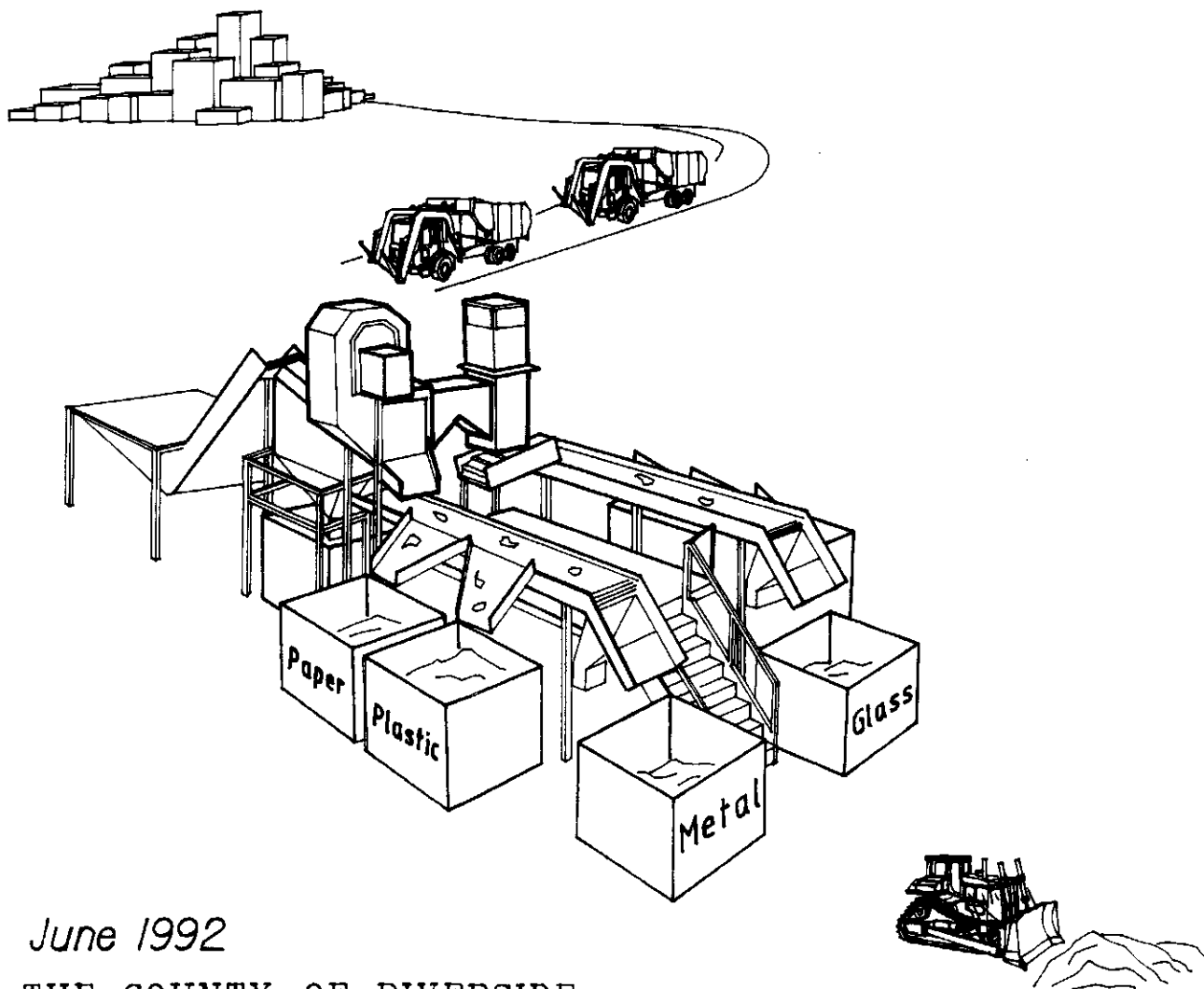


Riverside County Source Reduction & Recycling Element and Household Hazardous Waste Element



June 1992

THE COUNTY OF RIVERSIDE

WASTE MANAGEMENT

COUNTY OF RIVERSIDE

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Introduction

INTRODUCTION

The future of waste management has arrived not only in Riverside County but also throughout California and the nation. The way in which refuse in our society is handled is changing forever. Past methods of product purchasing, use, discarding and burying has given way to the development of a more conscientious, efficient and environmentally sound process.

The establishment and implementation of a more progressive integrated waste management system will result in a significant diminishment of future landfill space requirements and potential adverse environmental impacts associated with the practice of landfilling waste. This integrated system will place much more emphasis on reduction of waste at the source and maximize reuse and remanufacturing of consumer products.

Two elements of a future and more extensive Riverside County Integrated Waste Management Plan (to be developed by 1994) are presented herein. These Elements reflect comments received on the Preliminary Draft, which was distributed for comment in October 1991, which were deemed appropriate by staff and the Riverside County Solid Waste Management Advisory Council/AB 939 Local Task Force in implementing designated programs as prescribed by law.

The California Integrated Waste Management Act of 1989, enacted through passage of Assembly Bill 939 (Chapter 1095, Statutes of 1989), and accompanying authorizing legislation Assembly Bill 2707 (Chapter 1406, Statutes of 1990) created a mandate from the State to local jurisdictions to implement integrated waste management strategies in an effort to divert 25% of solid waste from landfills by 1995 and 50% by 2000. AB 939 establishes and authorizes the California Integrated Waste Management Board to impose fines of up to \$10,000 per day for each city and county jurisdiction found not to be in compliance with these mandates. Requirements of the legislation include:

- A hierarchy of waste management practices that jurisdictions within the State are to promote in the following order:

- 1) Source Reduction (reduction of waste at the source, before waste is created.)
- 2) Recycling and Composting
- 3) Environmentally safe transformation and environmentally safe land disposal

- Development of Source Reduction and Recycling Elements (SRRE) and Household Hazardous Waste Elements (HHWE) by all cities and counties which will detail to the state how the jurisdictions will meet the mandated reductions in solid waste.

- Diversion of 25% of solid waste landfilled by 1995 and 50% by 2000.

The Riverside County Source Reduction and Recycling Element and Household Hazardous Waste Element was prepared specifically for the unincorporated area. Under State mandates, cities have the responsibility of preparing, implementing and monitoring plans for their own jurisdiction.

Source Reduction and Recycling Element

The Source Reduction and Recycling Element is composed of the following 9 components:

- Waste Generation Study
- Source Reduction
- Recycling
- Composting
- Special Wastes
- Education and Public Information
- Disposal Facility Capacity
- Funding
- Integration

The contents of each component were determined by regulations developed by the California Integrated Waste Management Board. The Source Reduction, Recycling, Composting, Special Wastes, and Education and Public Information Components follow the same basic format. The items included in each component are:

- Discussion of the existing conditions in the County which respect to each particular subject matter
- Listing of the alternative programs considered for implementation
- Evaluation of the alternative programs (this section is not required for the Education and Public information Component)
- Discussion of existing programs and those selected for implementation
- Implementation schedule detailing the tasks necessary to complete for implementation of each program, the agency responsible for implementation, the time line in which each task will be implemented and the estimated cost of implementation of each program.
- Discussion on the monitoring and evaluating methods the County will assume to determine success in meeting mandated diversion goals and success of each implemented program.

The alternative program evaluation for each component can be found in Appendix B. The Appendix includes the 10 criteria required by the state to be considered, the scoring method and scoring sheet for each component.

The remaining components do not follow a standard format.

It should be noted that throughout the document 1995 and 2000 are referred to as the years in which the unincorporated area must reach the mandated 25% and 50% waste stream reductions respectively. Because the law states January 1, as the date for the achievement of these goals, the data utilized is from 1994 and 1999 even though the tables are labeled 1995 and 2000. The sole exception is in the 15-year waste stream projections found in the Disposal Facility Capacity Component. In these tables 1994 and 1999 are shaded to depict the years in which the County must be able to quantify the 25% and 50% diversions.

The County has selected some programs for implementation which may require revisions to solid waste facilities permits issued by the California Integrated Waste Management Board. Even though the implementation tables and ensuing text may not mention the need for permit revisions, the County is aware of the need to revise permits for some of its' selected programs.

Household Hazardous Waste Element

The Household Hazardous Waste Element is formatted similar to the Source Reduction, Recycling, Composting and Special Wastes Components of the Source Reduction and Recycling Element. The two additions to this element are a discussion of the public education activities with respect to household hazardous waste collection and management, and a funding discussion.

Additional Waste Management Department Reports

The Waste Management Department is in receipt of several additional reports which have contributed substantial information to the development of the County SRRE/HHWE. Following is a summary of each report.

Residential Refuse Collection and Curbside Recycling Study, November, 29, 1990

This study was completed for both the Health Department and the Waste Management Department. It researched the costs of providing residential refuse collection and residential curbside recycling and determined a range of rates for each activity. The County undertook this study in order to update the rates for refuse collection and set a fee for curbside recycling.

County of Riverside Waste Diversion Incentive Study, February 7, 1991

The Waste Diversion Incentive Study provided a conceptual framework for the use of economic incentives (tipping fees) to encourage the development and use of material recovery facilities. Two scenario's were considered: private ownership and operation of MRF's and public ownership/private operation of MRF's.

Riverside County System Cost Study, July 11, 1991

The objective of the System Cost Study was to project the estimated future solid waste facility program needs and associated financial requirements. The study examined the existing solid waste system, identified the needs of the active and inactive landfills and the requirements for new waste processing facilities.

This study provided the overall cost assumptions used in the SRRE & HHWE for the development of material recovery facilities (MRF's), composting facilities and the construction of permanent household hazardous waste collection centers at MRF's.

Executive Summary

EXECUTIVE SUMMARY

I OVERALL COUNTY APPROACH

The mandates of Assembly Bill 939 requires that local jurisdictions assume control and manage their entire solid waste stream as an integrated system throughout this decade and beyond. Due to the punitive powers of the California Integrated Waste Management Board, it is imperative that unincorporated Riverside County implement a complete waste reduction program in order to meet the mandated waste stream reductions in the amount generated (729,000 tons projected for 1995).

Existing recycling and waste diversion activities including the residential curbside recycling program, separate commercial collection of recyclable materials, state-permitted composting facilities and private recycling centers will provide the initial framework. Additional programs, educational activities and facilities will be necessary in order to assure compliance with the state mandates.

In order to assist in achieving the mandated diversion goals, Riverside County in concert with its' municipalities is developing a proposal for a regional network of waste processing facilities to integrate with it's current landfill system. This regional approach allows for a variety of facilities capable of processing a wide range of waste types. This approach will also incorporate the larger, more cost effective facilities, resulting in important cost savings for all participants.

The County, Cities and Councils of Governments will work together to develop the system to be implemented, the roles and responsibilities of respective parties and financial parameters. The network of facilities would be strategically placed to effectively serve the population centers in the entire County. Facilities within the system may include MRF's, composting facilities, wood chipping facilities, source-separated recyclables processing facilities, construction and demolition debris processing facilities and other appropriate processing systems, including the continual disposal of residuals at County landfills.

II COMPONENT SUMMARY

The Source Reduction and Recycling Element is composed of the following 9 components: Waste Generation Study Analysis, Source Reduction, Recycling, Composting, Special Wastes, Education and Public Information, Disposal Facility Capacity, Funding and Integration. The Household Hazardous Waste Element is a separate set of programs which provides for household hazardous waste management, collection and educational programs. Each of these components will be summarized in this section. The portions to be included in the document were required under state regulations. Each component discusses the current waste management and/or diversion activities, programs which were considered for implementation, those selected for implementation, time lines and estimated costs of the selected programs and a monitoring and evaluation plan for the selected programs. The summary outlines the programs selected for implementation.

Waste Generation Study

The completion of a waste generation study is one portion of the state mandates. The Waste Generation Study for the Unincorporated Area of the County was completed as part of the combined study conducted under a Memorandum of Understanding executed between the County and its then twenty-three cities. The document consists of two distinct studies: 1) a waste characterization study which

details the total solid waste disposed in permitted solid waste facilities and 2) a waste diversion study which recorded the amount of materials recovered from the waste stream prior to disposal at the landfills. The outcome of the study was a representation of each jurisdiction's waste stream, according to the materials diverted, those disposed and generated (diverted plus disposed).

Table I depicts the characterization of the Riverside Unincorporated Area waste stream. Based upon this characterization, five materials comprise over half of the waste disposed in County landfills: Yard Waste (19.8%), Cardboard (9.6%), Inert Solids (9.3%), Wood Waste (9.1%) and Mixed Waste Paper (5.4%).

Table II depicts the unincorporated area's 1990 diversion rate. Please note that according to the 1990 study, the County is achieving a 25% diversion rate. The rate, however, does not include 2,950 tons of wood waste which was incinerated. Materials which are incinerated do not count toward the diversion goals until after 1995. The addition of this material brings the unincorporated area to a 25.5% diversion rate. Additionally, the majority of the material diverted is inert solids, basically concrete and asphalt. The State Integrated Waste Management Board has indicated that some inert solids may be eventually disallowed from counting towards diversion goals. In this event, the unincorporated area could plunge to as low as a 4% current (1990) diversion rate. The programs selected for implementation recognize this possibility and will be discussed in more detail in the Diversion Summary section.

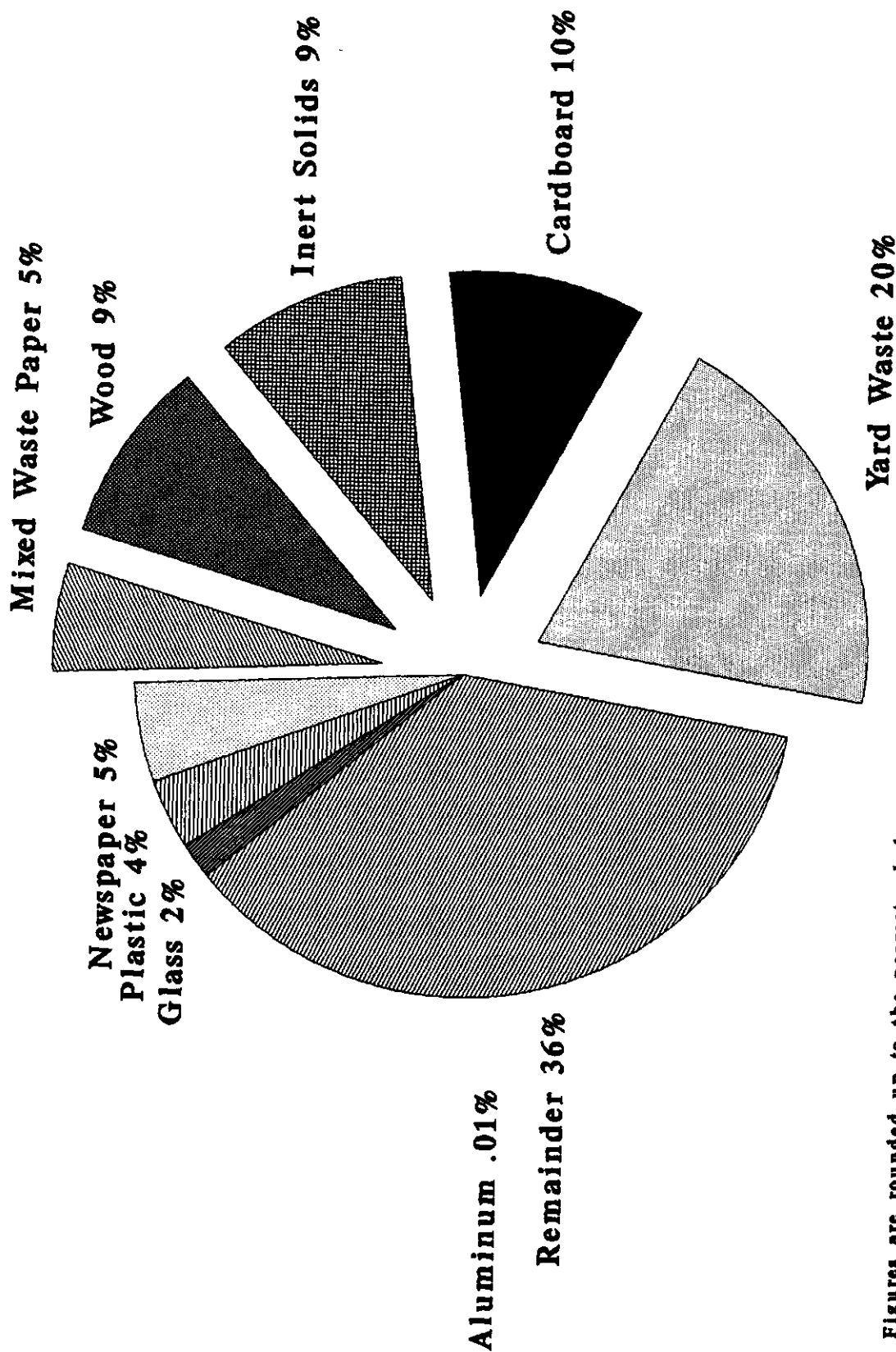
It is important to keep in mind that diversion rates achieved prior to the end of 1994 act only as an indicator to past performance but do not count separately or in the aggregate toward what must be verified to be occurring on January 1, 1995. It is for this reason coupled with the need to know quickly of any significant shifts in the composition of the waste stream that "as needed" annual updates of the Waste Generation Study were made a part of the original study contract. These follow up studies will reevaluate diversion activities and lend a needed degree of confidence that the County is on track with its program implementation in light of the potential financial penalties for non-compliance with the law.

The solid waste projections, based on 1990 data from the Waste Generation Study, forecast the amount of waste which will be landfilled, and diverted up to the year 2005. It should be noted that a decline in tonnage received at landfills has been experienced in 1991 and early 1992. It is believed that this decline is not attributed solely to new diversion programs, but substantially to the decline in the economy. Therefore, the projected amounts of solid waste entering the waste stream may be higher in the projections than realized in the future.

