) available within a short time frame; can meet and satisfy extensive costs to conduct waste characterization and other studies; 2) can meet funding needs for an extended time period in order to conduct plan approval and revisions; and 3) inherently have reserve accounts to absorb most extraordinary expenses that may be encountered.

9.6 CONTINGENCY FUNDING

The objective of this section is to identify sources of contingency funding for the component programs. These sources would be utilized only in the remote event that the primary sources were not adequate or could no longer be used. The preparation and administration of a contingency funding plan is somewhat complicated by the large number of jurisdictional agencies, and the many private firms involved in solid waste management in the unincorporated areas of Los Angeles County.

Before utilizing contingency sources, there must be a real and definite need for the contingency money,and the reasons for the shortfall in the primary funding sources shall be identified. Also, if the monitoring and evaluation processes have identified any problem in the primary funding sources, corrective measures will be taken.

Before determining which contingency sources should be implemented to maintain the operation of the selected program(s), several questions or areas need to be investigated. One of the first questions to answer would be the amount of money needed. Small amounts could perhaps be acquired relatively quickly and easily, whereas larger amounts would take much longer and undergo closer scrutiny. Another area to be considered would be that of time. This would entail knowing the frequency of expenditures and their regularity. There might be a one-time expenditure to get a program phase to a point where it is self-supporting, or it may be an on-going expense that will continue as long as the program is operating.

Contingency funds are somewhat available or allowed for in each County fiscal budget/general fund, but their use is not encouraged and authorization may be difficult. These funds would be most appropriate for a sudden and urgent need, and the request may face competition and close scrutiny. The use of surplus funds, or reserve accounts, from the Solid Waste Generation Service Charge may be a possible contingent source of money.

The bulk of the money for contingency funding will stem primarily from increases/adjustments in the service charge rate for the Solid Waste Generation Service Charge fee. These changes may be time consuming to implement, and for this reason the earlier that the need for contingency money is identified, the better this source will be.

Another contingent revenue source that would be used should the planned funding source(s) fail to be adequate, would be additional money from the Los Angeles County General Fund. The General Fund money would usually be used in those instances where small projects or smaller parts of large projects need money and/or for the routine operation and maintenance of facilities or programs. It is a reliable contingent source because of the certainty that is tied to its income. The amount of General Fund dollars that are "discretionary" are significant and would require approval by the Board of Supervisors. They are discretionary in that the Board can choose which programs or services the County is or is not going to provide. The procedural obstacles for approval may be greater than that of other alternatives, but the nature of the need (State-mandated SRRE) and being a one-time request may provide the impetus for approval by the Board of Supervisors.

9.6.1 Other Revenue (Producing) Sources

In addition to the sources above, the County will be investigating several other potential revenue (producing) sources and funding mechanisms to act as sources of contingency funding. Several of these are discussed in other components. These may be eventually used to supplement the main sources above, or may be used solely for contingency funding. These contingent sources are:

- Special Taxes
- Advance Disposal Fees
- Other Taxes and Fees

Some of the revenue sources discussed, but not selected, in the Program Revenue section may also be considered as contingency sources, i.e. waste collector fees.

9.6.1.1 Special Taxes

The County may consider implementing a special "temporary" tax on commercial and industrial businesses in the County unincorporated areas. This would be assessed for only a short period of time (four to six years). The money generated could be used for developing commercial/industrial source reduction and recycling programs. Then, after the program development stage is accomplished, the monies could be used to assist businesses in implementing the programs. The money, in essence, would be used to initiate or start the programs and then later to get them operational and running efficiently. Once in place, the programs should be self-supporting and thus, the tax could be removed.

In the Source Reduction Component there is additional discussion regarding taxes, fees, and fines. And, as mentioned in the Composting Component, there could be new taxes or fees on non-yard soil amendment products.

9.6.1.2 Advance Disposal Fees

Another possible source of contingent funding would be "advance disposal fees" (ADF), which AB 939 suggests may be applied on specific producers of waste. These ADFs would be applied to those items or products where it appears that disposal is the only option. These fees could be levied, for example, on the following types of businesses: a) significant waste quantity generators, such as factories or institutions, b) retail operations which produce waste that is difficult to recycle, c) wholesalers or retailers which distribute certain products which involve a measurable cost to dispose of or recycle, and d) commercial waste producers/generators which dispose of their own waste themselves. This last type would include mostly businesses involved in landscaping and gardening. In general, ADFs would be difficult to fully implement in the short-term, and would entail much administration, but could be developed and used in the medium-term. It seems that to be most feasible, this program should be implemented on at least a statewide basis, with a large portion of the fees collected returned back to the County in which they were collected. Recently, the proposed fee, on a statewide

basis, has run into considerable opposition, and is being called a Recycling Incentive Fee.

9.6.1.3 Other Taxes and Fees

The following is a list of additional potential funding sources or revenue producing sources and a brief description of their features. Some of these are discussed in detail in other components. The implementation of many of these would help to reduce the amount of residential and commercial waste, since the quantity of waste generated would decrease as fees and rates increase.

- Packaging Taxes - Taxes on packaging could be levied as a point of sale surcharge or at the wholesale level, and would require a change in sales tax law. The program could impose a tax on each individual package or taxing each separate layer of packaging material.

- Tax Credits - There are many different types of tax credits or incentives that could encourage waste reduction and recycling activities. However, since these would not generate revenue, they will not be discussed further in this component.

- Grants - These are not seen as a dependable and regular source of revenue. There are a number of potential sources of grants, but because of the uncertainty in these being awarded, they will not be discussed further.

- Loans - For a short-term period, a commercial bank loan or line of credit may be considered. A loan or line of credit may meet less resistance than a bond issue, but the payback period would be shorter and the rate of interest would most likely be higher.

- Other source reduction related revenue sources - These potential sources include, but are not limited to, such items as: deposits/refunds/ rebates, business and license fees, local taxes/ fees/fines, and these are discussed at more length in the Source Reduction Component. In that component as well as in this component, the following are discussed: local waste disposal modifications, quantity-based local user fees, and loans/grants/loan guarantees.

- Revenue from recyclables - The revenue derived from recovered recyclables may be substantial, but under the current situation it is going to waste haulers to help offset some of their recycling related costs. The haulers are impacted in two ways from recycling waste: lower total costs for landfilling waste, and revenue from the recyclables. As recycling markets develop and improve, perhaps imposing a surcharge on the waste haulers would direct some of the money from recyclables to the County government.

- Revenue from Composting - At this time, there is not a significant or developed market for composted material and the revenue is assumed to be zero. However, as time goes on and markets develop, it then may be a dependable and valuable source of revenue.