Diversion Summary

The diversion summary depicts the estimated diversions which will be achieved as a result of diversion programs which will be implemented in the short-term and medium-term planning period. The Riverside County unincorporated area achieved a 24.6% diversion in 1990. Nearly 22% of this present diversion consists of inert solids (construction and demolition debris) recycling. The State had indicated that some of this material may not be acceptable for diversion because of the strong infrastructure already created to handle the material. In addition, this material is highly sensitive to the economy and growth rate of the County. Due to these circumstances, the County does not believe it can rely upon all of the construction and demolition debris counting toward the mandated 25% and 50% reductions in solid waste. Therefore the programs selected for implementation need to provide the County with a combination of diversions able to meet the state mandates. Table III lists the estimated diversions,

Table I
Riverside County Unincorporated Area
1990 Waste Stream Characterization

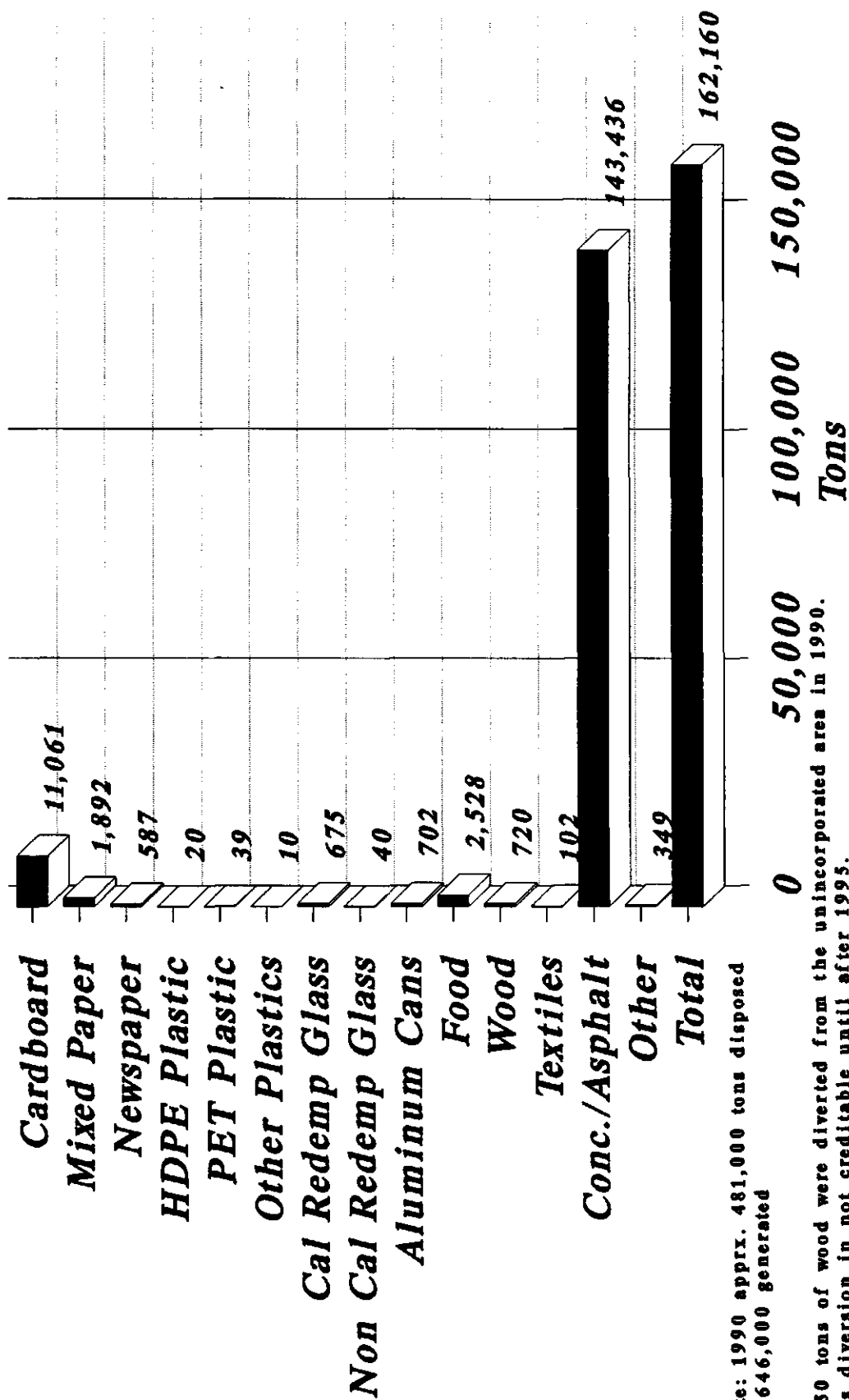


Note: Figures are rounded up to the nearest whole percent

Note: 1990 approx. 481,000 tons disposed vs 162,000 diverted

Table II
Unincorporated Area Materials Diverted
25% Diversion Rate for 1990

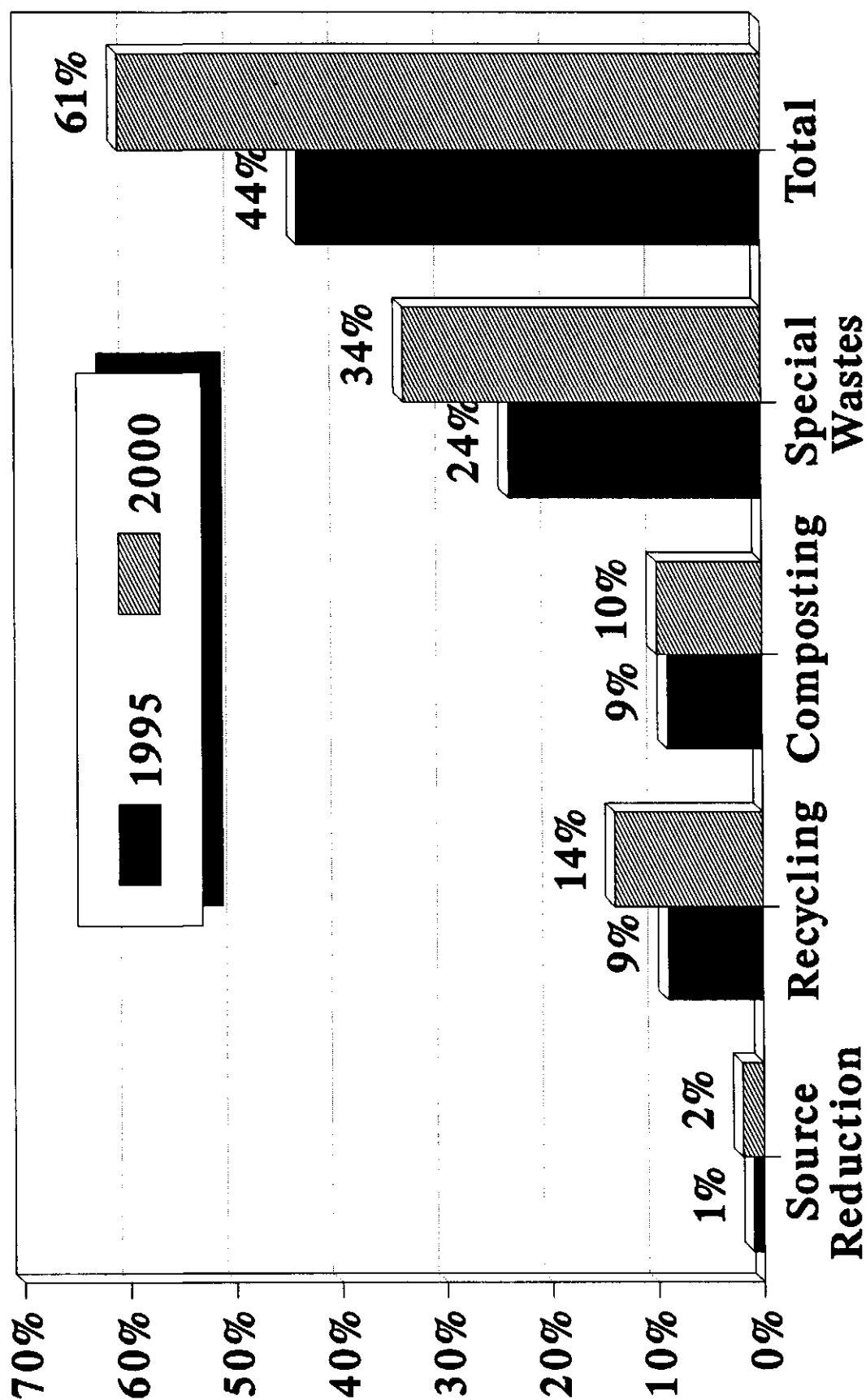
Material



Note: 1990 apprx. 481,000 tons disposed
vs. 646,000 generated

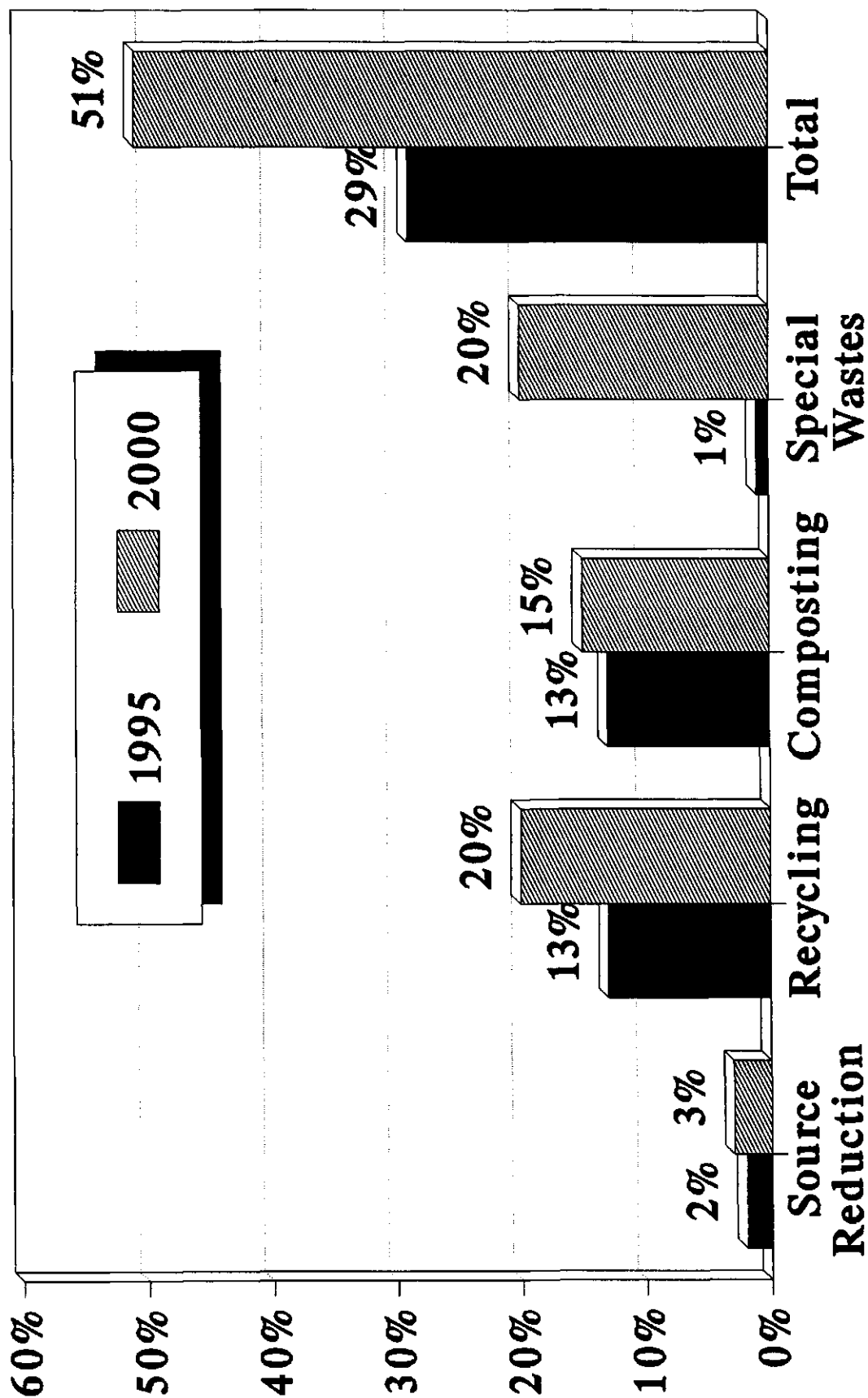
2,950 tons of wood were diverted from the unincorporated area in 1990.
This diversion is not creditable until after 1995.
Including the incinerated wood, the diversion rate is 25.5%.

Table III
Riverside County Unincorporated Area
1995 & 2000 Estimated Diversions



Diversions include Inert Solids

Table IV
Riverside County Unincorporated Area
1995 & 2000 Estimated Diversions



Diversions do not include Inert Solids

including inert solids diversion, to be achieved from each component and the total diversion estimates for 1995 and 2000. Table IV shows these estimated diversions without inert solids.

Summary of Source Reduction Component

The State of California's first level of priority in an Integrated Waste Management System is source reduction. The term source reduction refers to any action which causes a net reduction in the initial generation of solid waste. Objectives and programs outlined in this component have the expressed intent of reducing waste by ensuring that less of it is generated.

The gains achieved in the area of source reduction will not be dependent solely on the objectives and programs listed in this component. A truly integrated approach results in different components having areas of commonality that can be of benefit to the entire system. The need to change attitudes requires an ambitious education program that will promote the new approaches to waste management. Many of the programs detailed in the public education component (Chapter 7) will assist the County's efforts in the area of source reduction. The County's Curbside Recycling Program will also result in source reduction benefits since residents will be constantly reminded of the impact their purchases have on the ultimate method and personal cost of disposal. A developed predisposition for products that are recyclable will lead to an awareness that the physical characteristics of some products and/or the disposal alternatives considered in regard to them can result in the generation of less waste once they have outlived their usefulness.

The following source reduction programs were selected for implementation:

Local Participation in the State Waste Exchange Directory

Promote local business participation in the state waste exchange directory where businesses can list the waste that they generate and have available for use in others' operations.

Public Recognition Program

This program will recognize developers of products, individuals and/or agencies that participate in and/or achieve notable gains in, source reduction. One part of this program would issue a sticker that establishments that purchase recycled content products, for use in their daily work, can display in the window of their business. The overall source reduction recognition program would be part of the County recognition program for waste management issues discussed in Chapter 7 - Education and Public Information Component.

Reporting System

This program requires a study to determine the feasibility of amending existing County ordinances or creating new County ordinances to require the reporting of source reduction activities and the associated diversions achieved by commercial generators of waste.

Efficient Use of Paper in County Departments

Increase the efficient use of paper within County Departments through: double-sided copying; reuse of applicable single-sided paper as scratch paper, examination of business forms, and examination of incoming and outgoing mailing lists on a regular basis with the intention of reducing their size.

Source Reduction Education Program

Educational program to encourage residents to reduce wastes through source reduction. Strategies include, but are not limited to, media programs, retreading of tires and reduction of junk mail.

County Purchasing Program

The purchasing program would: encourage the use of reusable, repairable, recyclable materials and materials which contain recycled content, by County Departments; alter purchasing specifications to require that in all applicable proposals that constituent product materials be nontoxic in nature; purchase materials and supplies in bulk, where feasible; alter applicable purchasing specifications to specify that packaging will be made of recyclable material; and require vendors to package in bulk where appropriate.

Referral System for Household Owners of White and Repairable Goods

Referral of household owners of white and repairable goods to organizations which refurbish the items for ultimate reuse.

Use of Drought Resistant Landscape Plants

Require the use of drought resistant plants in the landscape designs of industrial, commercial and residential developments through an amendment to County Ordinance 348.

Environmental Labeling Program

Support statewide and federal legislation for an environmental labeling program at selected grocery stores and supermarkets which would educate customers on the recyclability and/or recycled content of products, among other issues, being purchased.

Technical Assistance to Businesses and Governmental Agencies

Assist unincorporated area businesses and County government in the establishment of Source Reduction Programs. This program is discussed in more detail in the Recycling and Education and Public Information Components.

Support State and Federal Laws Regarding Packaging

Monitor State and Federal legislation in order to communicate County support for those measures that would limit the amount of packaging generated and the types of packaging that induce litter and/or the emission of harmful materials/substances into the environment.

Source Reduction Curriculum for Grades K-12

Support the development of a Statewide Source Reduction Curriculum by the Integrated Waste Management Department and supplement where necessary. This program is part of a similar program in Chapter 7 - Education and Public Information, which will handle the same duties for all waste management issues.

Residential Yard Waste Management Program

This program would educate the residents on how to manage their yard waste either through a backyard composting program or by simply not bagging the grass clippings and possibly provide some equipment/materials.

Refuse Collection Rate Structure

Amend County ordinance 657 to require haulers to charge residents each month for the amount of waste they generate. Establish a volume based rate structure for refuse collection customers. Normally the resident is charged for each bag or container set out for collection.

State and Federal Laws for a Advance Disposal Fee

Promote State and Federal legislation that would impose a pre-disposal fee on certain products that would be intended to cover the final disposal cost of the product and enable the consumer to consider in making purchasing choices.

Incentives and Disincentives to Land Use Development

Evaluate land use permit ordinances/building codes to determine if amendments are warranted to remove any unnecessary barriers in order to promote source reduction activities as part of a facility's design, construction and/or operation.

White Goods Collection During Trashbuster Cleanups

Provided an avenue to unincorporated County residents during the County/hauler sponsored trashbuster cleanup to unload white goods which would either be repaired and sold as a refurbished item or dismantled and sold for the value of the metals.

Master Recycler Composter Program

This program will establish demonstration sites for waste management issues, with an anticipated focus on residential yard waste management, and educate residents on a variety of waste management issues. The program is modeled after King County, Washington's, Master Recycler Composter Program. Training sessions will held with interested residents with the focus of educating those residents on waste management issues and, after training, providing tools for the residents to set up their own speaking engagements and outreach plans.

Summary of Recycling Component

The Recycling Component includes programs aimed at the residential, commercial and industrial sectors for waste diversion. Also included are market development activities, which will increase the end-uses available for recycled materials. Market development activities are crucial in order to insure that the materials collected for recycling are actually made into other products, instead of being landfilled.

Drop-off Centers

Establish drop-off centers in the rural portions of the County, those not receiving curbside recycling services. The two areas initially identified are Anza and Desert Center.

Material Recovery Facilities

Establish a network of material recovery facilities (MRF's) capable of sorting mixed solid waste and recyclable material and conducting transfer operations for the non-recyclable portion of the waste stream to landfills.

Salvage Opportunities

Establish salvage opportunities at landfills and/or material recovery facilities.

Building Code Modifications

AB 1327 requires the State to develop a model building code ordinance to allow for space allocation for recyclable materials. Riverside County will work with CIWMB in developing a model building code ordinance, revise as necessary and adopt. The modification of Riverside County building codes to allow for space allocation for recyclable materials and support the implementation of recycling programs.

Zoning Ordinance Modifications

Support State legislation for the modification of zoning ordinances or, if legislation is not enacted, initiate a local level review and, as necessary, modification of zoning laws to allow the operation of recycling facilities in appropriate land use areas.

Billing Systems to Encourage Recycling

This program would devise, with the permitted haulers within the unincorporated County, a system(s) of billing that would encourage recycling. Current options for the achievement of this program are the variable can rate wherein residents pay for garbage collection based upon the number of cans they set out. This system is based upon usage. Another option is the two-tier tipping fee, which, conceptually, is an economical mechanism to encourage private haulers to utilize MRF's.

State/Federal Policy on Products Containing Recycled Content

Endorse and/or formulate State and Federal policy to allow recovered materials to compete fairly in the open market with virgin materials.

Technical Assistance Program

The Technical Assistance Program, which is discussed in more detail in the Education and Public Information Component, will allow the County to work with the haulers in the unincorporated area, the Cities and the State to develop uniform conversion factors for determining the amount of material (recyclable and waste) captured from multi-family dwellings to work with the haulers in the

unincorporated area to develop uniform procedures for determining participation rates in curbside recycling programs.

Private Enterprise Usage of Recyclable Products in the Manufacturing Process

Encourage, assist and promote the establishment/expansion of industries in the County which utilize recycled goods in the manufacturing process. Through the program, the County will apply for appropriate Recycling Market Development Zones. These zones are a State program designed to encourage the usage of recycled materials by the manufacturing industry.

Expansion of County Office Recycling

Expand the existing County Office Paper Recycling program into other appropriate office buildings and satellite offices (including those owned and/or leased by the County) and explore the possibility of expanding the types of materials recycled.

Anti-Scavenging Ordinance

Enacting an anti-scavenging ordinance for the residential curbside recycling program which would declare materials set at the curbside the property of the waste hauling company, make it illegal for any unauthorized person to take recyclable material from bins placed at the curb and set forth a fine schedule for infractions of the law.

Summary of Composting Component

The State of California's second level of priority in an Integrated Waste Management System includes Composting. Composting is the controlled biological decomposition of the organic fraction of the municipal solid waste stream. This organic fraction includes yard, vegetable, and wood wastes among others. The development of composting facilities and programs will be an integration portion of the attainment of the mandated reductions in solid waste since 19% of the entire unincorporated area waste stream is yard waste.

Compost Permittees to obtain Raw Materials from within Riverside County

Impose conditions on compost permittees that will require them to obtain their raw materials (i.e. sludge and yard waste, etc.) from within Riverside County before considering out-of-county sources for their feedstock.

Encouragement of Entities to Use Compost

Encouragement of entities that have a need for compost as part of their function to include its use in any specifications written for related projects.

Purchase of Compost by County Departments

Amend County purchasing policy to mandate applicable County Departments to purchase reasonably priced compost/mulch from Riverside County composting facilities when feasible.

Material Recovery Facility Yard/Wood Waste Staging/Composting Area

County to require, through the planning process, all Material Recovery Facilities (MRF's) within the unincorporated area, and encourage all MRF's within cities, to include a separate yard/wood waste staging area (Some MRF's may conduct the composting process at the site.).

Christmas Tree Recycling Program

Maintain the recycling program for Christmas trees.

Use of Compost as Cover Material

The investigation of the use of compost as cover material at County landfills.

Biomass Fuel Plant Compost Diversion

The biomass fuel plant that is located in the County will divert 30% of its woody waste/compostable material that is diverted to their processing station, to be located at the Edom Hill and Coachella Landfills, to a credit worthy composting/recycling operation.

Use of Mulch as Cover Material

The investigation of the use of mulch as cover material at County landfills.

Residential Curbside Separation and Pick-up of Yard Waste

Curbside separation and pick up of yard waste in portions of the unincorporated area of the County.

Composting Facilities

This program would increase the number of composting facilities in the County. Facility types could include: sewage sludge/yard waste composting facility(s); yard waste only composting facility(s); and/or facility(s) that will enable applicable municipal solid waste to be diverted from the unincorporated area through appropriate composting technologies.

Phased-in Ban on Yard Waste

Phase in a ban on all nonprocessed, uncontaminated yard waste from County landfills so that none of the material will be accepted for disposal, except as approved by the State for landfill cover material.

Summary of Special Waste Component

This component deals with the special wastes identified in Riverside County's waste stream. Special wastes are classified as all substances which, due to their special characteristics, require special collection, handling, treatment or disposal. The regulations developed for AB 939 define special wastes as:

...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.

This component discusses the current disposal and/or recycling practices for special wastes, identifies programs for proper handling and recycling all applicable wastes and includes a monitoring and evaluation plan for those programs.

Wood Grinding

Encourage the siting/usage of a wood grinding operations that will divert root balls, tree trunks and other hard-to-handle pieces of wood.

Tire Recycling Facility

In cooperation with the Incorporated Cities, encourage the siting of a tire recycling facility within Riverside County or the region.

Alternative Disposal Methods for Tires

In cooperation with the Incorporated Cities, investigate alternative disposal/reuse methods for tires.

Demolition Material Recycling Facilities

Encourage development of demolition material recycling facilities in Riverside County.

Adequate Wastewater Treatment Capacity

Encourage dedication of adequate wastewater treatment capacity when plants are proposed or expanding.

Alternative Treatment Disposal and/or Recycling Facilities

Encourage development of alternative liquid/sludge disposal, treatment and/or recycling facilities.

Septic Tank Maintenance Districts

Investigate, through the Department of Environmental Health, the potential for establishing Septic Tank Maintenance districts to ensure that proper maintenance is performed to reduce or eliminate failures and to provide for an acceptable disposal site for wastes generated within the district.

Increased Charges for Septage and other Applicable Liquid Wastes

Investigate the need to increase the per ton charge for septage and other applicable liquid wastes to encourage their disposal at wastewater treatment facilities.

Source Reduction of Special Wastes

Promote source reduction of special wastes through alternative technologies.

Street Sweeping Materials

Research constituent materials in street sweeping waste and evaluate the applicability of reuse methods.

Source Reduction, Recycling and Reuse of Incinerator Ash

Encourage all incineration facilities within the County to utilize appropriate methods to source reduce, recycle their ash and, if necessary, investigate alternatives to landfilling incinerator ash.

Sludge Management Plans

Work with other agencies to encourage all treatment facilities to develop sludge management plans.

Rate Incentives for Recyclable Special Wastes

Investigate the need for rate incentives on recyclable special wastes, including concrete/asphalt, demolition debris, tree trunks and other hard-to-handle wood wastes and white goods to further encourage recycling.

Summary of Education and Public Information Component

Public education is one of many important components of any program aimed at changing the practices of residents and businesses in response to state law and local ordinances. It is paramount that any education program be ongoing. Consistent education of residents and businesses is necessary in order to achieve the mandated diversion goals of 25% by 1995 and 50% by 2000.

The Education and Public Information Component outlines the County's strategy to providing information to the public on the implemented source reduction, recycling, composting and special waste programs, along with generalized information regarding waste management issues. The public information campaign will begin immediately and will continue throughout the course of each waste management program.

The following is a listing of the public information and education programs to be implemented by Riverside County:

Press Releases/Public Service Advertising

Ensure that public service announcements and press releases are processed to publicize new programs, one-day events and major milestones for ongoing events.

Mass Mailings to Unincorporated County Residents

The Waste Management Department will endeavor to develop and distribute, either through bill inserts or direct mail, information to County residents regarding source reduction, composting, recycling and the safe disposal of wastes.

Generalized Publicity Campaigns

The Waste Management Department, with the cooperation of the County Public Information Officer, will conduct countywide publicity campaigns on specific programs, including, but not limited to, curbside recycling, the recycled product awareness campaign, and source reduction.

Countywide Logo

Develop a logo for the County waste reduction programs which can be used Countywide.

Brochures

Develop and print for distribution brochures on waste management issues and programs. This will include, but not be limited to: residential recycling, residential source reduction, business source reduction, waste management issues, business recycling, the importance of procuring recycled goods and litter control. Methods of distribution will include, but not be limited to, handouts at presentations, direct mailings, and for specific requests for additional information. In addition, brochures on specific activities, such as encouraging the utilization of mobile demolition recycling equipment/contractors will be developed and distributed at key public information counters (i.e. the Planning and the Building and Safety Departments).

Speaking Engagements

The Waste Management Department will endeavor to participate in organizational functions including, but not limited to civic, business, industry and homeowners groups by speaking on waste management and recycling issues (brochures will be available to distribute to all participants).

Recycling Hotline

Establish a recycling hotline which could provide information to residents on the locations of buy-back centers, the subjects on which the department has informational brochures and generalities on the curbside recycling program. This hotline could be handled through an automated telephone system.

Curriculum Guides

Support the development of Statewide recycling curriculum by the Integrated Waste Management Board and supplement where necessary. Until this curriculum is developed, the Waste Management Department will endeavor to publicize recycling curricula already available and provide assistance where applicable. Support could include, but would not be limited to, distribution of additional information on local activities to teachers within all school districts within the County.

Recognition Program

Develop a recognition program for residents and business(es) participating in source reduction, recycling and/or composting. Publicity regarding acceptance of nominations would be countywide and awards would endeavor to be concurrent with a County-sponsored fair focusing on waste management issues. Award presentations are anticipated to occur annually and winners would be widely publicized.

Technical Assistance Program

The Technical Assistance Program has two main segments: 1) assisting commercial, industrial and governmental agencies in increasing the amount of waste they recover, reuse and/or source reduce through recycling; 2) working with the haulers in the unincorporated area, the Cities and the State to develop uniform conversion factors for determining the amount of material (recyclable and waste) captured from multi-family dwellings.

Video Programs

The Department will pursue the acquisition of video programs focused on specific and general waste management issues. Should the quality of video programs available for purchase prove unsatisfactory, the Department will endeavor to produce its' own video program(s). Along with these video's, a media library(ies) will be set up to house them. Videos would be available on loan to public entities (including schools). The video may also be used to publicize waste management issues through airing on local cable television stations, and as introductions to presentations.

Video Information Center

The Waste Management Department will establish a "video information center" which would consist of a stationary, automatic video machine playing prerecorded messages on source reduction, recycling and other waste management issues. These centers may be established at either a County building maintaining high foot traffic or in conjunction with an informational center on recycling issues.

Newsletters on Waste Management Issues

Develop a newsletter devoted to waste management/environmental issues. The recipients could include, but would not be limited to other County agencies, City agencies, Chambers of Commerce, industry organizations and interested businesses and citizens. This newsletter could be devoted to waste management issues or could be a combination of other environmental issues of interest to the selected population. The Department will endeavor to publish the newsletter in-house with printing by County printing staff in order to economize.

Regional and Countywide Fairs and Events

The Waste Management Department will pursue the participation in regional and countywide events, such as the National Date Festival and Hemet Fair. This participation will include, but not be limited to, setting up booths from which to distribute information on waste management issues.

Recycled Product Awareness Campaign

Pursue a recycled products awareness campaign which would publicize the use of recycled products by the private sector. This program could, after verification of a purchase of recycled products, issue stickers to businesses using recycled products in daily work to display in the window of the business. A simultaneous campaign would be used to publicize to residents the implementation of this program and urge their patronage of those participating businesses.

Community Education Workshops

Develop community education workshops which would educate residents about integrated waste management issues and programs. These sessions could be offered by either the Waste Management Department or a consultant. Efforts should be made to coordinate with cities on the sessions. The workshops would focus on specific issues including, but not limited to, curbside recycling, source reduction, composting, recycled products, and entrepreneurship in recycling. These sessions would be offered at various locations throughout the County. All workshops would be free to participating residents and businesses.

Purchase and Distribution of "Novelty Items"

Pursue the purchase of "novelty items". These novelty items could include, but would not be limited to, refrigerator magnets, key chains, stickers for automobiles and/or notebooks. Distribution could take place at fairs attended by the Department, speaking engagements and school presentations. These items could provide a useful purpose for residents while also keeping recycling messages in front of the user.

Environmental Labeling Program

Support statewide legislation for an environmental labeling program at selected grocery stores and supermarkets which would educate consumers on the hazardous content and recyclability of packaging and individual consumer goods.

Master Recycler Composter Program

This program will establish demonstration sites for waste management issues, with an anticipated focus on residential yard waste management and educate residents on a variety of waste management issues. The program is modeled after King County, Washington's, Master Recycler Composter Program. Training sessions will held with interested residents with the focus of educating those residents on waste management issues and, after training, providing tools for the residents to set up their own speaking engagements and outreach plans. This is the same program discussed in Chapter 3 - Source Reduction Component.

Summary of Facility Capacity Component

The Solid Waste Facility Capacity Component discusses the existing and planned waste management facilities for Riverside County and identifies the facility capacity needs of the County's landfill system over the next 15 years. While the law requires capacity only for the unincorporated area, this component shows enough capacity for both the unincorporated and the incorporated areas of the County.

Summary of Funding Component

The funding summary shows the estimated short-term (1990 -1995) costs of implementing the selected diversion programs and the primary mechanism commonly used to finance such programs and facilities. The Component is arranged in two sections. Part I discusses the programs selected for implementation for the unincorporated area of Riverside County, while part II discusses the proposed Countywide system of waste management facilities. Table V shows the estimated cost of implementing and maintaining the selected diversion programs. It is anticipated that the majority of the costs for implementing the programs will be borne by the Waste Management Department. Staff costs, which will be paid for by both the Waste Management Department and other affected agencies, are not included in these figures. It is estimated that approximately 31,250 Waste Management Department staff hours and 6,300 hours from other public agencies will be required to implement the programs selected for the short-term period.

Table V Summary of Estimated Short-Term PUBLIC Implementation Costs				
Component	1992	1993	1994	1995
Source Reduction ¹	400	150,200	202,000	99,400
Recycling ²	500	500	283,500	88,500
Composting	1,300	1,500	1,500	1,600
Special Wastes	200	200	200	200
Education and Public Information	0	146,200	80,300	81,600
Total	\$2,400	\$298,600	\$567,500	\$271,300
Cost per Ton ³	\$0.001	\$0.16	\$0.30	\$0.15

Funding of the public costs for the unincorporated area programs will come from the Waste Management Department Enterprise Fund. Table V shows the amount the recycling portion of the tipping fee would need to be to cover solely the implementation and annual operating costs of the component programs. This portion is calculated based upon the total 1990 tonnage because it is impossible to accurately determine the total tonnage for the upcoming years. Where feasible, grants will be sought to cover implementation and operating costs.

¹The estimated costs for the Source Reduction Component include those for the Backyard Composting program which could be funded either entirely by the public sector, entirely by the private sector or through a combination of both.

²Estimated costs include a drop-off center projected for the Anza area. This facility could be either publicly or privately operated.

³Cost per ton equals the total cost for each year divided by the actual 1990 tonnage, 1,861,500.

Contingency Funding Sources

Contingency funding measures for the public sector have been identified in case the preferred funding methods become unavailable. Since the Waste Management Department operates through an Enterprise fund, which is the preferred funding method, other County General Funds would probably not be available to the Department. The most probable contingency measures would be the use of bond proceeds which will likely be sought to fund the Countywide system of waste management facilities.

Estimated Private Implementation Costs and Revenue Sources

Some of the programs selected by the County will implemented by the private sector. Table VI shows a listing of these programs and their approximate costs.

Table VI Summary of Estimated Short-Term PRIVATE Implementation Costs					
Program	1991	1992	1993	1994	1995
White Goods Collection during Trashbusters	0	600	600	600	600
Drop-off Center	0	0	0	106,000	94,000
Curbside Collection of Green Waste	0	0	19,886,000	4,950,000	4,950,000
Christmas Tree Collection Program	0	1,600	1,600	1,600	1,600
Staging Area for Yard/ Woody Waste at Landfills	950,000	1,900,000	1,900,000	1,900,000	1,900,000
Demolition Materials Recycling Facilities	0	0	0	225,000	0
Wood Grinding Facilities	0	0	0	350,000	0
Total Private Cost	\$950,000	\$1,902,200	\$21,788,200	\$7,532,600	\$6,945,600

The anticipated revenue sources for these programs are: white goods collection - revenue from sale of materials, drop-off center - revenue from sale of materials, curbside collection - refuse collection bills, christmas tree collection - refuse collection bills, biomass Fuel Plant - revenues received from sale of end product as energy; demolition materials recycling facilities - rates charged for accepting the material; wood grinding facilities - rates charged for accepting the material.

Estimated Funding Required to Develop Countywide System of Waste Management Facilities

The County, incorporated Cities and Regional Council of Governments are evaluating the creation of a Countywide solid waste management system which could integrate a variety of recycling and waste disposal facilities, including recyclables drop-off centers, yard waste composting facilities, materials recovery facilities (which may include yard waste or MSW composting capability) and/or landfills. Any system would likely be built around service areas, which would include a defined (but perhaps adjustable) wasteshed, with one or more municipalities, one or more recycling facilities, one or more composting facilities and perhaps the region's landfills. Such an integrated system would allow the entire County, including the unincorporated area and incorporated cities, to meet the goals under AB 939.

Table VII shows the estimated funding requirements for the short-term planning period (1990 - 1995) to develop the Countywide waste management system facilities. In estimating these costs the following assumptions were utilized:

Estimated costs for each MRF are based upon a hypothetical 1,000 tpd facility which was identified in the Riverside County System Cost Study to cost approximately \$25,300,000 with \$6,950,000 annual operating costs. This includes land costs which were estimated by the Waste Management Department.

Funding of capital requirements would be the year before the facility is operational.

For purposes of this component, only one publicly developed MRF (private operator selected by competitive RFP process) will be operational by 1995. Four additional MRF's will require capital outlays in 1995 in order to be operational in 1996. Three MRF's, which are being privately developed and financed, are currently proceeding within the County, two of which are assumed to be operational in 1994. The three MRF's are estimated to cost in excess of \$60 million. In order to remain consistent, operating costs were estimated based upon the hypothetical 1,000 tpd MRF discussed above. Since these facilities could join the proposed waste management system, operating costs are shown on Table VII.

The public costs shown for composting are for separate yard/wood waste staging/composting areas at the MRF's. The capital costs were estimated at \$2,240,000 and operating at \$370,000 and are for facilities that will also compost at the MRF location. These estimates were derived from the Draft Riverside County System Cost Study, April 1991 and are associated with a 1,000 tpd MRF.

The estimated operating costs for each composting facility were derived from the Riverside County System Cost Study based upon a 650 tpd yard waste facility. The model size approximates the yard waste capacities at the two existing composting facilities in the County. The operating costs may differ according to their individual circumstances (i.e. the inclusion of sludge in the compost process, etc). Operating costs are estimated at \$2,801,000 per facility at full program maturity.

At the time this Element was finalized, the County, Cities and Regional Councils of Governments were still working through the details of the proposed waste management system. For purposes of this Component the MRF's were assumed to be publicly developed (private operator selected by competitive RFP process), however, it is a possibility that some or all of the capital costs may be covered by private vendors. The total number of MRF's and composting facilities which will be required have yet to be identified. The costs shown below may use either public, private or a combination of both for financing.

Table VII Summary of Estimated Short-Term Countywide System Costs⁴				
Component	1992	1993	1994	1995
Recycling				
Public MRF's - Capital	0	0	25,300,000	101,200,000
Public MRF's - Operating	0	0	0	6,950,000
Private MRF's - Operating	0	0	13,900,000	13,900,000
Subtotal	0	0	\$39,200,000	\$122,050,000
Composting				
Public Capital	0	0	2,240,000	8,960,000
Public Operating	0	0	0	370,000
Private Operating	1,500,000	3,000,000	4,500,000	5,600,000
Subtotal	\$1,500,000	\$3,000,000	\$6,740,000	\$14,930,000
Total Cost⁵	\$1,500,000	\$3,000,000	\$45,940,000	\$136,980,000

Revenue Sources

Implementation of the Source Reduction and Recycling Elements in Riverside County will require a coordinated effort among the County and the municipalities within the County. Costs funded by the public sector will come from different levels of government within the County. The preferred financing mechanism for these facilities is through the sale of bonds. However, the County and municipalities will also seek support from technical assistance programs from the State where appropriate, and will attempt to maximize the use of Enterprise and Recycling Market Development zones to minimize the costs associated with implementation of the various identified programs.