- Other composting related sources - These potential sources are mentioned in the Composting Component and would include such items as: curbside collection service rates, taxes or fees on non-yard soil amendment products, processor tipping fee, and landscaper license fees.

- Revenue from special wastes - Several types of special wastes can be diverted from landfills while providing a source of income for those performing this function. Other businesses would also benefit from the diversion of special wastes. For white goods, as an example, the beneficiaries would include waste haulers, scrap metal dealers, second hand or thrift stores, appliance suppliers, and landfill scavengers, among others. Perhaps a fee or tax on the revenue received by these entities could be imposed. However, imposing a surcharge on the disposal of special wastes may be a more likely potential source of revenue.

- Marketing secondary material - The production of methane gas from a landfill can be an income-producing source. However, since the County is not an operator or owner of a landfill that currently has a methane recovery system, it does not receive any of the benefits from the by-products of landfilling. The imposition of a special tax or fee on money received for methane gas or its use may be a possibility.

- Private contributors - Financial contributions by private companies can be used for brochures and other items which may include the name and logo of the donating company. In some jurisdictions, private companies have donated expensive equipment, such as plastic bottle granulators and curbside recycling containers.

- General obligation bonds - Are usually used for capital financing and not for the operation and maintenance of facilities or programs. General obligation bonds are usually the most flexible and least costly alternative among the available public borrowing mechanisms. These types of bonds require voter approval before they can be issued, and are commonly issued for amounts within the range of $500,000 to $1 million dollars.

- Revenue bonds - These are often used to circumvent the constraints related to general obligation bonds, and do not require voter approval. They are typically issued to finance a single project with revenue producing services, and are not as surely guaranteed. From a prospective investor's viewpoint, there is more risk associated with revenue bonds than general obligation bonds. The revenue generating capacity of the program/project being financed is quite important, and will be influential upon the coupon rates and possibly limit the amount of the bond issue.

- Bonding assistance - Public financing could be provided to private companies that construct recycling facilities or those that use commercialized recycled materials. This could include working with other local jurisdictions in making financial arrangements, and possibly make use of industrial development bonds.

- Legislative changes - The County could promote legislation at the State and Federal levels to support and enhance the County's own waste reduction initiatives, and derive some funding for waste programs from them.

For yard waste composting programs potential revenue sources also include tipping fees at pre-processing sites and compost facilities, landscaper licensing and renewal fees, curbside collection service rates, and taxes or fees on non-yard soil

amendment products. Additional discussion of these is provided in the Composting Component.

Many of the above possible contingency funding sources would be most applicable for major capital projects and would not be suitable for day-to-day program expenses. In the remote case that contingency funding is needed, the several alternatives mentioned will be evaluated to select the best alternative or combination of alternatives.

Private financing for major projects is another alternative for financing and may be considered. Should private companies not be willing to finance the entire cost for a major project, then perhaps the County would assist via the terms of a County/private sector company written agreement. The agreement may provide favorable conditions for the private company, such as a tax-exempt bond program or tax or accounting incentives. These could possibly include sales tax exemption, investment tax credits, or accelerated depreciation, among others. This section will not delve into the different sources of funding that the private sector may have, such as corporate bonds, commercial bank loans, leasing, stock issues, and others.

GENERAL ASSUMPTIONS AND NOTES TO TEXT AND TABLES 9-1 THROUGH 9-8

a) Staff will be composed of temporary personnel and retirees when possible and on an as-needed basis.

b) The wages for staff are based largely upon an average of the earnings for the appropriate job classifications within the Waste Management Division of the Department of Public Works.

c) Personnel costs include salary, employee benefits, and overhead.

d) Average man/year costs are based on 260 productive eight-hour days per year (52 weeks x 5 days/week x 8 hours/day or 52 weeks x 4 days/week x 10 hours/day).

e) Wherever possible, the combining of functions (as parts of programs) will be done to increase efficiency and minimize cost.

f) No consideration or allowance is made for depreciation in capital goods or facilities. Interest earnings on unspent revenue, as a conservative measure, is also not considered.

g) All education and public information costs, except monitoring and evaluating, have been incorporated into, and are a part of, each component's total costs.

h) Personnel and most other expenses are projected to increase annually at a rate of five percent, due to inflation. Revenues, as a conservative measure, are not projected to increase due to inflation.

i) Dollar amounts shown in tables have been rounded off to the nearest $500. In some instances, this has resulted in and been the cause of "rounding errors", or instances where the mathematical calculation of numbers result in figures (totals, averages, etc.) slightly different than expected.

j) In order to present fiscal year (July 1 - June 30) financial data in calendar year format, the fiscal year total figures have been divided into monthly average amounts and then multiplied by the appropriate factor (number of months).

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CHAPTER 10

INTEGRATION

CHAPTER 10
INTEGRATION COMPONENT

10.1 BACKGROUND

The aim of the Integration Component is to demonstrate that unincorporated areas of the County of Los Angeles have met the 25% and 50% SRRE waste reduction mandates specified in Public Resources Code, Section 41780. The County will promote source reduction activities targeted at decreasing the amount of solid waste generated in unincorporated areas. For waste that continues to be generated, recycling and composting programs will contribute to diverting waste from disposal to the extent feasible. The County will ensure that waste that cannot be diverted will be disposed in an environmentally safe manner.

Included in this component are practices which fulfill the legislative goals of integrated solid waste management: 1) source reduction; 2) recycling and composting; and 3) environmentally safe transformation and land disposal of solid wastes. Furthermore, component integration is explained to maximize source reduction, recycling, and composting options, to achieve diversion mandates, and to determine inter-component priorities.

An integration schedule will include the following: all implementation tasks, a descriptive title of each task, the government entity implementing the task, start date, milestone dates, and funding sources.

Due to changes in regulations and for planning purposes, start dates of January 1993 are shown in the schedules. However, the following programs were implemented on the dates indicated.