⁴These costs, categorized as public, could be covered through the public, private or a combination of public/private funding sources. Public facilities are proposed to be operated by a private vendor selected by a competitive RFP process.

⁵Estimated costs do not include debt service or landfill tipping fees.

The County believes that some or all of the recycling and composting facilities may be privately owned. Privately owned facilities may be financed through a variety of means, including system-sponsored financing, vendor provided debt financing and by expanding equity contributions. Several different structures exist which would allow the system to sponsor financing for privately owned facilities and to obtain financing for system owned projects. Bonds could be secured by a pledge of the system revenues, by a pledge of system revenues within a given area, or by the revenues of a particular facility. The broader the pledge of revenues, the more secure any bond issue will be and the lower rate of interest which will be required on any bond issue. The issuer or sponsor of the financing may also vary depending on the objectives of the County and the other participating members of any system.

Since this system is still in the planning stages, exact methods for covering the costs have yet to be determined. The exact methods used to cover capital costs will be determined by the County, Cities and Regional Associations of Governments. It is anticipated that operational and capital (amortized by debt service) costs will be covered through tipping fees at each facility. Prior to implementing the system, agreements will be executed by each participating agency. Participating agencies and/or their representatives will all be involved in the procurement of vendors and facilities and will have decision making power concerning the subsequent fees required to operate the facilities. It is envisioned that the costs of implementing and maintaining this type of system will be shared between the County and participating Cities in an amount that approximates the proportion of the waste/material each jurisdiction is contributing to the system.

Contingency Measures

The preferred method of funding the Countywide waste management system will be through the use of bonds for capital costs using the tipping fees at each facility to cover debt service and operational costs.

Contingency measures to fund this system include private financing, and loans such as those from the California Pollution Control Financing Authority. One step in developing the system will be the guarantee of waste by the Cities and County to the facilities. It is proposed that contracts will be executed between the Councils of Governments, Cities and/or County in order to join the system. These contracts would spell out the number of Cities/amount of waste needed in order to proceed with development of the system and a time frame for achieving it.

In addition to these measures, the Department will consider the feasibility of obtaining some revenue from two private regional landfill projects being proposed within the County, wherein a revenue stream of unknown magnitude could be realized from the out-of-County waste imports.

Summary of Integration Component

The Integration Component ties all of the previous components together. The information contained in the component includes a diversion summary of each component, the overall diversion rate and a restatement of the time lines for the Source Reduction, Recycling, Composting and Special Wastes Components.

Summary of Household Hazardous Waste Element

Central Collection Facility

Site a permanent collection facility in the County. This facility would be capable of collecting HHW throughout the week, storing those wastes collected at the facility, plus those collected through the mobile and periodic one-day events temporarily (up to 90 days) and classifying unknown wastes.

Material Recovery Facility Capability to Accept Mobile Program

If private MRF's do not collect all HHW, develop capability for existing Material Recovery Facility(ies) (MRF's) and/or transfer stations to accept mobile/periodic HHW collection services. This program would develop facilities at MRF's where the County could operate the mobile and/or periodic collection services.

MRF Collection of Limited HHW

Encourage existing MRF's within the County to accept HHW. This method would provide a convenient means for collecting significant amounts of HHW from residents in the surrounding area.

Public-Sponsored MRF Collection of all HHW

All Public-sponsored MRF's (those for which the County has either distributed an RFP for or which a public entity(ies) owns in whole or in part) will operate a HHW collection program for all types of HHW. This program assumes a permanent collection point does not exist for the area. Should one exist, the MRF may not require the HHW collection center.

HHW Recycling and Reuse

Develop and maintain Household Hazardous Waste recycling and reuse referral program. This program could refer residents to private businesses accepting household hazardous wastes and notify residents of upcoming collection events for those wastes not collected by private businesses.

Media Educational Program

A media educational program for the HHW collection events would entail the usage of public service advertising (for both newspapers and radio stations), press releases to local newspapers, television stations, and radio stations, and if necessary the purchase of advertising space.

Utilization of Available Promotional Sources

Utilize all available private and public promotional sources. These sources include, but are not limited to, cable television stations, mass transit poster boards on the outside of the vehicles, and utility bill inserts.

Encourage the Use of Alternatives to HHW

Encourage residents to use alternative products to HHW. This encouragement will be publicized through brochures the Health Department has acquired from the State Department of Health Services, public service advertising and promotional campaigns.

Promotional Packets for City Utilization

Utilize promotional packets for Cities to aid in advertisement of upcoming HHW programs. These packets would contain reproducible flyers on the upcoming collection event, press releases, posters, brochures and a checklist of outlets and groups to contact to publicize the program.

Summary of Funding for Household Hazardous Waste Element

The Funding Section shows the estimated cost of implementing and maintaining the selected programs for the short-term planning period (1990 - 1995).

The primary agencies responsible for the implementation of the unincorporated County's Household Hazardous Waste Element are the County Waste Management Department and the Hazardous Materials Branch (HMB) of the County Health Agency. The HMB will have primary responsibility for promotional and educational activities, the recycling and reuse of other types of household hazardous waste, as well as, operating the HHW collection programs. The HMB and Waste Management Department will work with operators of materials recovery facilities to accept household hazardous waste, to handle and store the waste on a temporary basis and then to send it to an approved final disposal location. The County is also contemplating the development of a central receiving facility dedicated for longer term household hazardous waste storage prior to final disposal.

Funds for the HMB efforts will initially come from the County Health Agency, though it is anticipated that it will seek reimbursement of these expenses from Waste Management Department tipping fee revenues. The County currently allocates \$0.50 per ton for household hazardous waste programs. These revenues will continue to fund the County's expenses, including its portion of facility expenses at materials recovery facilities and at the dedicated permanent (up to one year) storage facility. MRF tipping fees are also a possibility for funding part or all of the HHW program. Other potential funding sources include: using bond proceeds to pay for the capital costs associated with the establishment of the collection facilities; requiring, through contract, vendors of materials recovery facilities to include household hazardous waste collection at their facilities; and State provided discretionary and non-discretionary grants. One program in the HHWE is that all Public-sponsored MRF's will include permanent HHW collection facilities. At this time, it is anticipated that these facilities (the HHW collection point only) may be publicly operated and that the costs for operation will be paid from tipping fees. Please refer to the implementation schedules for a detailed breakdown of projected costs.

Table VIII shows the estimated short-term public costs for the Household Hazardous Waste Element. It is estimated that approximately 240 staff hours will be required from the Waste Management Department and 1,020 staff hours from the Hazardous Materials Branch of the County Health Services Agency to implement and maintain the diversion and education programs. The assumptions used in estimating costs are:

All costs are shown in 1991 dollars.

Funding for capital requirements would be the year before the facility is operational.

For purposes of this component, only one publicly developed MRF will be operational by 1995. Four publicly developed MRF's will require capital outlays for a HHW collection center in 1995 and would be operational in 1996.

The cost for developing one permanent collection center at a MRF was estimated at \$155,000 (this is the average cost for the range shown in Table 3.3 in the Household Hazardous Waste Element).

The HMB will operate the HHW collection centers at MRF's.

Funding for these facilities and programs will come from the tipping fees either at the specific facility or at the landfills and with very small amounts coming from resale of collected products.

Table VIII
Estimated Short-Term PUBLIC Implementation Costs

Program	1992	1993	1994	1995
Educational Programs	0	4,700	4,450	4,450
Pubic-Sponsored MRF Collection of HHW	0	0	155,000	1,720,000
Total Cost	\$0	\$4,700	\$159,450	\$1,724,450
Cost per Ton ⁶	\$0.0	\$0.003	\$0.09	\$0.93

Contingency Funding

The preferred funding sources for the Household Hazardous Waste Element are tipping fees from landfills and/or MRF's. Where feasible, grants will be sought to augment the preferred funds. Should the preferred source of funding be insufficient, other potential sources include:

Bonds - The County, Cities and Regional Associations of Governments are currently working together to develop a system of processing facilities. It is anticipated that facilities will be operated by private vendors through contract and that bonds will be sold in order to finance the development of the facilities. Proceeds from these bond sales could also be used to finance the development of the HHW collection centers and some promotional activities.

Private Funding - Private funding could be used for the development of HHW collection facilities. Vendors of MRF's could be required, by contract, to develop and operate the facilities. The costs for facilities would most likely be recovered through the tipping fees charged at the facilities. This funding source would not be used to cover County promotional and educational activities.

⁶Cost per ton equals the total cost for each year divided by the actual 1990 tonnage, 1,861,500.

In addition to these measures, the Department will consider the feasibility of obtaining some revenue from two private regional landfill projects being proposed within the County, wherein a revenue stream of unknown magnitude could be realized from the out-of-County waste imports.

Countywide Waste Management System

The Countywide waste management system of facilities, discussed earlier in this section, is proposed to include MRF's. Those MRF's which will be privately developed and financed will have the opportunity to join the system and could include a HHW collection facility. Based upon the cost estimates shown in the HHWE and the assumption that two private MRF's will be operational in 1994, it can be estimated that as much as \$2,200,000 in operating costs for these facilities could be incurred in 1994 and 1995. The costs would be covered in the same manner as the MRF's and composting facilities discussed earlier.

CHAPTER 1

Statement of Goals and Objectives

CHAPTER 1 - STATEMENT OF GOALS AND OBJECTIVES

I. INTRODUCTION

This chapter includes a compilation of the goals and objectives for each of the components contained within the Source Reduction and Recycling Element. The goal for each of the components is a broad target, while the objectives will provide short and/or medium-term targets which are quantifiable. The alternative programs contained within each component will provide the mechanism to attaining the selected objectives and the broader goal.

II. COMPONENT SPECIFIC GOALS AND OBJECTIVES

The following are the component specific goals and objectives for the Source Reduction and Recycling Element.

Source Reduction

Goal

Minimize the amount of waste material generated at the source and increase the reuse and repairability of formerly discarded products.

Objectives

1. Reduce the use of non-recyclable materials
2. Replace disposable materials and products with reusable materials and products
3. Reduce packaging
4. Reduce the amount of yard wastes generated
5. Purchase repairable products
6. Increase the efficiency of the use of paper, cardboard, glass, metal and other materials by reducing wastes from nonresidential generators' production operations, processes, and equipment and considering durability, reusability, and recyclability as product selection criteria.
7. Reduce waste toxicity by businesses in the unincorporated area (Objective specific to Riverside County)

Recycling

Goal

Reduce the solid waste stream to the maximum extent possible through recycling and to develop markets for recycled products through market development programs and affiliations.

Objectives

1. Recover 76% of the aluminum cans generated within the unincorporated area of the County by 1995 and 83% by 2000.
2. Recover 49% of the newspaper generated within the unincorporated area of the County by 1995 and 54% by 2000.
3. Recycled product purchases shall constitute 3% of all County purchases by 1995 and 5% by 2000.
4. Recover 17% of high grade waste paper generated within the unincorporated area of the County by 1995 and 23% by 2000.
5. 2% of all manufacturing businesses located within the unincorporated County area will use at least 5% post-consumer materials in the manufacturing process by 1995 and increase to 4% of all businesses by 2000.
6. Recover 61% of corrugated containers generated within the unincorporated area of the County by 1995 and 78% by 2000.
7. Recover 24% of all ferrous metals by 1995 and 31% by 2000.
8. Recover 52% of all CA Redemption glass containers generated within the unincorporated County area by 1995 and 57% by 2000.
9. Recover 51% of all recyclable non CA Redemption glass products generated within the unincorporated County area by 1995 and 57% by 2000.
10. Recover 33% of all CA Redemption PET plastic containers generated within the unincorporated County area by 1995 and 51% by 2000.
11. Recover 19% of HDPE plastic generated within the unincorporated County area by 1995 and 52% by 1995.
12. Recover 2% of other plastic material generated within the unincorporated County area by 1995 and 17% by 2000.

Composting

Goal

Divert the greatest amount of yard waste and applicable municipal solid waste from County landfills and develop markets for compost through market development programs and affiliations.

Objectives

1. Divert 60% of the yard waste generated within the unincorporated area of the County by 1995 which results in 8.9% of the total unincorporated solid waste stream and 70% of the yard waste by 2000 which equates to 10.3% of the entire unincorporated solid waste stream.
2. County Departments with a need for ground cover, mulch and soil amendment shall procure 50% of their needed supply from composting facilities within Riverside County by 1995 and 100% of their needed supply by 2000 if supplies are available.

Special Wastes

Goal

Ensure proper handling practices and to recycle to the maximum extent all applicable special wastes generated in the unincorporated area.

Objectives

1. Maintain the policy that 100% of the discarded automobiles in the County will not be accepted for disposal at County operated landfills through 2000.
2. Maintain the practice of prohibiting sewage sludge at County operated landfills.
3. Continue disposal of certain hard-to-handle and special wastes at County operated landfills because of their size, potential health hazard or security reasons.
4. Maintain the practice of limiting the number of dead animals that are taken to County operated landfills for disposal to those instances when it is not economical to pursue rendering services.
5. Continue to dispose of street sweepings at approved disposal facilities when alternative uses for the material cannot be found.
6. Recover 26% of the tires generated by 1995 and 53% by 2000.
7. Recover 80% the amount of inert solids landfilled by 1995 and 84% by 2000.
8. Recover 81% of the wood waste generated in the County by 2000.

9. If feasible, eliminate septic tank wastes from landfills by 2000, while continuing to use septage ponds at county landfills for chemical toilet wastes until alternate disposal methods are found.

Education and Public Information

Goal

Provide information to the residential, commercial, and industrial sectors on source reduction, recycling, composting and other waste management issues.

Objectives

1. Provide information to 75% of the residential population on residential source reduction techniques and the importance of recycling, either through curbside, donation or redemption programs by 1995 and 95% by 2000.
2. Provide information to 75% of the commercial businesses on the importance of businesses participating in source reduction and recycling by 1995 and 95% by 2000.
3. Provide information to 75% of the industrial businesses on the importance of businesses participating in source reduction and recycling by 1995 and 95% by 2000.
4. Provide information to 75% of school children (public, private and pre-school) on the issues of recycling, source reduction, composting and litter control by 1995 and 95% by 2000.
5. Provide information to 75% of the residents on techniques and importance of residential composting by 1995 and 95% by 2000.

III. SUMMARY OF DIVERSION PERCENTAGES

Table 1 - 1 and 1 - 2 depict a summary of the diversion percentages Riverside County is estimating for each of the components in the SRRE with inert solids diversions and without respectively.

Table 1 - 1 Summary of Estimated Diversions with Inert Solids		
Component	Short-Term (1995)	Medium-Term (2000)
Source Reduction	1%	2%
Recycling	9%	14%
Composting	9%	10%
Special Wastes	24%	34%
Total	44%	61%

Table 1 - 2 Summary of Estimated Diversions without Inert Solids		
Component	Short-Term (1995)	Medium-Term (2000)
Source Reduction	2%	3%
Recycling	13%	20%
Composting	13%	15%
Special Wastes	1%	20%
Total	29%	51%

CHAPTER 2

Waste Generation Study

CHAPTER 2 -- WASTE GENERATION STUDY

The Waste Generation Study for the Unincorporated Area of the County was completed as part of the combined study conducted on the part of the County and its twenty-three cities. Waste generation is defined as the sum of a jurisdiction's waste stream that is disposed in the landfill and the amount of waste diverted from the landfill. The document then consists of two distinct studies: 1) a waste characterization study which details the total solid waste disposed in permitted solid waste facilities and 2) a waste diversion study which records the amount and types of materials recovered from the waste stream. The study was completed by the firms of CH2M HILL and Recovery Sciences, Inc. (RSI).

I. WASTE CHARACTERIZATION STUDY

The characterization of the disposed waste stream necessitated two different studies: 1) a manual sampling of the waste transported by commercial waste haulers and 2) an observational study of materials that are generally bulky and heavy in nature and are usually hauled loose in drop boxes or non-conventional refuse collection vehicles including dump trucks and small pick-up trucks. The material types that predominate in this latter sub-waste stream are difficult to manually sample so the observational method was chosen. Appendix A-I details the methodology followed for both the manual sample study and the observational study, while Appendix A-V discusses the statistical methods for the manually sampled portion. The pertinent results of each respective study are provided in Appendices A-III and A-IV.

The studies taken together provided the waste type tonnage information shown on Table 2-1. Five material types comprise over one half of the waste that is disposed of in County landfills from the unincorporated area only: Yard Waste (19.8%), Cardboard (9.6%), Inert Solids (9.3%), Wood Waste (9.1%) and Mixed Waste Paper (5.4%) for a combined total of 53.2%. The information discloses that the material types with paper fiber (Newspaper, Cardboard, Highgrade Paper, Mixed Waste Paper and Other paper) actually represent the largest homogeneous portion of the disposed waste stream at 23.7%.

Volume of Waste

The unincorporated area 1990 tonnage total of 481,387 is equivalent to 816,754 cubic yards¹. This volume measurement represents in-place volume, after compaction, in the landfill.

Source of Generation

The unincorporated area's disposed waste stream tonnage is distributed proportionately among the sources of generation: Residential 35.9%, Commercial 19.3%, and Industrial 44.8%. The number of units per area of generation is as follows:

Residential	167,809 Housing Units ²
Commercial/Industrial	10,065 Businesses ³

It is believed that future annexations/incorporations could adversely impact the number of units in each source of generation. The overall result could be a shrinking, or decreasing growth, in the amount of waste generated from the unincorporated area of the County.

Seasonality

The solid waste generated by the unincorporated area of Riverside County is disposed among thirteen Class III landfills. Table 2-2 lists these landfills and discloses whether they serve the western or eastern portion of the County.