Program	Date
Backyard Composting	11/91
Single-Family Curbside Recycling	1/90
Multi-Family Recycling	4/91
Buy-Back Center	12/90
County Sanitation Districts Green Waste Cover Program	1/90
Salvaging at Solid Waste Facilities	1/90
County Christmas Tree Recycling Program	12/91
Yard Waste Composting/Curbside Collection	9/90
Public Education/Information	1/90

Please Reference Table 10-1

10.2 GOAL ACHIEVEMENT

The source reduction and recycling programs outlined in the SRRE are designed and organized to promptly achieve the goal of integrated solid waste management for the unincorporated territory of Los Angeles County. Specifically, Chapters 2 through 10 of the SRRE, the County will promote integrated solid waste management with the following activities:

10.2.1 SOURCE REDUCTION

a) County government source reduction programs including purchase preferences, purchase specifications and set-asides, and nonprocurement; b) technical assistance, education, and promotion programs include waste evaluations, backyard composting, and public recognition; c) regulatory programs, such as procurement ordinances, land use incentives and disincentives, mandatory planning and reporting requirements, and local bans on products or packaging; d) rate structure modification programs containing modified disposal fees and quantity based on end-user fees; e) economic incentive programs highlighting loans, grants, financial deposits, refunds, rebates, and implementation of business license fees; and f) local waste disposal fee modifications.

a. Residential

Residential diversion will be achieved by focusing on the following:

Designation of community gardens or county parks for on-site composting demonstration sites; implementing of volunteer "Master Composter" programs; establishing a Technical Assistance and Resource Center that will educate citizens on backyard composting, environmental shopping, source reduction, and junk mail elimination. The Christmas tree program promotes live, root-bound trees instead of cut trees, offering them for planting at County parks, golf courses, botanical gardens, and County facilities. All new housing developments to meet xeriscape, drought-resistant landscaping standards.

b. Commercial, Industrial, and Other

The County will establish a Technical Assistance and Resource Center for commercial, industrial and other land uses, including a source reduction seminar program, school educational programs, and technical assistance mailings. Department of Public Works will work with businesses to conduct audits and send results of audits with suggestions for source reduction. Department of Public Works will encourage businesses to implement a

surcharge on grocery bags bought by customers, and enact a business xeriscape ordinance to require drought-resistance plants that grow slow, reducing the amount of green waste. Further, source reduction methods are to establish a waste exchange directory to facilitate waste-to-recycling-to-reprocessing convenience and employee education seminars and training sessions.

The following diversion percentages will be achieved from commercial, industrial, and other sources:

IMPLEMENTATION SCHEDULE - SOURCE REDUCTION				
TASK	DIVERSION			
	Short-Term 1991-1995	%	Medium-Term 1996-2000	%
1. Backyard Composting	1/93-12/95	0.16	1/96-12/2000	0.39
2. Xeriscaping	1/93-12/95	0.06	1/96-12/2000	0.19
3. Grass Recycling	1/93-12/95	2.78	1/96-12/2000	3.42
4. Manure Composting	1/93-12/95	0.00	1/96-12/2000	0.27
5. Waste Evaluation/ Technical Assistance	1/93-12/95	0.04	1/96-12/2000	0.08
6. Procurement Ordinances	1/93-12/95	0.63	1/96-12/2000	0.87
7. Education	1/93-12/95	*	1/96-12/2000	*
TOTAL DIVERSION		3.7		5.2

* Denotes support program - diversion not quantified

10.2.2 RECYCLING

Recycling diversion will be achieved by providing technical assistance through an existing resource center and expansion of residential curbside, buy-back, and drop-off recycling programs; office paper recovery, commercial and industrial collection; multi-family, construction and demolition waste, materials recovery activities, landfill salvaging, mechanical materials recovery, and Christmas tree recycling.

The following diversion percentages will be achieved from recycling sources:

IMPLEMENTATION SCHEDULE - RECYCLING				
TASK	DIVERSION			
	Short-Term 1991-1995	%	Medium-Term 1996-2000	%
1. Develop Single-Family Curbside Collection	1/92-9/95	2.48	1/96-12/2000	3.52
2. At-Source Separation and Collection	1/93-6/94	4.53	1/96-5/97	8.25
3. Buy-Back Center	1/93-3/95	0.93	1/96-12/2000	1.11
4. Drop-off Facilities	1/93-12/95	0.21	1/96-6/96	0.30
5. Private Sector Material Recovery Operations	6/93-12/95	8.86	6/96-6/97	16.3
6. Multi-Family Collection	1/93-12/95	0.27	1/96-1/97	0.40
7. CSD Green Waste Cover Project	1/93-1/94	6.60	1/96-1/97	5.9
8. Salvaging at Solid Waste Facilities	6/93-12/95	0.13	1/96-12/2000	0.18
9. County Christmas Tree Recycling	9/92-12/95	0.04	1/96-12/2000	0.04
TOTAL DIVERSION		24.1		36.1

* Yardwaste percentage included in Task #1, Curbside Collection

10.2.3 COMPOSTING

a) Self-haul drop-off; b) Decentralized pre-processing and material storage; c) Yard waste composting; develop program and determine facilities needed; procure facilities; implement program; d) Promotion and education; and e) Regulatory measures and policies including an ordinance to require at-source separation and collection of yard waste; design collection system with haulers; and implement a collection system.

The following diversion percentages will be achieved from composting sources:

IMPLEMENTATION SCHEDULE - COMPOSTING				
TASK	DIVERSION			
	Short-Term 1991-1995	%	Medium-Term 1996-2000	%
1. Curbside Collection Implementation	3/93-12/95	*	1/96-12/2000	*
2. Decentralized Processing and Materials Storage	6/93-12/95	*	1/96-12/2000	*
3. Yard Waste Composting	7/93-12/95	*	1/96-12/2000	*
4. Support Measures	1/93-12/95	*	1/96-6/98	*
TOTAL DIVERSION		1%		3%

* Each part is a step in the total diversion process.

10.2.4 SPECIAL WASTE PROGRAMS

a) used tire program; b) construction and demolition waste program; and c) white goods program.

The following diversion percentages will be achieved from special waste sources:

IMPLEMENTATION SCHEDULE - SPECIAL WASTE				
Alternative	Start	Finish	Diversion Goals %	
			1995	2000
1-Used Tire Program			0.86%	1.0%
a. Develop Educational Materials	10/93	4/94		
b. Demonstration Programs	1/93	12/2000		
c. Revise County Ordinance Guidelines	5/94	7/98		
d. Develop Permit Application Instructions	1/94	5/97		
e. Adopt Revised Ordinance	8/98	9/98		
f. Implement New Process	10/98	12/2000		
g. Contact Existing Tire Vendors	7/93	4/94		

IMPLEMENTATION SCHEDULE - SPECIAL WASTE (Continued)				
Alternative (Continued)	Start	Finish	Diversion Goal %	
			1995	2000
2-Construction and Demolition Waste Program (Asphalt and Concrete)			1.8%	6.5%
a. Develop Educational Materials	10/93	4/94		
b. Review County Procurement Guidelines	9/93	12/93		
c. Revise County Procurement Guidelines	1/94	1/95		
3-White Goods Program			.06%	.1%
a. Contact Private Hauler, Negotiate Collection Costs	1/94	5/94		
b. Contact Local Charities, Thrift Shops, and Scrap Dealers	1/94	5/94		
c. Schedule Collection	10/94	12/94		
d. Develop Educational Materials	6/94	12/94		
e. Advertise Collection	1/95	3/95		
f. Implement Program	4/95	8/95		
TOTAL DIVERSION			2.7%	7.6%

10.2.5 TRANSFORMATION AND LAND DISPOSAL

Environmentally-safe disposal of wastes at landfills located within the boundaries of Los Angeles County.