TABLE 2 - 1

UNINCORPORATED AREAS DISPOSED WASTESTREAM 1990

Type	Residential	Commercial	Industrial/ Manufacturing	Industrial/ Demolition	Total in tons	% of Overall Wastestream
NEWSPAPER	18968.2	4422.5	0.0	0.0	23390.7	4.9%
CARDBOARD	13063.3	11278.2	19006.1	2649.9	45997.5	9.6%
HIGHGRADE PAPER	630.1	357.2	25.4	0.0	1012.7	0.2%
MIXED WASTE PAPER	16184.4	5573.0	235.6	4088.1	26081.0	5.4%
OTHER PAPER	10283.6	3648.6	266.7	2920.1	17119.0	3.6%
ALUMINUM CANS	369.0	223.2	0.0	0.0	592.1	0.1%
TIN CANS	2970.8	737.1	0.0	0.0	3707.9	0.8%
FERROUS METALS	6593.8	3263.3	2061.7	8068.1	19986.9	4.2%
NON-FERROUS ALUM SCRAP	651.1	857.2	61.1	584.0	2153.3	0.4%
BI-METAL	119.6	2.2	0.0	0.0	121.8	0.0%
CA REDEMPTION BOTTLE	1857.1	411.0	0.0	0.0	2268.1	0.5%
OTHER NON-RECYCL GLASS	277.4	94.9	0.0	0.0	372.3	0.1%
OTHER RECYCLABLE GLASS	4545.8	1671.5	0.9	0.0	6218.2	1.3%
REFILLABLE GLASS BEV	0.0	0.0	0.0	0.0	0.0	0.0%
HDPE	2984.7	2110.0	366.6	0.0	5461.4	1.1%
LDPE	1680.3	859.1	55.6	0.0	2595.0	0.5%
PET	449.3	104.0	5.0	0.0	558.2	0.1%
POLYPROPYLENE	439.0	108.9	6.7	0.0	554.6	0.1%
POLYSTYRENE	1248.2	523.5	132.3	0.0	1904.0	0.4%
PVC	1047.2	199.2	301.0	0.0	1547.4	0.3%
OTHER PLASTICS	3328.0	1252.2	409.6	0.0	4989.8	1.0%
YARD WASTE	38381.7	10401.6	0.0	46597.6	95380.9	19.8%
WOOD WASTE	5229.0	16654.6	5392.0	16694.4	43970.0	9.1%
AGRICULTURAL CROP RESID	472.2	0.0	0.0	0.0	472.2	0.1%
MANURE	1301.9	420.5	0.0	0.0	1722.4	0.4%
FOOD WASTE	13170.2	5494.7	0.0	0.0	18664.9	3.9%
TEXTILES	3647.8	1519.5	1701.2	0.0	6868.4	1.4%
LEATHER	48.9	98.4	13.4	0.0	160.7	0.0%
HOUSEHOLD HAZARD WASTE	1019.1	1611.2	296.1	0.0	2926.4	0.6%
INERT SOLIDS	1827.4	4678.7	2318.5	35965.1	44789.6	9.3%
DIAPERS	4460.0	975.9	0.0	0.0	5435.8	1.1%
TIRES & RUBBER	1176.8	3050.1	120.6	787.8	5135.3	1.1%
WHITE GOODS	1383.6	172.6	0.0	1752.1	3308.2	0.7%
LIQUIDS	0.0	0.0	0.0	5065.7	5065.7	1.1%
TREE TRUNKS	0.0	0.0	0.0	558.9	558.9	0.1%
REMAINDER	12840.4	10282.1	7106.1	50066.9	80295.4	16.7%
TOTAL	172649.4	93057.0	39882.0	175798.6	481387.0	100.0%

The manually sampled study took place at Badlands Landfill in the west and at Coachella Landfill in the east. Trucks were routed to these landfills from the various jurisdictions and areas of the County during the course of the study. Sampling took place over three periods in 1990:

Sort I - August 27 - September 21 (Summer)

Sort II - October 22 - November 9 (Fall)

Sort III - December 3 - December 14 (Winter)

The above periods were chosen to mirror as closely as possible the three separate seasons of Summer, Fall and Winter. Due to the drought and unseasonably hot temperatures, it is uncertain whether Fall and Winter sorts accurately represented those typical seasons. The presence of seasonal variation among the three sorting periods and its impact on the various material types was evident when looking at the experience of the overall manually sampled County waste stream. It is believed that the overall County experience is reflective of the unincorporated area for two reasons: 1) The unincorporated area is woven throughout the entire geographic region of the County and 2) the five most prevalent material types of the manually sampled disposed waste streams are the same for the two units (Yard Waste, Cardboard, Wood, Mixed Waste Paper and Newspaper) though they differ somewhat in ranking. The discussion of the variation among sorting periods/seasons for the entire manually sampled County waste stream is located in Appendix A-I.

Annual updates in the years preceding the submittal of the Riverside Countywide Integrated Waste Management Plan (though not required until afterward) which would include waste characterization and/or waste diversion studies are under consideration by the County. These studies could be planned to cover a specific season or seasons and provide a better understanding of the generation patterns of the unincorporated area waste stream.

II. WASTE DIVERSION STUDY

The current level of diversion for the unincorporated area of Riverside County was determined through tracking the flow of materials across the various trading levels from the waste generator to the end-user. Methods utilized to obtain the information and avoid double counting included Confidential surveys, telephone interviews and communication with the State Department of Conservation, Division of Recycling. A discussion of methodology used and other pertinent information regarding the waste diversion study is in Appendix A-II.

The waste diversion study disclosed that the unincorporated area of Riverside County is currently diverting 25.08% of the total solid waste stream. Table 2-3 details the composition of this diversion total. Appendix A-IX displays the unincorporated diversion total according to diversion activity and generator source. It should be noted that the unincorporated areas's diversion rate is 4.01% when inert materials are not included in the calculation.

Seasonality

The diversion study surveyed the entire known population of recyclers and requested information on an annual basis. Seasonal variation is subsumed in the annual totals and not broken out on its own. The annual approach precluded the need to have sampling periods where variations in the recovery of material types could be tracked across time.

TABLE 2-2

WESTERN LANDFILLS

Anza	El Sobrante
Badlands	Highgrove
Double Butte	Lamb Canyon
Mead Valley	

EASTERN LANDFILLS

Blythe	Edom Hill
Coachella	Mecca
Desert Center	Oasis

TABLE 2 - 3

RIVERSIDE COUNTY UNINCORPORATED:

MATERIALS DIVERTED (TONS) AND RECYCLING RATES (%) 1990

MATERIAL	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	OTHER	TOTAL DIVERTED	TONS LANDFILLED	TOTAL MSW	DIVERSION PERCENTAGE	ADJUSTED PERCENTAGE**
PAPER									
CCC	20.00	10,560.80	480.00	0.00	11,060.80	45,997.50	57,058.30	19.39%	19.39%
MIXED PAPER	224.00	1,668.00	0.00	0.00	1,892.00	26,081.00	27,973.00	6.76%	6.76%
NEWSPAPER	438.30	148.30	0.00	0.00	586.60	23,390.70	23,977.30	2.45%	2.45%
OFFICE PAPER	0.00	0.00	0.00	0.00	0.00	1,012.80	1,012.80	0.00%	0.00%
PLASTICS									
HDE	20.30	0.00	0.00	0.00	20.30	5,461.20	5,481.50	0.37%	0.37%
PET	38.70	0.00	0.00	0.00	38.70	558.10	596.80	6.48%	6.48%
OTHER	0.00	0.00	10.00	0.00	10.00	11,590.90	11,600.90	0.09%	0.09%
GLASS									
CAL REDEMPTION	585.40	90.00	0.00	0.00	675.40	2,268.10	2,943.50	22.95%	22.95%
OTHER RECYCLABLE GLASS	40.00	0.00	0.00	0.00	40.00	6,218.10	6,258.10	0.64%	0.64%
METALS									
UBC	691.60	10.00	0.00	0.00	701.60	592.10	1,293.70	54.23%	54.23%
TIN CANS	0.00	0.00	0.00	0.00	0.00	3,707.90	3,707.90	0.00%	0.00%
FERROUS	0.00	0.00	0.00	0.00	0.00	18,986.90	19,986.90	0.00%	0.00%
NON-FERROUS	0.00	0.00	0.00	0.00	0.00	2,153.30	2,153.30	0.00%	0.00%
GREEN WASTE									
GREEN WASTE/COMPOST	0.00	0.00	0.00	0.00	0.00	95,380.90	95,380.90	0.00%	0.00%
OTHER ORGANICS									
FOOD	0.00	2,528.00	0.00	0.00	2,528.00	18,664.90	21,192.90	11.93%	11.93%
WOOD*	0.00	1,205.00	485.00	1,980.00	3,670.00	43,970.00	47,640.00	7.70%	1.51%
TEXTILES	101.80	0.00	0.00	0.00	101.80	6,868.60	6,970.40	1.46%	1.46%
OTHER COMPACTED WASTES									
WHITE GOODS	0.00	0.00	0.00	0.00	0.00	3,308.20	3,308.20	0.00%	0.00%
REMAIN (Incl.H'sehold)	0.00	0.00	0.00	0.00	0.00	30,228.60	30,228.60	0.00%	0.00%
ALL OTHER CATEGORIES	0.00	0.00	0.00	0.00	0.00	38,582.40	38,582.40	0.00%	0.00%
UNCOMPACTED WASTES									
DIRT/ROCK/									
CONC/ASPHALT	0.00	0.00	143,436.00	0.00	143,436.00	35,965.10	179,401.10	79.95%	79.95%
OTHER MATERIALS	0.00	0.00	348.75	0.00	348.75	59,399.40	59,748.15	0.58%	0.58%
TOTALS	2,160.10	16,210.10	144,759.75	1,980.00	165,109.95	481,386.70	646,496.65	25.54%	25.08%

* The Unincorporated Area had 2,950 tons of wood that was diverted from landfills and then incinerated.

Currently the State is not allowing material that is incinerated to be used towards a city's diversion rate.

After January 1, 1995, Incinerated material (transformation) can total 10% of a city or county's 50% state mandated January 1, 2000 diversion goal.

** The last column of this table reflects the Unincorporated Areas recycling rate with incinerated wood not being counted towards diversion.

TABLE 2-4**MATERIALS TO BE DIVERTED BY PLANNED SRRE PROGRAMS****PAPER**

Cardboard

Newspaper

High Grade Ledger Paper

Mixed Waste Paper

Other Paper

YARD WASTE**DISPOSABLE DIAPERS****PLASTICS**

HDPE

PET

Film Plastics

Other Plastics

OTHER ORGANICS

Food Waste

Tires

Wood Wastes

Textiles

GLASS

California Redemption Glass

Other Recyclable Glass

OTHER WASTES

Inert Solids

METALS

Aluminum Cans

Non-Ferrous Aluminum Scrap

Ferrous Metals and Tin

White Goods

SPECIAL WASTES

Sludge

Other Special Wastes

III. MATERIAL TYPES IMPACTED BY PLANNED DIVERSION PROGRAMS

Material types intended to be diverted by programs outlined in this SRRE are listed in Table 2-4. A comparison of the material types included in this listing with those found in Table 2-3 discloses that it is planned the County unincorporated area divert a wider array of waste types in the coming years through the implementation of SRRE programs.

IV. MATERIAL TYPES NOT IMPACTED BY PLANNED DIVERSION PROGRAMS

Material Types not impacted by diversion programs detailed in this SRRE include the following:

Hazardous Waste: Hazardous Waste is not considered solid waste and is thus out of the purview of this document and the programs within it. The Source Reduction Component contains one objective referring to the reduction of waste toxicity. This objective specifically is intended to reduce any toxicity attendant to solid waste. The County Health Department in its role as administrator of the Riverside County Hazardous Waste Management Plan will have a key role in achieving this objective.

Household Hazardous Waste: The unincorporated area's management of materials and products commonly referred to as household hazardous waste are discussed in the Household Hazardous Waste Element (HHWE).

Other Non-recyclable Glass: The fact that this material type is not recyclable precludes it from being included in an unincorporated area waste diversion program.

Refillable Glass Beverage Containers: The Waste Generation Study disclosed that this material type is not present in the unincorporated area waste stream.

Leather and Bi-metal Containers: The amount of these material types in the unincorporated area waste stream that is disposed in the landfill is less than one tenth of one percent which is not enough to warrant targeting them for recovery. Bi-metal containers may be incorporated as part of recovery programs established for tin containers and in the future may be included in the programs planned for this more prevalent material type.

Note: The material types of **agricultural crop residue** and **manure** are not broken out individually in any of the programs listed in the element. They do, however, qualify as part of the organic fraction of the waste stream and could therefore be composted in the future. The County will track any diversion that takes place in these waste types as part of the composting component or other creditable method utilized in the years ahead.

Table 2-5
1990 Waste Generation
Unincorporated Riverside County

Type	Residential	Commercial	Industrial	Other	Total	% of Overall Generated
NEWSPAPER	19,406.5	4,570.8	0.0	0.0	23,977.3	3.7
CARDBOARD	13,083.3	21,839.0	22,136.0	0.0	57,058.3	8.8
HIGHGRADE PAPER	630.1	357.2	25.4	0.0	1,012.7	0.2
MIXED WASTE PAPER	16,408.4	7,241.0	4,323.7	0.0	27,973.1	4.3
OTHER PAPER	10,283.6	3,648.6	3,186.8	0.0	17,119.0	2.6
ALUMINUM CANS	1,060.6	233.2	0.0	0.0	1,293.8	0.2
TIN CANS	2,970.8	737.1	0.0	0.0	3,707.9	0.6
FERROUS METALS	6,593.8	3,263.3	10,129.8	0.0	19,986.9	3.1
NON-FERROUS ALUM SCRAP	651.1	857.2	645.1	0.0	2,153.4	0.3
BI-METAL	119.6	2.2	0.0	0.0	121.8	0.0
CA REDEMPTION BOTTLE	2,442.5	501.0	0.0	0.0	2,943.5	0.5
OTHER NON-RECYCLABLE GLASS	277.4	94.9	0.0	0.0	372.3	0.0
OTHER RECYCLABLE GLASS	4,585.8	1,671.5	0.9	0.0	6,258.2	1.0
REFILLABLE GLASS BEV	0.0	0.0	0.0	0.0	0.0	0.0
HDPE	3,005.0	2,110.0	366.6	0.0	5,481.6	0.8
LDPE	1,680.3	859.1	55.6	0.0	2,595.0	0.4
PET	488.0	104.0	5.0	0.0	597.0	0.0
POLYPROPYLENE	439.0	108.9	6.7	0.0	554.6	0.0
POLYSTYRENE	1,248.2	523.5	132.3	0.0	1,904.0	0.3
PVC	1,047.2	199.2	301.0	0.0	1,547.4	0.2
OTHER PLASTICS	3,328.0	1,252.2	419.6	0.0	4,999.8	0.8
YARD WASTE	38,381.7	10,401.6	46,597.6	0.0	95,380.9	14.8
WOOD WASTE	5,229.0	17,859.6	22,571.0	1,980.0	47,639.6	7.4
AGRICULTURAL CROP RESID	472.2	0.0	0.0	0.0	472.2	0.0
MANURE	1,301.9	420.5	0.0	0.0	1,722.4	0.3
FOOD WASTE	13,170.2	8,022.7	0.0	0.0	21,192.9	3.3
TEXTILES	3,749.6	1,519.5	1,701.2	0.0	6,970.3	1.0
LEATHER	48.9	98.4	13.4	0.0	160.7	0.0
HOUSEHOLD HAZARD WASTE	1,019.1	1,611.2	296.1	0.0	2,926.4	0.5
INERT SOLIDS	1,827.4	4,678.7	181,719.6	0.0	188,225.7	29.1
DIAPERS	4,460.0	975.9	0.0	0.0	5,435.9	0.8
TIRES & RUBBER	1,176.8	3,050.1	1,257.2	0.0	5,484.1	0.8
WHITE GOODS	1,383.6	172.6	1,752.1	0.0	3,308.3	0.5
LIQUIDS	0.0	0.0	5,065.7	0.0	5,065.7	0.8
TREE TRUNKS	0.0	0.0	558.9	0.0	558.9	0.0
REMAINDER	12,840.4	10,282.1	57,173.0	0.0	80,295.5	12.4
TOTAL	174,810.0	109,266.8	360,440.3	1,980.0	646,497.1	100.0

NOTE: Percentage total does not actually equal one hundred due to rounding.

V. WASTE GENERATED

The waste generated in the unincorporated area during 1990 totaled 646,497 tons. This total is the sum of waste disposed (481,387 tons) and waste diverted (165,110 tons). Table 2-5 details the distribution of this generation by material type and generation source. Unincorporated area tonnage projections through the year 2005 for waste disposed, diverted and generated are located in Appendix A-XIV. Projections are provided under two scenarios: 1) background conditions remaining constant through the year 2005 and 2) background conditions being impacted by the planned diversion programs that are outlined in this Source Reduction and Recycling Element.

It is to be noted that both sets of projections are planning tools and are to be utilized as anticipated targets. The actual size of the unincorporated area waste stream and its constituent sub-waste streams will be dependent on any changes in population or changes in the number or size of operational units in each source of generation and the economy.

VI. AUTOMATED RECORD SYSTEM

The Riverside County Waste Management Department is in the process of designing an automated record keeping system in order to track diversion during the short and medium term planning periods. Diversions achieved will be recorded in the following manner in the system:

*Material Type

*Account (i.e. hauler, facility, etc.)

*Source of Generation (i.e. residential, commercial and industrial)

*Program Area (i.e. source reduction, recycling, composting, etc.)

*Jurisdiction

*Time Period (i.e. Data collected on a quarterly basis, information may reflect monthly activity etc.)

Resolution 90-668 (and its amendment 91-512) requires all permitted waste haulers in the unincorporated area to report the diversion achieved through recycling on a quarterly basis. The resolutions and the current reporting form are located in Appendix D. The County understands the importance of receiving similar information from sponsors of other diversion enterprises and plans on entering this information in to the system in the future. Reporting requirements are commonly placed on facilities as they progress through the planning process. Past and future County and departmental efforts to receive regular reporting through ordinances are detailed in accompanying components of this element. The automated record keeping system will be able to incorporate such reports along with those prepared by County agencies as they are received by the Department.

The automated record keeping system will produce reports that will be useful to the Department in monitoring progress made in the implementation of planned programs. The following is a list of proposed reports:

*Commercial Activity Report by waste type, program.

*Industrial Activity Report by waste type, program.

*Residential Activity Report by waste type, program.

*Source Activity Report by waste type, program.

*Reports by account, waste type, jurisdiction and other areas as necessary.

1. The Conversion factors of 1200 lbs./CY and 1000 lbs./CY were used to translate the tonnage into a volume equivalent. The landfills utilizing compacting equipment in 1990 were identified and the percentage of the entire landfilled waste stream entering those sites for the calendar year calculated. This percentage was applied to the unincorporated area tonnage with the resultant total converted to cubic yards using 1200 lbs./CY. The remainder of the tonnage used 1000 lbs./CY.

It should be noted that the volume equivalent calculated in this instance will be different than the number shown in Chapter 8. The reason for the difference is that the total was determined after identifying which sites used compacting equipment during 1990, while the figure in Chapter 8 used the conversion information in the current Reports on Disposal Site Information (RDSI's) for each landfill site.

The conversion factors of 1200 lbs./CY and 1000 lbs./CY have been used in the work of Riverside County Waste Management Department after consulting a series of report summaries on equipment landfill compaction density tests that were prepared by Wm. E. Collord of the State of California Integrated Waste Management Board between 1979 and 1981.

2. Total Housing Units as reported in Riverside County Population and Housing Estimates, January 1, 1991, California Department of Finance, Demographic Research Unit.

3. State Board of Equalization, December 11, 1990.

CHAPTER 3

Source Reduction Component

CHAPTER 3 -- SOURCE REDUCTION COMPONENT

I. INTRODUCTION

The State of California's first level of priority in an Integrated Waste Management System is Source Reduction. The term Source Reduction refers to any action which causes a net reduction in the generation of solid waste. Objectives and programs outlined in this component have the intent of reducing waste by ensuring that less of it is generated.