By managing the wastestream in this sequence, the County will most effectively reduce the amount of waste requiring transformation and disposal, and will minimize the potential hazard of the wastestream.

10.3 OBSTACLES TO ACHIEVE GOALS

10.3.1 BARRIERS

There are several barriers that could impede our reaching mandated diversion goals by 1995, 2000, and the time beyond. The barriers to needed facilities and programs are land use-permitting, CEQA requirements, and building permits. Available capital to finance diversion programs may meet with strong public resistance to increasing taxes. There may be private investment insecurities due to the risk of unknown future financial conditions, and no existing stable markets or supplies.

Diversion programs may require increased siting of material recovery facilities (MRF)/transfer stations and composting facilities, which may confront the ubiquitous "NIMBY" philosophy - Not In My Backyard. We must overcome the reluctance of the public perception to use recyclable materials for consumption, our attitude and practice toward product purchases and trash disposal.

The South Coast Air Quality Management District requirements may inhibit program implementation. Working with refuse haulers/recyclers is difficult, as they claim their data is confidential and proprietary, and the local jurisdiction is legally unable to obtain this data. Private refuse collectors and haulers mix waste from different sources and jurisdictions, generally not recording any data in the format required by Section 18722, Title 14, California State Code of Regulations.

Other factors to consider in the implementation of diversion programs are traffic congestion and land availability in market areas in Los Angeles County, the lack of existing or planned material processing facilities converting recyclable materials to feedstock, and the rate of manufacturer's use of recyclable materials in the feedstock.

10.3.2 COLLABORATION ACTIVITY

There is collaboration between public jurisdictions for managing waste diversion programs. Currently, six groups of cities containing 63 municipalities are preparing joint and cooperative Source Reduction and Recycling Elements and Household Hazardous Waste Elements. Los Angeles County is a member of three of the groups and participates in these groups which contain a total of 44 cities. Regarding support from the private sector, there are no current cooperating material market agreements for collection, hauling and disposal, nor cooperative public education and information program agreements. The South Bay Business Environmental Coalition has been created by private businesses to interact with each other and public agencies regarding economic and regional waste management concerns. A majority of waste haulers cooperate providing recycling services to residents within unincorporated areas of the County that have implemented residential curbside recycling collection programs. Unfortunately, a majority of recyclers have not responded to Los Angeles County recycling data surveys or requests for information.

10.4 MATERIALS MARKETING PLANS

10.4.1 EFFECTIVENESS

The most effective marketing strategies are using the free enterprise system with minimal governmental regulation; maintaining an appropriate supply and demand of material; Federal, State, and local government procurement; promoting a "Buy Recycled" advertising campaign; developing recycling curriculums for primary and secondary schools; establishing waste exchange networks; and directing marketing assistance and recycling market development zones. Marketing assistance would be administered in the form of a governmental clearinghouse, listing addresses of potential buyers, requirements of major buyers, market trends, and a recycled products guide.

10.4.2 OBSTACLES

Obstacles to implement marketing strategies include government regulations; not attaining State-mandated goals; governmental procurement that may mean raising taxes to pay for higher cost of products made from recycled materials; and cost of advertising that may reduce funds to provide other government services or require raising taxes/revenues. Additional hindrances are school budget constraints, training teachers, replacement of existing educational programs; obsolescent information disseminated by companies; cost of assistance reducing funds to existing services, or requiring raising additional taxes; and property owners that may resist restrictions on land use.

10.4.3 PLANS FOR USE

The plans for local use of diverted material are: (1) green waste - daily cover on CSD landfills; chipped wood mulch to maintain County Fire Department fire prevention fire breaks, and providing compost for County parks, golf courses, or botanical gardens; (2) inert solids, concrete and asphalt - crushed portland cement and asphaltic concrete recycled into road base material; (3) tires and rubber - rubberized asphalt for road construction, reconstruction, and resurfacing; (4) paper - procurement of recycled fiber, content paper for writing tablets, letterhead, envelopes, photocopying and computers; and (5) plastic - food trays used in County facility cafeterias.

Possible action taken by the State, specifically the CIWMB to enhance the effectiveness of diversion programs and marketing of diverted materials would be: (1) provide legislation empowering local jurisdictions to require

data and information from private sectors on waste diversion and disposal quantities; (2) enacting legislation to keep this data and information confidential; (3) including legislation to require waste haulers to provide and update detailed collection route maps of areas they serve; and (4) legislation which gives local jurisdictions authority to keep confidential waste hauler's detailed collection route maps.

10.5 DIVERSION MANDATE ACHIEVEMENT

The diversion mandates will be achieved in the County through integrated source reduction, recycling, and composting activities, that effectively meet State SRRE requirements. Tables 10-1 to 10-7 indicate how and when diversion mandates are to be addressed each year from 1992 to 2000, as well as the expected level of tasks per each generator category.

10.5.1 COMPONENT INTEGRATION

The Source Reduction, Recycling, Composting, and Special Waste Components have been integrated to complement one another so the programs selected for implementation from each component achieve their maximum diversion potential. Initially, mutually exclusive objectives and target materials for each component were developed to prevent or minimize the implementation of programs that compete for a specific material or waste source. With its focus on mutually exclusive programs and activities, the County's SRRE maximizes the use of all feasible source reduction, recycling, and composting options.

Staff time required for public education and information will be shared among the components. Funding requirements for program implementation will be met by the Solid Waste Management Generation Service Charge. The Service Charge became effective October 1991.

10.5.2 METHODOLOGY

The source reduction, recycling, composting, and special wastes programs selected for implementation are designed to increase this diversion rate starting in the short-term, in order to reach the medium-term planning period goal of 50 percent diversion. During the short-term, these new programs will be implemented in coordination with existing diversion programs and planned expansion of these programs. The expected diversion is presented by component in Table 10-8. The short-term diversion mandate of 25 percent by 1995 will be met with 31.5 percent projected diversion. Likewise, the 51.9 percent projected waste diversion in 2000 will achieve the 50 percent diversion mandate.

For wastestream diversion by program, see Tables 10-9 to 10-11, which provide municipal solid waste source figures for residential, commercial, industrial, and other sources for the years 1990, 1995, and 2000, respectively.