Riverside County is committed to the placing of source reduction at the top of its integrated waste management system. The impact this priority has on the eventual reduction of waste at the source will depend on how well the established attitudes which resulted in the generation of excess refuse are changed during the coming years. It is intended that the objectives and corresponding programs detailed below will facilitate the needed change.

The gains achieved in the area of source reduction will not be dependent solely on the objectives and programs listed in this component. A truly integrated approach results in different components having areas of commonality that can be of benefit to the entire system. The need to change attitudes requires an ambitious education program that will promote the new approaches to waste management. Many of the programs detailed in the public education component (Chapter 7) will assist the County's efforts in the area of source reduction. The County's Curbside Recycling Program will also result in source reduction benefits since residents will be constantly reminded of the impact their purchases have on the ultimate method and personal cost of disposal. A developed predisposition for products that are recyclable will lead to an awareness that the physical characteristics of some products and/or the disposal alternatives considered in regard to them can result in the generation of less waste once they have outlived their usefulness.

II. SOURCE REDUCTION GOAL AND OBJECTIVES

The Source Reduction goal is to minimize the amount of waste material generated at the source and to increase the reuse and repairability of formerly discarded products.

Objectives developed for the Source Reduction Component are displayed in two levels. The first level is denoted by numbers/letters placed in parentheses [i.e. (1)] and corresponds to the general objectives the California Integrated Waste Management Board is requiring each jurisdiction to consider in its planning (except for one addition that is unique to the unincorporated area of Riverside County), and the second level specifies the amount of diversion the County estimates it will achieve as a result of source reduction during the short and medium term planning periods.

The County's achievement of the first level objectives during the short and medium term planning periods will ensure that the reductions anticipated in the second level are attained. The reductions were developed using information gathered from the solid waste generation study (Chapter 2) and reflect realistic and attainable goals.

Source Reduction Component Objectives

- (a) 1) Reducing the use of non-recyclable materials

- 2) Replacing disposable materials and products with reusable materials and products
 - 3) Reducing packaging
 - 4) Reducing the amount of yard wastes generated
 - 5) Purchasing repairable products
 - 6) Increasing the efficiency of the use of paper, cardboard, glass, metal and other materials by reducing wastes from nonresidential generators' production operations, processes, and equipment and considering durability, reusability, and recyclability as product selection criteria.
 - 7) Reducing waste toxicity by businesses in the unincorporated area (Objective specific to Riverside County)
- (b) Specific Waste Types (materials, products, and packaging) targeted for the source reduction objectives

Criteria to be used in determining specific waste types to be targeted for the source reduction objectives according to sections 18733.1 (b) and 18734.1 (b) of Article 6.2 Source Reduction and Recycling Elements, Chapter 9 PLANNING GUIDELINES AND PROCEDURES FOR PREPARING AND REVISING COUNTYWIDE INTEGRATED WASTE MANAGEMENT PLANS, TITLE 14 CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD include:

- *volume of the solid waste;
- *weight of the solid waste;
- *hazard of the solid waste;
- *material, products or packages, contributing to the waste category or waste type, that are made of non-renewable resources;
- *the potential to extend the useful life of affected materials, products, or packaging; and
- *whether the waste type has limited recyclability.

Table 3-1 is a summary of the waste types targeted for the source reduction objectives, the respective percentages indicating the amount of the material landfilled from the County unincorporated area waste stream and which of the above criteria determined their choice.

**Table 3 - 1
Targeted Waste Types/Materials**

Waste Types/Materials	Percentage of Landfilled Waste Stream (by weight)¹	Determining Criteria for Chosen Materials
Paper:		
Corrugated Containers	9.60%	Weight, Volume
Mixed Paper	5.40	Weight
High Grade Ledger Paper	.20	Extend Useful Life
Other Paper	3.60	Limited Recyclability
Plastics:		
Film Plastic	.50	Volume
Other Plastics ²	1.80	Limited Recyclability, Volume
Metals:		
White Goods	.70	Extend Useful Life, Volume, Hazard
Organics:		
Yard Waste	19.80	Weight, Volume
Tires	1.10 ³	Volume, Hazard
Wood Wastes	9.10	Extend Useful Life
Textiles	1.40	Extend Useful Life
Disposable Diapers	1.10	Limited Recyclability

Diversion Objectives

It is projected that the amount of waste generated within the unincorporated county will be incrementally reduced by 1% by 1995 and 2% by 2000 with the realization of the aforementioned source reduction objectives.

¹ Percentages derived from information in the Riverside County Waste Generation Study, Preliminary Report, June 14, 1991.

² Other Plastics refers to material types listed in the glossary as: Polypropylene, Polystyrene, PVC and Other Plastics.

³Percentage given is for tires and rubber.

III. EXISTING PROGRAM DESCRIPTION

Riverside County is committed to reducing its waste stream at the source of generation. This commitment is exemplified in that a chapter in the State approved (December, 1989) revision of the Riverside County Solid Waste Management Plan covered aspects of source reduction prior to the enactment of the California Integrated Waste Management Act. The chapter entitled "Waste Resource Recovery and Waste Reduction" included related sections on County purchasing practices, legislation regulating excess packaging, state and federal tax laws, incentives to increase participation, and public information.

To date, one county source reduction program consists of two amendments that were made to the County's purchasing policy in June, 1990. One change requires County letterhead and business card paper to be recycled stock with the highest possible percentages of recycled and post consumer waste content as long as the end product is consistent with the need for appearance and performance (e.g. ability to perform effectively in existing printing presses and photocopiers). This same policy encourages County personnel to choose papers made with recycled stock and post consumer waste for all specialty printed products (e.g. posters, flyers, brochures, etc.).

The second change to County purchasing policy authorizes the purchasing agent to develop a program for the purchase of products using recycled materials. The purchasing agent is also able to decide that recycled materials only will be specified even if the cost involved is greater than materials without recycled content if he/she determines it is of advantage to the County and no laws or regulations are violated by it. The purchasing agent shall advise the Board of Supervisors when a contract is awarded for materials with recycled content, when the cost of the materials with recycled content exceeds the cost of comparable materials without recycled content by more than a prescribed amount (5% in 1990).

The above amendments to the purchasing policy will lead to less virgin material being utilized by County departments in their daily business and, in the process, less waste derived from virgin material being generated for disposal. It is assumed many of the articles purchased under these recycled product purchasing policies will also be recyclable. Efforts in the area of County purchasing are viewed as an important first step in the establishment of an effective source reduction program for the unincorporated County area and, just as important, regional market development.

Riverside County Ordinance Number 348 promotes the use of drought resistant plants/trees in landscape projects. These species utilize less water and at the same time create less waste (Ordinance 348 is currently being revised).

Goodwill Industries established a drop off depot during the County Trashbusters events in Cabazon and Mira Loma that took place in 1991. Residents were able to bring their textiles, appliances and other household materials to the site so that they could be refurbished for ultimate reuse (Please see Table 3-2 for the amount of material diverted through this program.). Goodwill has expressed interest in continuing this service in future Trashbuster events.

It is believed that the majority of source reduction activity by residents of the unincorporated County area is conducted at neighborhood thrift shops and through charitable organizations. A listing of these locations in Riverside County is found in Appendix C. The Waste Management Department of the County will maintain an updated listing.

Table 3-2
Summary of Existing Source Reduction Programs

Existing Program	Sponsor	1990		Comments
		Waste Diversion		
Private Programs				
Neighborhood Thrift Shops and Charitable Organizations	Varies (See Appendix C)	Unknown		
Public Programs				
County Purchasing Program	Riverside County	-		No diversion for 1990. Displacing virgin material with the use of post consumer content in County purchases is currently disallowed for diversion credit by the State (appeal pending).
County Trashbuster Dropoff	Riverside County/ Goodwill Industries	-		Program started in 1991 with two Trashbuster events. A total of 7,593 lbs. of material diverted through them (5,716 lbs. among the component targeted materials).
County Ordinance No. 348	Riverside County	Unknown		This Ordinance encourages the use of drought resistant plants in landscape projects and is currently being revised.

NOTE: This table does not attempt to quantify existing efforts by individuals already practicing selective purchasing and other personal measures used to minimize waste.

IV. EVALUATION OF SOURCE REDUCTION ALTERNATIVE PROGRAMS

The alternative programs are intended to help achieve the objectives of the Source Reduction Component and in the process contribute to the overall attainment of the mandated waste diversions of 25% and 50%. The list below represents a compilation of all known possible programs which could be implemented. The programs are organized according to the program types provided in Section 18734.3 of the Regulations. A program's inclusion in this section means that it was considered as a potential implementation alternative by the Local Task Force subcommittee on source reduction and County staff. Section V of this component lists those alternative programs that were slated for implementation after the completion of the evaluation process.

Source Reduction Component Alternative Programs

A. Rate Structure Modifications

1. Consider a disposal fee structure that charges a lower rate for those loads that have benefitted from a recycling system or source reduction efforts (County of Riverside Waste Diversion Incentive Study, February 7, 1991, Price Waterhouse)
2. Modify the collection rate structure so that the fees paid by residents will be based on the number and/or size of containers/bags set out for collection.

B. Creation of Economic Incentives

1. Consider a local advance disposal fee on pertinent products.
2. Promote and/or support state and federal laws for an advance disposal fee.
3. Reduce applicable business license fees as an incentive to those businesses who maintain source reduction practices.
4. Establish a loan, grant, and loan guarantee program that will be used to encourage businesses in the unincorporated area to develop methods and systems or purchase machinery that will appreciably reduce the amount of waste generated by their operations.
5. Establish a deposit, refund, and rebate program to encourage the reuse of certain products.

C. Technical Assistance or Instructional and Promotional Alternatives

1. Promote local business participation in the state's Materials Exchange and Reuse Program.
2. Establish a public recognition and nomination program for residents, organizations and developers of products in the unincorporated area that are successful in reducing waste at the source.
3. Establish a program designed to increase the efficient use of paper within County Departments.

This program will focus on requiring:

- *double sided copying in all applicable functions,
 - *all nonconfidential single sided material to be reused as scratch paper,
 - *all County Departments to analyze their business forms to ascertain if any can be shortened, combined or discontinued, and
 - *all County Departments to analyze their incoming and outgoing mailing lists on a regular basis with an intent of reducing their size.
4. Promote Riverside County Ordinance Number 348 which encourages the use of plants/foilage in landscaping that require low amounts of water in the unincorporated area of the County to reduce the production of yard waste (Note: Ordinance 348 is currently being revised to require the use of drought resistant plants.).
 5. Establish a referral system where owners of white goods and other repairable products may be directed to organizations and shops that will take their goods and refurbish them for ultimate reuse.
 6. Establish an education program designed to encourage residents to buy reusable, repairable and recycled/recyclable products and to promote other source reduction issues. This education program would include items such as:
 - *twelve media programs for presentation on radio and television by 1995,
 - *the maintenance of curbside recycling programs (per Riverside County Ordinance Number 657) and publish results of diversion efforts as a means of encouraging individuals to evaluate their purchases on a continual basis,
 - *the promotion of the full utilization of a product/material before it is disposed of as waste,
 - *the encouragement of retreading of tires using existing retread businesses,
 - *Promote that residents can reduce the amount of junk mail they receive by 1) contacting an existing organization (address to be provided) that will keep their name and address from being sold for use on future mailing lists and 2) contacting a mailing company directly to remove an individuals name and address from existing mailing lists,
 - *Encourage residents to reuse products/materials where appropriate rather than discarding them after one usage. An example would be to use shopping bags more than once.
 7. Establish a technical assistance program that will assist business and governmental agencies in reducing the amount of solid waste and waste toxicity generated.

***the area of waste evaluations that each jurisdiction is supposed to consider in its source reduction planning is included under the larger program of technical assistance**

- 8. Obtain curriculum for use in school districts for grades K-12 that will explain/promote the concept of source reduction and the various means of achieving it.**
- 9. Support state and federal laws that would establish an environmental labeling program which would educate consumers on the hazardous content of products/packaging and whether they contain recycled content or are in fact reusable, repairable and/or recyclable.**
- 10. Establish and promote a yard waste management program for residents of the unincorporated county area which will include backyard composting and leaving grass clippings on the lawn.**
- 11. Require wholesale and retail stores in the unincorporated area to post pertinent source reduction information near vendor products.**
- 12. Promote an environmentally sound tire retreading facility in the County or region.**
- 13. Establish a master recycler composter program where demonstration sites would highlight principles of waste management (with the emphasis on residential yard waste management) and the training of volunteers would help promote these very same principles.**

D. Regulatory Programs

- 1. Investigate the establishment of a reporting system that all identified waste generators or manufacturers in the unincorporated County must comply with, and that will assist them in limiting the amount of waste generated at the source.**
- 2. Establish a County Purchasing program that will result in a reduction of the waste that is generated. This program will include the following features:**

***Encouragement of other County Departments to make it a priority to purchase reusable, repairable and/or recycled content/recyclable materials,**

***specifications in all applicable proposals that all constituent product materials be nontoxic in nature (i.e. lead, cadmium, lead-based inks and polyvinyl chloride),**

***purchases of materials and supplies in bulk in all instances where possible,**

***specifications in all applicable proposals that packaging of purchased goods will be made of recyclable materials,**

***a requirement of manufacturers that sell goods to the county to package in bulk where appropriate.**

- 3. Encourage state and federal laws that govern the amounts and kinds of packaging.**

4. Introduce ordinances for consideration by the Board of Supervisors that prohibit key materials and/or products that are deemed responsible for an inordinate amount of waste generated within the unincorporated area of the County from entering the waste stream.
5. Introduce an ordinance package for consideration by the Board of Supervisors that will keep toxic/harmful materials from entering the unincorporated area waste stream. Ordinances may include:
 - *require all businesses in the unincorporated area of the County to utilize constituent product materials that are nontoxic in nature (i.e. materials lacking in lead, cadmium, lead-based inks, and polyvinyl chloride),
 - *prohibitions against base materials that are deemed toxic and/or harmful to the environment from entering the unincorporated area waste stream.
6. Encourage state and federal laws prohibiting products with adverse effects upon the environment.
7. Establish a program of incentives and disincentives to land-use development that promote source reduction.
8. Require that separate collection of white goods be available during trashbuster clean-ups and the collected white goods be made available to shops and organizations that will refurbish them for ultimate reuse.
9. Mandate the retreading of all applicable tires in the County.

Evaluation

Each alternative program was assigned a grade from 1-5 based upon its' degree of satisfactorily meeting specified criteria (for a listing of grading criteria and definitions please see Appendix B). Criteria grades for each program were added together and the resultant total considered the alternative's score. The scoring process facilitated a prioritization of programs to pursue for implementation. A table that provides a listing of all alternative source reduction programs and their final scores is located in Appendix B.

A qualitative analysis of each program contributed to the final prioritization of component alternatives. Programs are divided into two (2) tiers. The first tier will be pursued for implementation with the second tier following only if monitoring of the front line alternatives determines a need to augment additional programs. Programs that did not survive the analysis were eliminated from future consideration.

The listing of first tier programs that is included in Section V will describe and justify each new program or expansion of an existing program chosen for implementation. Each page describes only one program and includes the following information: program name, description, justification for selection, quantities and types of waste to be diverted, identification of end uses, methods of handling materials, and facility requirements.

V. SELECTION OF PROGRAMS

Existing Programs

Riverside County has a number of existing programs that will help meet the objectives of the source reduction component. The existing programs include:

Thrift shops and Charitable Organizations

The County believes that much of the source reduction activity in the unincorporated County is occurring at thrift shops and charitable organizations. There are no indications at this time as to the amount of diversion that is happening at these locations.

The Purchase of Recycled Content Products

The County has acted to amend its purchasing policy to facilitate the purchase of recycled content products.

County Trashbusters' Drop-off

Goodwill Industries established a drop-off for textiles, appliances and household goods during two trashbusters events in 1991.

Riverside County Ordinance Number 348

This ordinance encourages the use of drought resistant plants and foliage in landscape projects.

First Tier Programs Begin on Page 3-11

PROGRAM

Local Participation in the State Waste Exchange Directory

DESCRIPTION

This program would promote local business participation in the state waste exchange directory where businesses can list the waste that they generate and have available for use in others' operations.

JUSTIFICATION FOR SELECTION

This Program is believed to be an effective method for turning material that ordinarily would have entered the waste stream into feedstock for another enterprise. The result is a net reduction in the waste stream and savings in virgin resources.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(Quantification of this program is not possible until after it is in operation for a period of time and the impact of local participation in the waste exchange directory can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)

IDENTIFICATION OF END USES

The materials that are exchanged among the participants will be utilized as feedstock in the various manufacturing processes.

METHODS OF HANDLING MATERIALS

Materials will be handled by methods that are appropriate in each specific instance.

FACILITY REQUIREMENTS

This program would not require new or expanded facilities for its implementation.

PROGRAM

Public Recognition Program

DESCRIPTION

This program will recognize developers of products, individuals and/or agencies that participate in, and/or achieve notable gains in, source reduction in everyday life. One part of this program would issue a sticker that establishments that purchase recycled content products for use in their daily work can display in the window of the business. The overall source reduction recognition program would be part of the County recognition program for waste management issues (See Chapter 7 Education and Public Information for more details on this program).

JUSTIFICATION FOR SELECTION

This program is believed to be an effective method for achieving reductions in the amount of waste generated at the source through the educational value of recognizing those parties that are successful in their efforts. It is an inexpensive program compared to the influence it can have as an educational tool.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(It is impossible to gauge the direct impact that this program will have on source reduction.)

IDENTIFICATION OF END USES

There are no materials requiring end uses that are diverted directly as a result of this program.

METHODS OF HANDLING MATERIALS

There are no materials requiring handling as a result of this program.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

Reporting System

DESCRIPTION

This program would require a study to be performed to determine the feasibility of amending existing County Ordinances or creating new County Ordinances to require identified commercial generators or manufacturers in the unincorporated County area to report source reduction activities practiced and diversions achieved through them.

JUSTIFICATION FOR SELECTION

It is believed that a reporting system, if feasible, would be effective in limiting the amount of waste generated at the source by waste generators in the unincorporated County area. The consideration of operational systems and procedures that would occur as a result of this reporting mechanism by said waste generators will result in a reduction in the amount of material generated by them. Institutional barriers are expected to be minimal for this program. The reporting of diversions through this program will assist the County in monitoring its progress toward meeting the mandated diversion goals.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(Quantification of this program is not possible until after it is in operation for a period of time and the impact of the reporting system can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)

IDENTIFICATION OF END USES

The reductions achieved by this program will take place prior to waste generation so there will be no need to locate end uses for the materials.

METHODS OF HANDLING MATERIALS

The reductions achieved by this program will take place prior to waste generation so there will be no need to handle materials.

FACILITY REQUIREMENTS

This program would not require new or expanded facilities for its implementation.