10.5.3 COMPONENT PRIORITY DETERMINATION

Certain materials in the wastestream may be diverted from a landfill by a variety of methods. Paper, for example, is a targeted material that may be diverted from landfilling through several programs, including but not limited to, product reuse, curbside recycling, and commercial recycling.

The County of Los Angeles has set priorities for specific waste management activities within the short- and medium-term planning period. Some activities will occur early in the planning period, while others will be implemented at later dates.

TABLE 10-1
INTEGRATED PLAN SCHEDULE
1991/1992 CALENDAR YEARS

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
	Source Reduction	Back Yard Composting	11/91	DPW, WMD	SWGSC 10/91
4.6	Recycling	Single-Family Curbside Collection ° Develop Program ° Implement Program	1/90	DPW, WMD	GF/SWGSC
		Multi-Family Collection	4/91	DPW, WMD	GF
		Buy-Back Centers	12/90	DPW, WMD	GF/SWGSC
		Christmas Tree	12/91	DPW, WMD	GF/SWGSC
7.5.3	Education	Development of Programs/ Materials for Schools ° Develop Campaign and Materials ° Begin Schools Program	6/92	DPW, WMD	GF/SWGSC
		Residential Program ° Develop Campaign and Materials ° Begin Program	1/90	DPW, WMD	GF/SWGSC

NOTES: SWGSC - Solid Waste Generation Service Charge
DPW - Department of Public Works
WMD - Waste Management Division
GF - General Fund

TABLE 10-2
INTEGRATED PLAN SCHEDULE
1993 CALENDAR YEAR

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
3.6.1	Source Reduction	Xeriscaping Guidelines	1/93-12/95	DPW, WMD	SWGSC 10/91
		Backyard Composting	1/93-12/95	DPW, WMD	
		Procurement Ordinances	1/93-6/95	DPW, WMD	
		Waste Evaluation/Technical Assistance	1/93-12/95	DPW, WMD	
4.6	Recycling	Multi-Family Collection		DPW, WMD	SWGSC 10/91
		° Develop Program	1/93-5/93		
		° Implement Program	6/93-9/95		
		Material Recovery Operation		DPW, WMD	
		° Consider other jurisdictions	6/93-1/94		
		Salvaging at Solid Waste Facilities		DPW, WMD	SWGSC 10/91
		° Review Opportunities	6/93-9/93		
		° Develop Program	10/93-2/94		
		At-Source Separation		DPW, WMD Board of Supervisors	SWGSC 10/91
		° Review Existing Program	1/93-6/93		
		° Review Hauler Agreements	1/93-3/93		
		° Enact Hauler Service Ordinance	3/93-6/93		
		° Develop Franchise Arrangement	1/93-6-94		
		Buy-Back Centers		DPW, WMD Private Sector	
		° Review Feasibility	1/93-5/93		
		° Conduct Siting Study	6/93-9/93		
		° Acquire Land	10/93-2/94		
		Drop-off Facilities		DPW, WMD Private Sector	
		° Review Opportunities	1/93-5/93		
		° Program Development	6/93-9/93		
		°Implement Program	10/93-5/95		
		CSD Green Waste Cover Project		DPW, CSD Board of Supervisors	
		° Develop Ordinance	1/93-5/93		
		° Review Hauler Opportunity	6/93-9/93		
		° Enact Hauler Service Ordinance	10/93-1/94		

Notes: SWGSC - Solid Waste Generation Service Charge
DPW - Department of Public Works
WMD - Waste Management Division

TABLE 10-2 (CONTINUED)
INTEGRATED PLAN SCHEDULE
1993 CALENDAR YEAR

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
5.6	Composting	Collection		Private Sector	
		° Design Collection System	3/93-7/94	DPW, WMD	SWGSC 10/91
		Preprocessing/Waste Reduction		DPW, WMD	
		° Develop Programs	6/93-7/94		
		Composting		DPW, WMD	
		° Develop Programs	7/93-9/94		
		Regulatory Measures and Policies		DPW, WMD	
		° Conduct Market Survey	1/93-7/93		
		° Develop Procurement Guidelines	6/93-12/93		
		° Develop Product Quality Standards	10/93-5/94		
		° Develop Incentive Rates	9/93-4/94		
		° Develop/Implement Education Programs	6/93-on-going		
		° Develop/Implement Technical Assistance Program	7/93-on-going		
6.6	Special Waste	Used Tire Program			SWGSC 10/91
		° Revise County Ordinance	1/93-3/93	DPW, WMD	
		° Adopt Revised Ordinance	4/93-5/93	Board of Supervisors	
		° Implement New Process	7/93-on-going		
		Construction and Demolition Waste Program		DPW, WMD	
		° Contact Vendors	8/93-9/93		
		° Develop Educational Materials	10/93-4/94		
		° Review County Procurement Guidelines	9/93-12/93		
7.5.3	Education	Commercial/Industrial Promotion-Education Information Program		DPW, WMD	SWGSC 10/91
		° Publicize Campaign	1/93-12/95		
		° Distribute Materials	1/93-12/95		
		Technical Assistance/ Waste Evaluation		DPW, WMD	
		° Develop Technical Assistance Detailed Plans	4/93-1/94		
		° Selected Targeted Businesses	7/93-3/94		
		° Develop Detailed Plans	4/93-1/94		

NOTES: SWGSC - Solid Waste Generation Service Charge
DPW - Department of Public Works
WMD - Waste Management Division

TABLE 10-3
INTEGRATED PLAN SCHEDULE
1994 CALENDAR YEAR

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
3.5.4	Source Reduction	Solicit/Train Waste Evaluation Volunteers and/or Employees	7/94-12/95	DPW, WMD	SWGSC 10/91
		Possible Revisions to Tax, Land Use, Building Codes	1/94-12/95	DPW, WMD Board of Supervisors	
4.6	Recycling	Support Regional Development of Material Recovery Facility	Current	DPW, WMD	
		Salvaging at Solid Waste Facilities		DPW, WMD	
		° Implement Program	3/94-9/94		
		Buy-Back Centers		DPW, WMD	SWGSC
		° Initiate CEQA and Local Approvals	3/94-9/94	Private Sector	10/91
		° Construction	9/94-3/95		
5.6	Composting	Regulatory Measures and Policies		DPW, WMD Board of Supervisors	SWGSC 10/91
		° Develop Ordinances	7/94-6/95		
		° Develop Business License Provisions	2/94-8/94	DPW, WMD	
6.6	Special Waste	White Goods		DPW, WMD	SWGSC 10/91
		° Contact Private Hauler	1/94-5/94		
		° Contact Dealers	1/94-5/94		
		° Schedule Collection	10/94-12/94		
		° Develop Educational Materials	6/94-12/94		
		Used Tire Program		DPW, WMD	
		° Develop Permit Instructions	1/94-5/97		
		Construction and Demolition Waste Program		DPW, WMD Board of Supervisors	
		° Revise County Procurement Guidelines	1/94-1/95		
7.5.3	Education	Technical Assistance/Waste Evaluations		DPW, WMD	SWGSC 10/91
		° Perform Waste Audits on Solicited Businesses	5/94-11/94		
		° Develop Training Program for SRRE Representatives	7/94-3/95		
		° Promote SRRE Program and Recruit Representatives	8/94-12/95		
		° Instruct/Train SRRE Representatives	9/94-12/95		
		° Supervise/Monitor SRRE Representatives	9/94-12/95		

NOTES: SWGSC - Solid Waste Generation Service Charge
DPW - Department of Public Works
WMD - Waste Management Division

TABLE 10-4
INTEGRATED PLAN SCHEDULE
1995 CALENDAR YEAR

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
4.6	Recycling	Material Recovery Operation		DPW, WMD	SWGSC 10/91
		° CEQA and Local Approvals	6/95-12/95		
6.6	Special Waste	White Goods			SWGSC 10/91
		° Advertise Collection	1/95-3/95	DPW, WMD	
		° Implement Program	4/95-8/95		
7.5.3	Education	Technical Assistance		DPW, WMD	SWGSC 10/91
		° Publicize results of Waste Evaluations	2/95-5/95		
		° Supervisor/Monitor SRRE Reps.	5/95-12/95	DPW, WMD	

NOTES: SWGSC - Solid Waste Generation Service Charge
DPW - Department of Public Works
WMD - Waste Management Division

TABLE 10-5
INTEGRATED PLAN SCHEDULE
1996 CALENDAR YEAR

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
3.5.4	Source Reduction	Backyard Composting			SWGSC
		°Provide composting units, if needed	1/96-1/2000	DPW, WMD	10/91
		Procurement Ordinances	1/96-1/2000		
		°Revision to County Codes to Require Purchase of Recycled Products	1/96-1/2000		
		Waste Audit Assistance	1/96-1/2000		
		Xeriscaping	1/96-1/2000		
4.6	Recycling				
		Buy-Back Center		DPW, WMD	SWGSC
		°Review opportunities	1/96-3/96		10/91
		°Implement program	4/96-12/96		
		At-Source Separation	1/96-12/2000		
		Christmas Tree	11/96-2/97	DPW, WMD	
		CSD Green Waste Cover project	1/96-1/97	CSD, DPW, WMD	
		Material Recovery Operations		Private Sector	
		°Encourage Private Industry	1/96-6/97		
		Salvaging at Solid Waste Facilities	1/96-12/2000	Private Sector, CSD	
		Single-Family Curbside Collection	1/96-12/2000	DPW, WMD	
		Drop-off Facilities		DPW, WMD	
		°Review opportunities	1/96-3/96		
		°If warranted, determine additional requirements	4/96-12/96		
		Multi-Family Collection		DPW, WMD	
		°Review opportunities	1/96-5/96		
		°Determine additional requirements	5/96-1/97		
5.6	Composting				
		Preprocessing/Waste Reduction		Private Sector	SWGSC
		°Review processing capacity	1/96-6/96		10/91
		Collection	1/96-12/2000		
		Composting			
		°Examine diversion patterns	1/96-6/96	DPW, WMD	
		°Encourage private sector	1/96-12/2000		
		Support Measures		DPW, WMD	
		°Develop/implement yard waste diversion bins	1/96-6/96		
		°Implement fines for illegal disposal	1/96-6/96	DPW, WMD	
6.6	Special Waste				
		Construction and Demolition	1/96-12/2000	DPW, WMD	SWGSC
		Used Tires	1/96-12/2000		10/91
		White Goods	1/96-12/2000		
7.7	Education				
		Residential Promotion		DPW, WMD	SWGSC
		°Refine campaign and materials	1/96-12/99		10/91
		°Publicize	1/96-12/99		
		°Distribute materials	1/96-12/99		
		°Expand programs	1/96-12/99		
		Development of Programs/Materials for Schools		DPW, WMD	
		°Adoption of school programs	1/96-12/99		
		°Hold workshops/discussions	1/96-12/99		
		Commercial/Industrial Promotion Education Information Program		DPW, WMD	
		°Expand Campaign and Materials	4/96-12/99		
		Technical Assistance/Waste Evaluations		DPW, WMD	
		°Publicize Results	7/96-12/99		

NOTES: SWGSC - Solid Waste Generation Service Charge DPW - Department of Public Works
WMD - Waste Management Division

TABLE 10-6
INTEGRATED PLAN SCHEDULE
1997 CALENDAR YEAR

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
4.6	Recycling	Christmas Tree	11/97-2/98	DPW, WMD	SWGSC 10/91
5.6	Composting	Support Measures		DPW, WMD	SWGSC 10/91
		°Develop Source Separation Ordinances	1/97-6/97		
7.5.3	Education	Residential Promotion		DPW, WMD	SWGSC 10/91
		°Develop/Conduct Seminars	11/97-12/99		
		Commercial/Industrial Promotion Education Information Program		DPW, WMD	
		°Develop/Conduct Seminars	1/97-12/99		
		Technical Assistance/Waste Evaluations		DPW, WMD	
		°Expand Role of SRRE Representative	11/97-12/99		

NOTES: SWGSC - Solid Waste Generation Service Charge
DPW - Department of Public Works
WMD - Waste Management Division

TABLE 10-7
INTEGRATED PLAN SCHEDULE
1998/1999/2000 CALENDAR YEARS

Section No.	Component	Task	Start-Milestone Dates	Responsible Staff	Funding Source(s) Availability
3.5.4	Source Reduction	Procurement Ordinance Grocery Bag User Fee (Optional)	1/98-1/2000	DPW, WMD	SWGSC 10/91
4.6	Recycling	Christmas Tree	11/98-2/99 11/99-2/2000	DPW, WMD	SWGSC 10/91
5.6	Composting	Support Measures		DPW, WMD	SWGSC 10/91
		°Develop/Implement Punitive Rate	1/98-6/98		

NOTES: SWGSC - Solid Waste Generation Service Charge
DPW - Department of Public Works
WMD - Waste Management Division

TABLE 10-8
WASTE STREAM DIVERSION BY COMPONENT

PROGRAM COMPONENT	DIVERSION PERCENTAGE	
	Short Term 1991-1995	Medium Term 1995-2000
Source Reduction	3.7%	5.2%
Recycling	24.1%	35.6%
Composting	1.0%	3.0%
Special Waste	2.7%	7.6%
Total Annual Diversion	31.5%	51.9%