PROGRAM

Efficient Use of Paper in County Departments

DESCRIPTION

The program will be designed to increase the efficient use of paper within County Departments through a number of avenues. These avenues include:

- A) Double sided copying in all applicable functions,
- B) All nonconfidential single sided material to be reused as scratch paper,
- C) All County Departments to analyze their business forms to ascertain if any can be shortened, combined or discontinued, and
- D) All County Departments to analyze their incoming and outgoing mailing lists on a regular basis with an intent of reducing their size.

JUSTIFICATION FOR SELECTION

It is believed that the program will be very effective in reducing the amount of waste generated at the source by County governmental offices. It is believed that County Departments/Agencies may exhibit moderate resistance to this program since its implementation will directly impact the way they conduct daily business. Its implementation is still considered necessary in order to realize savings in the amount of waste generated at the source and to serve as an example to the private sector of how it can assist the effort at office locations.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
High Grade Paper (Double Sided Copying)	78 Tons	122 Tons
High Grade Paper (Used as Scratch Paper)	8 Tons	10 Tons
Mixed Waste Paper (Mixed as Scratch Paper)	2 Tons	3 Tons
TOTAL	88 Tons	135 Tons

Diversion achieved through this program will not be creditable to the unincorporated area since the majority of County office buildings are located within various city limits. Tonnages diverted from the landfill are attributed to the jurisdiction where the recovery activity takes place. It is believed important to proceed with this program despite the prospect of no diversion credit since it will serve as a model to the private and public sector of the types of programs that can reduce the amount of waste generated at the source. The County will support attempts to redress the credit question in order to assist itself and other jurisdictions in similar situations in the attainment of the mandated diversion goals.

IDENTIFICATION OF END USES

The reductions achieved in this program will take place prior to waste generation and will not require the designation of end uses.

METHODS OF HANDLING MATERIALS

The implementation of this program will not require the handling of materials.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation. Departments will require machines that are capable of double sided copying.

PROGRAM

Source Reduction Education Program

DESCRIPTION

This alternative will establish an education program that will encourage residents of the unincorporated County area to reduce their waste at the source. This program will touch on many aspects of source reduction but a few of them and/or some of the approaches to be used include:

- A) Twelve media programs for presentation on radio and television by 1995,
- B) The promotion of curbside recycling programs as a means of encouraging individuals to evaluate their purchases,
- C) The promotion of the full utilization of a product/material before it is disposed of as waste,
- D) The encouragement of retreading of tires within the existing infrastructure,
- E) The promotion of reducing junk mail by: 1) contacting an existing organization (address to be provided) that will keep a person's name and address from being sold for use on future mailing lists and 2) contacting a mailing company directly to remove an individual's name and address from existing mailing lists,
- F) Encourage residents to reuse products/materials where appropriate rather than discarding them after one usage. An example would be to use shopping bags more than once.

This program will be conducted as part of the overall Public Education and Information effort of the County (See Chapter 7 Education and Public Information for more details on the overall educational effort as it relates to Source Reduction).

JUSTIFICATION FOR SELECTION

The achievement of waste reductions at the source will require changes in attitudes and behavior on the part of County residents. An education program is viewed as necessary in order to achieve these necessary changes and a resultant net reduction in the amount of waste generated.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
(Quantification of this program is not possible until after it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)		

IDENTIFICATION OF END USES

The reduction of waste at the source will not result in materials that will require the determination of an end use.

METHODS OF HANDLING MATERIALS

The reduction of waste at the source will not result in materials that will require handling.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

County Purchasing Program*

DESCRIPTION

This program will build on the County's current efforts in the area of purchasing recycled content products in order to further reduce the waste that is generated at the source. These efforts will include:

- A) The encouragement of County Departments to make it a priority to purchase reusable, repairable, recyclable materials and materials which contain recycled content,
- B) Specifications in all applicable proposals that all constituent product materials be nontoxic in nature (i.e. materials lacking in lead, cadmium, lead-based inks and polyvinyl chloride) [Please reference objective 7],
- C) Purchases of materials and supplies in bulk in all instances where feasible,
- D) Specifications in all applicable proposals that packaging will be made of recyclable materials, and
- E) A requirement of manufacturers that sell goods to the County to package in bulk where appropriate.

JUSTIFICATION FOR SELECTION

It is believed that the program will be very effective in reducing the amount of waste generated at the source. The program is also considered an integral part of the County's market development program through its direct impact on the market for collected recyclable materials and as an example to the private sector for the need to purchase such products. There are favorable indications, with the existence of the current policy, that the expanded program would be consistent with local policy.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
High Grade Paper	8 Tons	20 Tons
Mixed Waste Paper	2 Tons	3 Tons
PET Plastic**	4 Tons	6 Tons
TOTAL	14 Tons ***	29 Tons***

IDENTIFICATION OF END USES

The reductions achieved with this program will occur prior to waste generation and will not require designated end uses.

METHODS OF HANDLING MATERIALS

The reductions achieved with this program will not require materials to be handled.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

***NOTE:** The County understands that diversions achieved in government office buildings under the regulations is credited to the jurisdiction where the facilities are located. It is believed important to proceed with this program despite the prospect of no diversion credit since it will serve as a model to the private and public sector of the types of programs that can reduce the amount of waste generated at the source. The County will support attempts to redress the credit question in order to assist itself and other jurisdictions in similar situations in the attainment of the mandated diversion goals.

****NOTE:** The diversion listed for PET plastic is for refillable toner cartridges. Other materials included in the manufacture of the cartridge are not included in the estimate of diverted materials. It should be noted that the use of recyclable cartridges is also keeping toner residue out of County landfills.

*****NOTE:** The tonnage listed as diversion for this program is for the amount of virgin material displaced as a result of purchasing products with recycled material content. It is based on the recycled content products that are currently purchased by the County of Riverside and are comprised of some portion of post consumer material. The total will more than likely be larger when the variety of recycled content products increases and the County begins purchasing them. Diversion achieved through other parts of this program will have to wait until it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.

Riverside County is proposing a Cooperative Purchasing Program for use by the County and its incorporated cities. The program would focus on recycled content/recyclable products and be administered by a position in the County Purchasing Department. The County has been notified by staff of the State Integrated Waste Management Board that diversion gained through the purchase of products with recycled content would not earn source reduction diversion credit. The County is supportive of efforts that would allow it to take credit for the diversion that takes place with the purchase of products with recycled content. The above totals for such diversion are over and above the objectives stated in the component. The County Waste Management Department, however, considers such diversion to be valid and creditable.

PROGRAM

Referral System for Household Owners of White and Repairable Goods.

DESCRIPTION

This program will establish a referral system for owners of white and repairable goods so that the products can be directed to organizations that will refurbish them for their ultimate reuse. It can be implemented in the short-term planning period.

JUSTIFICATION FOR SELECTION

It is believed that this program will be moderately effective in reducing the amount of waste that is generated at the source. There are no perceived institutional barriers to this program.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(Quantification of this program is not possible until after it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)

IDENTIFICATION OF END USES

It is intended that the appliance and other repairable goods will be reused by citizens after they are repaired by the organizations.

METHODS OF HANDLING MATERIALS

It is believed that the goods will transported to and from the repair locations by vehicle.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM**Use of Drought Resistant Landscape Plants****DESCRIPTION**

This program would require the use of drought resistant plants in the landscape designs of industrial, commercial and residential developments through an amendment to Riverside County Ordinance Number 348. These plants would use less water and at the same time create less waste. The amendment of Ordinance Number 348 would bring County policy in line with the requirements of AB 325 (Clute), Chapter 1145, Statutes of 1990.

JUSTIFICATION FOR SELECTION

This program is believed to have a high degree of effectiveness in reducing the amount of waste generated at the source. It is an expansion of existing local policy (It is currently being revised). Moderate resistance is expected from developers.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(Quantification of this program is not possible until after it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source diversion total.)

IDENTIFICATION OF END USES

The reductions achieved in this program will take place prior to waste generation and will not require designation of end uses.

METHODS OF HANDLING MATERIALS

The implementation of this program will not require the handling of materials.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

Environmental Labeling Program.

DESCRIPTION

This program would support statewide and federal legislation for an environmental labeling program at selected grocery stores and supermarkets which would educate consumers on the hazardous content of products/packaging and whether they contain recycled content or are in fact reusable, repairable and/or recyclable (Please see Chapter 7 Education and Public Information for more details).

JUSTIFICATION FOR SELECTION

This program is considered an effective method of reducing the amount of waste at the source by educating consumers regarding products that by their nature assist the effort. It is believed that there would be a moderate level of resistance but that the benefits to be achieved in educating the public about source reduction friendly products necessitate proceeding with it.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(It is impossible to gauge the direct impact that this program will have on source reduction.)

IDENTIFICATION OF END USES

The waste reductions achieved at the source will not require determination of end uses.

METHODS OF HANDLING MATERIALS

The waste reductions achieved at the source will not require further handling.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

Technical Assistance to Business and Governmental Agencies.

DESCRIPTION

This program would assist unincorporated area businesses and County Government offices in the establishment of source reduction programs. These source reduction programs will focus on the amount of solid waste and waste toxicity generated (Reference Objective 7). Assistance in regard to waste toxicity will be coordinated with the County Health Services Agency in their role as administrator of the Riverside County Hazardous Waste Management Plan. Assistance regarding waste evaluations will be included in the overall technical assistance program. This component's program will be part of the larger technical assistance program that is described in the Education and Public Information Component (See Chapter 7 for details).

JUSTIFICATION FOR SELECTION

It is believed that this program will be effective in helping the County achieve reductions of solid waste and waste toxicity at the source through assisting private and public agencies in such efforts. There are expected to be few institutional barriers to this program.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(Quantification of this program is not possible until after it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)

IDENTIFICATION OF END USES

The waste reductions achieved at the source will not require a determination of end uses.

METHODS OF HANDLING MATERIALS

The waste reductions achieved at the source will not require further handling.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

Support State and Federal Laws Regarding Packaging

DESCRIPTION

This program would monitor State and Federal legislation in order to communicate County support for those measures that would limit the amount of packaging generated and the types of packaging that induce litter and/or the emission of harmful materials/substances into the environment.

JUSTIFICATION FOR SELECTION

It is believed that this program would be very effective in reducing the amount of packaging waste generated at the source. The adoption of such legislation at the State and Federal level would have a very positive impact on the net reduction of material entering the waste stream. It is believed that there may be some resistance to this program in those instances where the proposed legislation would be opposed by various parties but the potential gains necessitate pursuing it.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(It is impossible to gauge the direct impact that this regulatory program will have on source reduction.)

IDENTIFICATION OF END USES

The waste reductions achieved at the source will not require determination of end uses.

METHODS OF HANDLING MATERIALS

The waste reductions achieved at the source will not require further handling.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

Source Reduction Curriculum for Grades K-12

DESCRIPTION

This program will support the development of a Statewide source reduction curriculum by the Integrated Waste Management Board and supplement it where necessary. Until this curriculum is developed, the Waste Management Department shall endeavor to publicize source reduction curricula already available and provide assistance where applicable. This program will be part of the curriculum program that is part of the Education and Public Information Component. Please see Chapter 7 Education and Public Information for more details.

JUSTIFICATION FOR SELECTION

The waste reduction gains that are to be achieved through source reduction necessitate a fundamental change in the attitudes and behaviors that individuals hold regarding waste disposal. It is believed that over time this program will result in the changed attitudes that are required to reduce waste at the source.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(It is impossible to gauge the direct impact that this program will have on source reduction.)

IDENTIFICATION OF END USES

The waste reductions achieved at the source will not require a determination of end uses.

METHODS OF HANDLING MATERIALS

The waste reductions achieved at the source will not require further handling.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

Residential Yard Waste Management Program

DESCRIPTION

This program would enable and educate the residents of the unincorporated County area to manage their yard waste either through backyard composting or by simply not bagging their grass clippings.

JUSTIFICATION FOR SELECTION

This program is believed to be an effective method for reducing the amount of yard waste generated at the source. The program would result in all the green waste material impacted by it not entering the landfill. This alternative program is also viewed as being a valuable tool for educating the public concerning source reduction, composting and recycling issues.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
Yard Waste	1,270 Tons	2,895 Tons
Total	1,270 Tons	2,895 Tons
% of Mandated Goal (W/Inert Solids)	.17%	.35%
% of Mandated Goal (WO/Inert Solids)	.25%	.49%
(i.e. 25%/1995 and 50%/2000)		

(The above diversion total is for the backyard composting portion of the program. Quantification of diversion resulting from not bagging grass clippings is impossible until after it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)

IDENTIFICATION OF END USES

The material that will be diverted through backyard composting may be used by residents as a soil supplement in their yards and gardens while the unbagged grass clippings will enrich their lawns.

METHODS OF HANDLING MATERIALS

The methods for handling materials in this program will depend on the manner in which residents pursue it. In terms of backyard composting, some may take an aerobic approach and rotate the material in uncontained piles while others may do the same in more structured pens/containers. Others may choose an anaerobic approach and just stack the material in one container and let it sit until it is compost (Please see the glossary for definitions of "Aerobic" and "Anaerobic"). Residents may choose to utilize a standard lawn mower when leaving their grass clippings on the lawn or one that has mulching capability.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation. Its implementation may require the purchase of bins for backyard composting if that option is chosen.

PROGRAM

Refuse Collection Rate Structure

DESCRIPTION

This program would amend County Ordinance 657 governing the refuse collection rate structure so that residents are charged each month for the amount of waste they generate. The common method is to tie the monthly charge to the number and size of the containers/bags filled by the customer. A resident can be charged by the weight of the refuse he generates in some jurisdictions.

JUSTIFICATION FOR SELECTION

It has been demonstrated that this program would be very effective in reducing the amount of waste generated by residents. They would directly see the connection between the amount of waste they generate and the cost of disposing it. They could have a direct impact on their monthly bills by their own purchasing and disposing habits. The adoption of such a program would have a very positive impact on the net reduction of material entering the landfill. It is believed that there would be some resistance for this program from the hauling companies that are permitted to operate in the unincorporated County area. A monitoring system will also have to be developed for such a program since one does not exist within the current system.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(Quantification of this program is not possible until after it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)

IDENTIFICATION OF END USES

Waste reductions will be achieved at the source by residents limiting their generation through shifting materials to other diversion programs (i.e. curbside recycling), utilizing resources at home (i.e. backyard composting), and altering their buying habits.

METHODS OF HANDLING MATERIALS

Materials will be handled by the resident when shifting them to other diversion programs or reusing them. Some of the waste reductions will occur before they have been generated in the first place and will not require further handling by individuals throughout the system.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

State and Federal Laws for an Advance Disposal Fee

DESCRIPTION

This program would promote State and Federal legislation that would impose a pre-disposal fee on certain products that would be intended to cover the final disposal cost of the product and enable the consumer to consider it in making purchasing choices.

JUSTIFICATION FOR SELECTION

It is believed that this program would be effective in reducing the amount of waste generated at the source by reducing the amount of packaging material that ultimately enters the waste stream. It is believed that there will be opposition to these laws from the packaging and related industries but the reduction gains to be achieved through their implementation necessitate continuing their promotion.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(It is impossible to gauge the direct impact that this regulatory program will have on source reduction.)

IDENTIFICATION OF END USES

The waste reductions achieved at the source will not require the determination of end uses.

METHODS OF HANDLING MATERIALS

The waste reductions achieved at the source will not require further handling.

FACILITY REQUIREMENTS

This program will not require new or expanded facilities for its implementation.

PROGRAM

Incentives and Disincentives to Land Use Development.

DESCRIPTION

This program would evaluate land use permit ordinances/building codes to determine if amendments are warranted to remove any unnecessary barriers in order to promote source reduction activities as part of a facility's design, construction and/or operation. Less restrictive land use permits could also apply to other programs such as clearing a site and using the collected materials (i.e. rock and concrete) in another usage.

JUSTIFICATION FOR SELECTION

It is believed that this program would be effective in reducing the amount of waste generated at the source. It is perceived that there will be resistance to this program from those parties that do not want to commit to source reduction in relation to land use and building code matters but that its benefits necessitate implementing it.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

(It is impossible to gauge the direct impact this regulatory program will have on source reduction.)

IDENTIFICATION OF END USES

Those projects or stores (i.e. second hand) that would be the result of less restrictive land use permits and building codes would have to determine where they could divert the recovered material or who would be the individuals most likely to make use of their services.

METHODS OF HANDLING MATERIALS

Materials that would be diverted from entering the waste stream as a result of this program would be handled in a variety of methods. Some may be repaired by individuals, while others may be crushed by machine. The ready material would be transported by appropriate vehicle.

FACILITY REQUIREMENTS

Some facilities may be established as a result of less restrictive land use permits and building codes. The extent of these facilities would be dependent on each particular situation.

PROGRAM

White Goods Collection During Trashbuster Cleanups

DESCRIPTION

This program would require that an avenue be provided to unincorporated County residents during County/hauler sponsored Trashbuster Cleanups to unload their white goods so that they may be repaired for the purpose of reuse or scrapped for the purpose of diverting the material from the landfill. (NOTE: The current practice of Goodwill Industries establishing a drop-off depot for textiles, appliances and other household goods during Trashbuster cleanups would continue for those residents wishing to take advantage of it.)

JUSTIFICATION FOR SELECTION

The collection of white goods and other bulky items by permitted haulers during annual cleanup days is currently required under County Ordinance 657. An amendment to the ordinance to require separate collection of white goods during trashbusters cleanup days is in line with existing policy and would ensure that these items are diverted from the landfill through reuse or recycling.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
Textiles	1 Ton	1 Ton
White Goods	5 Tons	6 Tons
TOTAL	6 Tons	7 Tons
% of Mandated Goal (w/Inert Solids)	.001 %	.001 %
% of Mandated Goal (wo/Inert Solids)	.001 %	.001 %
(i.e. 25%/1995, 50%/2000)		

(The above diversion total is for the continuation of the Trashbuster drop-off that is in conjunction with Goodwill Industries only. Quantification of the collection of white goods during Trashbuster Cleanups by the haulers is not possible until after it is in operation for a period of time and the impact can be adequately gauged. Please refer to the end of the first tier program section for the collective expected impact of these unquantifiable programs on the source reduction diversion total.)

IDENTIFICATION OF END USES

The white goods collected under this program would either be repaired for use and/or resale or recycled for scrap value.

METHODS OF HANDLING MATERIALS

The method for collecting the white goods will depend on the situation of each trashbuster event. Some instances may require that the residents deliver the goods to a central collection point, while other instances may provide curbside collection. The goods will be transported to their ultimate end use via the appropriate transport system.

FACILITY REQUIREMENTS

This program will require the appropriate vehicles to pick up and transport the goods to their final destination.

PROGRAM

Master Recycler Composter

DESCRIPTION

This program will establish demonstration sites which will highlight principles of waste management. It is envisioned that the emphasis of these demonstration sites will be on residential yard waste management and specifically, backyard composting.