Table 10-9
Annual Diversion by Program 1990
County of Los Angeles Unincorporated Area
(Tons per Year)

WASTE TYPE/PROGRAM	MUNICIPAL SOLID WASTE SOURCE				Total Diversion	
	Residential	Commercial	Industrial	Other*	Tons	(%)
1. SOURCE REDUCTION						
a. Yardwaste						
- Backyard Composting	2,330	0	0	0	2,330	0.20
- Grasscycling	0	14,019	0	0	14,019	1.30
- Xeriscaping	0	0	0	0	0	0
b. Manure (Composting)	0	0	0	0	0	0
c. Waste Evaluation and Assistance	0	0	0	0	0	0
d. Residential Education	1,015	0	0	0	1,015	0.10
TOTAL SOURCE REDUCTION	3,345	14,019	0	0	17,364	1.6
2. RECYCLING						
a. Buy-Back	9	0	0	0	9	0.0
b. Curbside						
- Single-Family	6,713	0	0	0	6,713	0.6
- Multi-Family	79	0	0	0	79	0.0
c. Drop-Off	0	0	0	0	0	0.0
d. Landfill Salvaging	0	0	0	0	0	0.0
e. At-Source Separation	0	0	0	0	0	0.0
f. Material Recovery Facility/ Transfer Station	12,982	17,780	7,958	0	38,720	3.5
TOTAL RECYCLING	19,783	17,780	7,958	0	45,521	4.1
3. COMPOSTING						
a. Yardwaste	0	0	0	0	0	0.0
TOTAL COMPOSTING	0	0	0	0	0	0.0
4. SPECIAL WASTES						
a. White Goods	281	0	0	0	281	0.02
b. Tires and Rubber	737	703	352	0	1,792	0.16
c. Construction/Demolition Waste	0	0	420	0	420	0.04
TOTAL SPECIAL WASTES	1,018	703	772	0	2,493	0.2
TOTAL DIVERSION	511,964	323,151	172,056	35,522	1,042,693	5.9
TOTAL DISPOSED	24,146	32,502	8,730	0	65,378	
TOTAL GENERATION	536,110	355,653	180,786	35,522	1,108,070	

NOTE: *Includes Marine Waste

Table 10-10
Annual Diversion by Program 1995
County of Los Angeles Unincorporated Area
(Tons per Year)

WASTE TYPE/PROGRAM	MUNICIPAL SOLID WASTE SOURCE				Total Diversion	
	Residential	Commercial	Industrial	Other	Tons	(%)
1. SOURCE REDUCTION						
a. Yardwaste						
- Backyard Composting	2,059	0	0	0	2,059	0.16
- Grasscycling	9,445	20,801	4,564	0	34,810	2.78
- Xeriscaping	741	0	0	0	741	0.06
b. Manure (Composting)	0	0	0	0	0	0.00
c. Procurement Ordinances	220	6,530	1,119	0	7,869	0.63
d. Waste Evaluation and Assistance	0	504	0	0	504	0.04
TOTAL SOURCE REDUCTION	12,465	27,835	5,683	0	45,983	3.7
2. RECYCLING						
a. Buy-Back	11,535	0	0	0	11,535	0.92
b. Curbside						
- Single-Family	31,133	0	0	0	31,133	2.48
- Multi-Family	3,445	0	0	0	3,445	0.27
c. Drop-Off	2,575	0	0	0	2,575	0.21
d. Landfill Salvaging	0	830	830	0	1,660	0.13
e. At-Source Separation/Collection	0	29,185	27,560	0	56,745	4.53
f. Private Sector Material Recovery Facility/ Transfer Station	36,004	50,539	24,491	0	111,034	8.86
g. CSD Green Waste Cover Project	54,081	24,961	4,160	0	83,202	6.64
h. County Christmas Tree Recycling	558	0	0	0	558	0.04
TOTAL RECYCLING	139,331	105,515	57,041	0	301,887	24.1
3. COMPOSTING						
a. Yardwaste	12,537	0	0	0	12,537	1.0
TOTAL COMPOSTING	12,537	0	0	0	12,537	1.0
4. SPECIAL WASTES						
a. White Goods	629	0	0	190	819	0.07
b. Tires and Rubber	3,497	3,410	3,844	76	10,827	0.86
c. Construction/Demolition Waste	8,715	1,962	11,055	557	22,289	1.78
TOTAL SPECIAL WASTES	12,841	5,372	14,899	823	33,935	2.7
TOTAL DIVERSION	177,174	138,722	77,623	823	394,341	31.5
TOTAL DISPOSED	429,609	263,710	126,727	39,295	859,342	
TOTAL GENERATION	606,783	402,432	204,350	40,118	1,253,683	

Table 10-11
Annual Diversion by Program 2000
County of Los Angeles Unincorporated Area
(Tons per Year)

WASTE TYPE/PROGRAM	MUNICIPAL SOLID WASTE SOURCE				Total Diversion	
	Residential	Commercial	Industrial	Other	Tons	(%)
1. SOURCE REDUCTION						
a. Yardwaste						
- Backyard Composting	4,642	572	344	0	5,558	0.39
- Grasscycling	16,989	24,665	6,834	0	48,488	3.42
- Xeriscaping	2,123	355	213	0	2,691	0.19
b. Manure (Composting)	1,383	2,385	0	0	3,768	0.27
c. Procurement Ordinances	625	9,360	2,397	0	12,382	0.87
d. Waste Evaluation and Assistance	0	1,141	0	0	1,141	0.08
TOTAL SOURCE REDUCTION	25,762	38,478	9,788	0	74,028	5.2
2. RECYCLING						
a. Buy-Back	15,796	0	0	0	15,796	1.11
b. Curbside						
- Single-Family	49,959	0	0	0	49,959	3.52
- Multi-Family	5,255	0	0	0	5,255	0.37
c. Drop-Off	4,296	0	0	0	4,296	0.30
d. Landfill Salvaging		1,250	1,250	0	2,500	0.18
e. At-Source Separation		58,669	58,381	0	117,050	8.25
f. Private Sector Material Recovery Facility/ Transfer Station	0	115,387	51,288	0	232,070	16.36
g. CSD Greenwaste Cover Project	65,395	45,904	11,809	0	83,205	5.90
h. County Christmas Tree Recycling	25,492	0	0	0	559	0.04
	559					
TOTAL RECYCLING	164,793	217,758	121,840	0	510,690	36.1
3. COMPOSTING						
a. Yardwaste	42,552	0	0	0	42,552	3.00
TOTAL COMPOSTING	42,552	0	0	0	42,552	3.0
4. SPECIAL WASTES						
a. White Goods	830	0	0	251	1,081	0.08
b. Tires and Rubber	4,748	4,630	5,219	103	14,700	1.04
c. Construction/Demolition Waste	36,334	8,177	46,091	2,323	92,925	6.55
TOTAL SPECIAL WASTES	41,912	12,807	51,310	2,677	108,706	7.6
TOTAL DIVERSION	275,019	269,043	182,938	2,677	735,977	51.9
TOTAL DISPOSED	411,500	186,272	48,266	42,712	682,450	
TOTAL GENERATION	686,519	455,315	231,204	45,390	1,418,427	

a. Criteria

Priorities were based on regulatory, technical, institutional, and economic considerations.

Priorities and timing were determined by considering the following nine factors: 1) location of the component in the waste management hierarchy; 2) ranking of the various component activities as a result of the alternatives evaluation process described in Chapter 3, and used in each appropriate component; 3) waste stream composition and each component's effectiveness in reducing the volume, weight, or hazard of the targeted waste; 4) extent of current usage successfully operating within the County; 5) cost-effectiveness, both short and medium term; 6) program implementation convenience; 7) availability of waste materials; 8) time factors necessary to achieve diversion; and 9) highest diversion percentage. Using these factors, components have been prioritized to best achieve the goal of integrated waste management for the County.

b. Components

The Source Reduction Component begins in January 1993, with these programs: backyard composting, in-house procurement and education, waste audit assistance programs, the use of cloth diapers in County hospitals, and xeriscape landscaping.

Between January 1991 and January 1993, curbside, multi-family, and commercial recycling programs are scheduled for implementation. Residential curbside, buy-back and drop-off programs currently have the highest diversion percentage, and began January 1991. Christmas Tree Recycling began in December 1991, and technical assistance will be available June 1993; commercial collection and industrial collection to begin by June 1993; and other source collection begins January 1994.

Three composting programs will be implemented in the following order: 1) yardwaste composting; 2) at-source separation ordinance; and 3) at-source collection implementation.

The Special Waste Component has three programs prioritized based on diversion goals: 1) Construction and Demolition Waste Program (asphalt and concrete); 2) White Goods Program; and 3) Used Tire Program (rubberized asphalt). See Integrated, Tables 10-1 through 10-6.

10.6 INTEGRATED PLAN SCHEDULE

The Integrated Plan Schedule for implementation of the County's SRRE and achievement of diversion mandates is illustrated in Tables 10-1 through 10-6. The tables list various implementation tasks for new and expanded programs, responsible agencies for each task, funding sources, and start and milestone dates for completion of tasks. Not all tasks have been identified at this time. As each program becomes

fully designed and developed, all known implementation tasks will be detailed. Ongoing programs are not addressed in these tables because they are included in each of the individual components. It is organized to show how required activities will be integrated for each year of both the short-term planning period, 1991 through 1995, and medium-term planning period, 1996 through 2000.

The County recognizes and plans to implement integration of educational and informational media to promote several County-sponsored or supported source reduction, recycling, composting activities, or combination of the three; 2) integration of County staff time requirements among the various components, in order to execute activities in the most time and cost-effective manner; and 3) integration of funding requirements for those programs that can potentially share resources.

There are both advantages and disadvantages with the proposed programs or actions. Diversion programs may be analyzed in terms of costs and benefits. The following tables illustrate program effects.

1. Source Reduction

A. Costs	
Description	Annual Cost
1. Program Development/Implementation	$ 587,500
2. Monitoring and Evaluation	94,000
3. Education	128,500
Total Annual Cost*	$ 810,000
B. Benefits	
1. Conservation of natural resources by reducing our mass consumption habits.	

* Total annual cost represents an average over three-year period.

2. Recycling

A. Costs	
Description	Annual Cost
1. Development/Implement ation	$ 290,000
2. Monitoring/Evaluation	160,000
3. Education/Public Information	500,000
Total Annual Cost*	$ 950,000
B. Benefits	
1. Conservation of natural resources by reusing consumed materials	
2. Growing public acceptance of recycling	

3. Composting

A. Costs	
Description	Annual Cost
1. Development/Implement ation	$ 290,000
2. Monitoring/Evaluation	55,000
3. Education/Public Information	65,000
Total Annual Cost*	$410,000
B. Benefits	
1. Current waste transformed into resource	
2. Low environmental impact	
3. Growing public acceptance of composting	

* Total annual cost represents an average cost over three-year period

4. Special Waste

A. Costs	
Description	Annual Cost
1. Development/Implementation	$ 31,000
2. Monitoring/Evaluation	16,000
3. Education	13,000
Total Annual Cost	$ 60,000
B. Benefits	
1. Conservation of natural resources by salvaging and reusing consumed materials such as tires, concrete, asphalt, and white goods	

5. Education

A. Costs	
Description	Annual Cost
1. Evaluation/Monitoring	$ 70,000
Total Annual Cost	$ 70,000
B. Benefits	
1. Provide guidelines and increase public awareness and participation necessary to ensure success of the component programs.	

*Total annual cost represents an average cost over three-year period.

For the summary of SRRE alternative costs for 1993 through 1995, see Table 10-12. The consumer ultimately bears the cost for programs, because governments tax for revenue to pay for services provided, and private industry increases price on products to cover costs and increase profits. In addition, waste collectors and landfill operators may increase their fees to offset the reduction of waste they are hauling or landfilling. Although the costs identified for diversion programs will affect the consumer, these programs do provide some benefits. The environment benefits as it is preserved in

its natural state providing more recreational space, natural habitats for wildlife and conservation of natural fossil fuel resources. Future generations will appreciate current efforts to reduce wasteful use of finite resources.

TABLE 10-12
SOURCE REDUCTION AND RECYCLING ELEMENT ALTERNATIVE COSTS
AVERAGE ANNUAL COSTS*

Program	Program Development/ Implementation	Monitoring/ Evaluation	Education/ Public Info.	Total Cost
1. Source Reduction	$ 587,500**	$ 94,000	$ 128,500	$ 810,000
2. Recycling	$ 290,000**	$ 160,000	$ 500,000	$ 950,000
3. Composting	$ 290,000	$ 55,000	$ 65,000	$ 410,000
4. Special Waste	$ 31,000	$ 16,000	$ 13,000	$ 60,000
5. Education	°	$ 70,000	°	$ 70,000
Total	$1,198,500	$ 395,000	$ 706,500	$2,300,000

* Based on three-year average from 1993 - 1995.
** Includes costs for demonstration projects.
° All education and public information costs, except monitoring and evaluating, have been incorporated into, and are part of, each of the other components total costs.

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