The scope of this program is much larger than yard waste management. The Waste Management Department will develop a network of volunteers, educate these persons in current waste management issues and provide tools for public presentations and outreach. This program is modeled after the King County (Washington) Master Recycler Composter Program where community volunteers are trained in waste management principles and encouraged to conduct outreach on their own.

It is envisioned that this program would cover the entire County and that unincorporated as well as incorporated residents would be encouraged to participate. The Waste Management Department would investigate the possibility of city, special district, and private sector cooperation in this program.

JUSTIFICATION FOR SELECTION

This program is considered an effective method of reducing the amount of yard waste at the source by educating residents concerning principles that are applicable around their home. The educational impact of this program extends to other areas of waste management such as source reduction, recycling, composting and household hazardous waste. Volunteer involvement will make it possible for such issues to reach a wider audience than otherwise would be the case with only County staff and Local Task Force members making presentations. It is believed that institutional barriers are low for this program.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
(It is impossible to gauge the direct impact that this program will have on source reduction and other program areas.)		

IDENTIFICATION OF END USES

The yard waste material that will be diverted through the encouragement of residential management techniques may be used to enrich the landscape. Other material diversions that will result from the outreach effort (i.e. the collection of recyclable materials) will necessitate transport to locations where they will be prepared for market.

METHODS OF HANDLING MATERIALS

Materials will be handled by the resident as a result of this program if they choose to participate in an operating diversion program. The source reductions in the amount of waste generated will not require further handling. The methods for handling yard waste materials around an individual residence are highlighted in the program description "Residential Yard Waste Management Program" included in this component.

FACILITY REQUIREMENTS

Sites will be needed for the establishment of the demonstration sites.

Source Reduction Component Estimated Diversion

Table 3 - 3 summarizes the estimated source reduction component diversion totals for the targeted material types for both the short and medium term planning periods. It should be noted that it is believed the presently unquantifiable programs will total .83% of the total unincorporated area waste stream in 1995 and 1.65% in 2000. The total anticipated diversion from source reduction programs is 1% on January 1, 1995 and 2% on January 1, 2000.

Table 3 - 3 Source Reduction Component Estimated Diversion		
Material Type	1995 (Tons)	2000 (Tons)
Paper:		
Corrugated Containers	1,565	3,725
Mixed Paper	890	2,110
High Grade Ledger Paper	95	145
Other Paper	585	1,385
Plastics:		
Film Plastics	90	210
Other Plastics	305	725
Metals:		
White Goods	115	270
Yard Waste	1,310	3,010
Other Organics:		
Tires and Rubber Products	415	490
Wood Wastes	1,500	3,560
Textiles and Leather	235	555
Disposable Diapers	185	440
Total Tons	7,290	16,625
% of Total Waste Stream	1.0%	2.0%
% Quantifiable Programs	.17%	.35%
% Unquantifiable Programs	.83%	1.65%

It should be noted that the source reduction diversion totals without inert solids is 2% in the short term planning period (.25% quantifiable/1.75% unquantifiable) and 3% in the medium term planning period (.49% quantifiable/2.51% unquantifiable).

Second Tier Programs

The programs listed in the second tier will be evaluated and considered for implementation on an as needed basis. An example of a situation that would result in utilization of these programs include tier one programs falling short of planned diversion goals.

1. Consider a disposal fee structure which charges a lower rate for arriving loads which have benefitted from recycling/source reduction.
2. Consider a local advance disposal fee on pertinent products.
3. Ordinances that prohibit materials deemed to create an inordinate amount of waste from entering the waste stream.
4. Ordinances prohibiting base materials deemed toxic and/or harmful to the environment from entering the waste stream (Please reference Objective 7).
5. Reduce applicable business license fees as an incentive to those businesses who maintain source reduction practices.
6. Establish a loan, grant, and loan guarantee program assisting businesses to develop systems to reduce waste generated.
7. Promote the siting of an environmentally sound tire retreading facility in the County or region.

VI. IMPLEMENTATION

Tables 3-4.1 to 3-4.3 depict an implementation plan for each of the selected programs including existing and planned. This plan will serve as a guideline for the County, showing a time frame in which all programs will be implemented. This plan lists necessary steps to implement each program, the responsible agency(ies), and the year in which each task will commence and end, with those programs which are ongoing appropriately labeled. Also shown are the estimated public implementation costs of each program, public revenues generated as a result of the program, private implementation costs, private revenue generated as a result of the program and the anticipated revenue sources available to fund implementation.

Table 3-4.1
Source Reduction Component Implementation Plan
Existing Programs

Existing Program	Responsible Agency	Frequency of Program
Neighborhood Thrift Shops and Charitable Organizations	Varies	Continuous
County Purchasing Policies	Purchasing	Continuous
County Trashbuster Dropoff	WMD Goodwill Industries	Continuous
County Ordinance No. 348	Planning	Continuous

Table 3—4.2
Source Reduction Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. State Waste Exchange Directory	CIWMB	Ongoing Program									
1. Contact state about program	WMD		X								
2. Put together state promotional literature for local distribution			X								
3. Promote program with local bus. and indust.			X								
4. Design local monitoring plan			X								
5. Monitoring					X	X	X	X	X	X	X
B. Source Reduction Education Program	(See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)										
C. County Purchasing Program	Purchasing	Ongoing Program									
1. Encourage Cnty. depts. to purchase recycled content products where feasible	WMD	X									
2. Evaluate current purchasing system			X								
3. Design waste diverting purchasing program based on evaluation of system			X	X							
4. Design monitoring program			X	X							
5. Present purchasing program to BOS as parts of it are ready for consideration			X								
6. Inform County Depts./vendors of purchasing program				X							
7. Monitoring					X	X	X	X	X	X	X
D. Drought Resistant Plants	Planning	Ongoing Program									
1. Amend County Ordinance 348 to require drought resistant plants in specified uses	CC	X									
2. Inform County developers/landscape architects regarding amended ordinance	WMD		X								
3. Design monitoring system	Printing										
4. Monitor program and quantify diversions (if possible)			X								
				X	X	X	X	X	X	X	X

Table 3-4.2 (Cont.)
Source Reduction Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
E. State/Federal Laws Regarding Packaging		Ongoing Program									
1. Monitor state and federal legislation regarding waste management issues	WMD	X									
2. Analyze bills related to packaging issues		X									
3. Compose resolution in support of particular bills		X									
4. Present resolutions to the BOS for consideration		X									
5. As resolutions are formally supported, send copies of County action to cities and urge similar action		X									
6. Monitoring			X	X	X	X	X	X	X	X	X
F. State/Federal Laws for a Advance Disposal Fee		Ongoing Program									
1. Monitor state and federal legislation regarding waste management issues	WMD	X									
2. Analyze bills related to pre--disposal fee issues		X									
3. Compose resolution in support of particular bills		X									
4. Present resolutions to the BOS for consideration		X									
5. As legislation is formally supported, send copies of County action to cities and urge similar action		X									
6. Monitoring			X	X	X	X	X	X	X	X	X
G. Environmental Labeling Program		(See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)									
H. Source Reduction Curriculum for Grades K-12		(See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)									
I. Paper Efficiency Program		Ongoing Program									
1. Design program to increase efficiency in the use of paper within County Depts.	Purchasing WMD County Depts.		XX								
2. Present program to BOS as parts of it are ready for consideration			X								
3. If BOS approves program, inform County Depts.			X								
4. Phase in implementation of program				X							
5. Monitoring					X	X	X	X	X	X	X

Table 3-4.2 (Cont.)
Source Reduction Component Implementation Plan

Alternative Program	Responsible Agency/Person (See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
J. Public Recognition Program											
K. Referral Sys. for White/Repairable Goods											
1. Update list of thrift/repair shops	WMD Printing		X								
2. Print list			X								
3. Promote the list throughout the County			X								
4. Design monitoring system			X								
5. Monitoring			X	X	X	X	X	X	X	X	X
L. Residential Yard Waste Management Program											
1. Investigate equipment requirements & costs associated with backyard composting & not bagging grass clippings	WMD RCSWMAC/LTF LEA		X								
2. Determine parameters of program	AO		X								
3. Determine region(s) in the unincorporated area for implementing initial pilot programs	Printing		X								
4. Design public education/information for initial pilot programs			X								
5. Present pilot backyard composting/not bagging grass clipping programs to RCSWMAC/LTF for approval			X								
6. Present pilot programs to BOS for consideration and approval			X								
7. Promote pilot programs in chosen area(s)			X								
8. Implement pilot programs			X								
9. Monitor pilot programs			XX								
10. Evaluate and design public education program			X								
11. Expand program				X							
12. Monitoring					X	X	X	X	X	X	X
M. White Goods Collection During Trashbuster Cleanups											
1. Investigate options for collecting white goods during trashbuster cleanups	DEH GRHC WMD		X								
2. Determine which option(s) to require	Goodwill		X								
3. Design amendment to County Ordinance 657			XX								
4. Present amended ordinance to Garbage Refuse Hauler Committee for consideration			X								
5. Present amended Ord. 657 to BOS for consideration			X								
6. Monitoring				X	X	X	X	X	X	X	X

Table 3-4.2 (Cont.)
Source Reduction Component Implementation Plan

Alternative Program	Responsible Agency/Person (See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
N. Technical Assistance to Business and Gov't Agencies											
O. Reporting System											
	WMD	Ongoing Program									
	County Agency		X								
1. Review existing County ordinances			X								
2. Design monitoring/reporting form			X								
3. Design reporting system that will interface with existing ordinances or provide basis for new ordinance			X								
4. If amending existing ordinance, meet with agencies responsible for administering it				X							
5. Present ordinance to BOS				X							
6. Administer reporting ordinance				X							
7. Monitor diversions/practices				X	X	X	X	X	X	X	X
P. Incentives/Disincentives to Land Use Development											
	Planning Building & Safety RCSWMAC/LTF	Ongoing Program									
1. Survey existing land use ordinances & building codes determine their impact on source reduction				X							
2. Review land use ordinance and building code modifications from other jurisdictions	WMD			X							
3. Determine committee structure/membership for development of modifications					X						
4. Set up committee					X						
5. Design, if necessary, changes/amendments to existing ordinances/codes					XXX						
6. Present proposed changes/amendments to the Planning Commission and RCSWMAC/LTF					X						
7. Present changes/amendments to BOS for consideration						X					
8. If BOS approves changes/amendments, promote & begin implementation						X					
9. Monitoring							X	X	X	X	X

**Table 3 – 4.2 (Cont.)
Source Reduction Component Implementation Plan**

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Q. Master Recycler Composter Program	WMD										
1. Determine parameters of program	LEA			X							
2. Compile/design MRC program training manual/classes	Cities/Agencies			XX							
3. Compile public information materials	AO			X							
4. Investigate city/agency interest in program participation	Printing			X							
5. Investigate locations for demonstration sites					X						
6. Acquire any necessary approvals (BOS, City, Agency, etc.) and negotiate agreements for locations of demonstration sites					X						
7. Begin work on demonstration sites and acquire necessary program supplies/materials					X						
8. Recruit volunteers for MRC program & begin training						X					
9. Begin MRC outreach to the public						X					
10. Monitor program						X					
11. Expand program						X					
12. Monitoring						X					
						X	-X				
						X		X	X	X	X
R. Refuse Collection Rate Structure											
(See Chapter 4 – – Recycling Component for the implementation plan for this program)											

Legend to Abbreviations

AO: Riverside County Administrative Office
 Building & Safety: Riverside County Building and Safety Department
 CIWMB: California Integrated Waste Management Board
 CC: County Counsel
 County Depts./Agency: Riverside County Departments/Agencies
 DEH: Department of Environmental Health of the Health Services Agency
 Goodwill: Goodwill Industries
 GRHC: Garbage & Rubbish Haulers Committee
 LEA: Local Enforcement Agency of Riverside County
 Planning: Riverside County Planning Department
 Printing: Printing Services, General Services Agency
 Purchasing: Purchasing, General Services Agency
 RCSW/MAC/LTF: Riverside County Solid Waste Management Advisory Council/AB 939 Local Task Force
 WMD: Waste Management Department

Table 3-4.3
Source Reduction Component Cost Estimate for Implementation Plan

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
A. State Waste Exchange Directory	CIWMB WMD	Start up 50 Annual Hrs. 30	Staff Costs \$1,400 Annual Staff Cost \$800	(Unknown, could include pick-up and/or delivery of material. Also, revenue loss from not transporting to the landfill)	\$0	(Potential from sale of material, but expected to be little, if any)	WMD Funds
B. Source Reduction Education Program (See Chapter 7 - Education and Public Information for the costs of implementing this program -NA-							
C. County Purchasing Program	Purchasing WMD	Start up 5 Annual Hours 5 OPA Start up 220 OPA Annual Hours 280	Staff Costs \$100 Annual Staff Cost \$100 OPA Staff Cost \$6,200 OPA Annual Cost \$7,800 Other - Increase of 5 - 10% from higher cost of products	\$0	\$0	\$0	GSA Funds
D. Drought Resistant Plants	Planning CC WMD Printing	Start up 30 OPA Start up 580 Annual Hours 15 OPA Annual Hours 15	Staff Cost \$800 OPA Staff Cost \$16,200 Annual Staff Cost \$400 OPA Annual Cost \$400 Supply Cost \$200 Annual Supply Cost \$200	Unknown	\$0	\$0	Planning Dept. Funds, CC Funds WMD Funds GSA Funds

Table 3-4.3 (Cont.)
Source Reduction Component Cost Estimate for Implementation Plan

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
E. State/Federal Laws Regarding Packaging	WMD	Start up 40 Annual Hours 15	Staff Costs \$1,100 Annual Staff Cost \$400	\$0	\$0	\$0	WMD Funds
F. State/Federal Laws for Advanced Disposal Fee	WMD	Start up 40 Annual Hours 15	Staff Costs \$1,100 Annual Staff Cost \$400	\$0	\$0	\$0	WMD Funds
G. Environmental Labeling Program	(See Chapter 7 - Education and Public Information for the costs of implementing this program -NA-						
H. Source Reduction Curriculum for Grades K - 12	(See Chapter 7 - Education and Public Information for the costs of implementing this program -NA-						
I. Paper Efficiency Program	Purchasing WMD County Dept.	Staff Costs 60 OPA Start up 75 Annual Hours 15 OPA Annual hours 10	Staff Costs \$1,700 OPA Staff Cost \$2,100 Annual Staff Cost \$400 OPA Annual Cost \$300 Other -- (Unknown, may require retrofit. copy machine or purchase of advanced models)	\$0	\$0	\$0	GSA Funds WMD Funds Cnty. Dept. Budgets
J. Public Recognition Program	(See Chapter 7 - Education and Public Information for the costs of implementing this program -NA-						

Table 3-4.3 (Cont.)
Source Reduction Component Cost Estimate for Implementation Plan

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
K. Referral System for White/Repairable Goods	WMD Printing	Start up	Staff Cost		\$0		\$0 WMD Funds
		45	\$1,300				
		Annual Hours	Annual Staff Cost				
		25	\$700				
		OPA Start up	OPA Staff Cost				
L. Residential Yard Waste Management Program	WMD RCSWMAC/ LTF LEA AO Printing	5	\$100				\$0 WMD Funds LEA Funds
		OPA Annual Hours	OPA Annual Cost				
		5	\$100				
			Supply Cost				
			\$200				
M. White Goods Collection During Trashbuster Cleanups	DEH GRHC WMD Goodwill	Annual Supply Cost	Annual Supply Cost				\$0 DEH Funds WMD Funds
			\$200				
			\$200				
			\$200				
			\$200				
N. White Goods Collection During Trashbuster Cleanups	DEH GRHC WMD Goodwill	Start up	Staff Costs				\$0 DEH Funds WMD Funds
		35	\$1,000				
		Annual Hours	Annual Staff Cost				
		15	\$400				
		OPA Start up	OPA Staff Cost				
O. White Goods Collection During Trashbuster Cleanups	DEH GRHC WMD Goodwill	40	\$1,100				\$0 DEH Funds WMD Funds
		OPA Annual	OPA Annual Cost				
		15	\$400				
			\$400				
			\$400				

* Costs shown will cover flyers and bins. The overwhelming majority of expense will be toward the bins if they are included in the program. Costs could be shared by private and public sectors or covered entirely by one. Shipping costs are not included.

* Figures are based on the Goodwill Industries drop off administered as part of a Trashbusters event in Cabazon during 1991.

Table 3-4.3 (Cont.)
Source Reduction Component Cost Estimate for Implementation Plan

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
N. Technical Assistance to Businesses and Government Agy. (See Chapter 7 – Education and Public Information for the costs of implementing this program –NA–							
O. Reporting System	WMD County Agency	Start up 35	Staff Cost \$1,000	\$0	\$0	\$0	WMD Funds, County Dept. Budgets
		OPA Start up 45	OPA Staff Cost \$1,300				
		Annual Hours 40	Annual Staff Cost \$1,100				
		OPA Annual Hours 30	OPA Annual Cost \$800				
			Annual Supply Cost \$100				
P. Incentives/Disincentives to Land Use Development	Planning Build. & Safety RCSW/MAC/LTF WMD	Start up 40	Staff Costs \$1,100	\$0	\$0	\$0	Building and Safety Funds Planning Funds WMD Funds
		OPA Start up 180	OPA Staff Cost \$5,000				
Q. Master Recycler Composter Program* (please see following page for notes from program)	WMD LEA Cities/Agencies AO Printing	Start up 9,875**	Staff Costs \$276,500	\$0	\$0	\$0	WMD Funds LEA Funds City/Agy. Funds, Private Funds, Investi–gate other sources (i.e. grants, etc.)
		OPA Start up 250**	OPA Staff Costs \$7,000				
		Annual Hours 2,280**	Annual Staff Costs \$63,800				
		OPA Annual Hrs. 20	OPA Annual Costs \$600				
			Supply Cost \$95,400				
	Annual Supply Cost \$14,400						
R. Refuse Collection Rate Structure	(See Chapter 5 – Recycling Component for the costs of implementing this program –NA–						

Notes from Master Recycler Composter Program:

*The budget for this program was put together with the assistance of an article by Cynthia Putnam and Howard Stenn on the King County, Washington Master Recycler Composter Program in the December, 1990 issue of RESOURCE RECYCLING and program budget information provided by the King County Solid Waste Division, Department of public works.

**As is the case in other programs, full implementation of this program takes place over more than one year. There will be demonstration sites established and volunteer training during the first year. The total number of hours required during the first year is approximately 4000. OPA first year hour total approximately 125. The annual hours will not begin until the program is fully implemented. It should be noted that King County, Washington administers its program through a consultant contract. The majority of hours for start up and annual operations could be performed by consultants or WMD staff.

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County Depts./Agency: Riverside County Departments/Agencies
DEH: Department of Environmental Health of the Health Services Agency
Goodwill: Goodwill Industries
GRHC: Garbage & Rubbish Haulers Committee
LEA: Local Enforcement Agency of Riverside County
OPA: Other Public Agency
Planning: Riverside County Planning Department
Printing: Printing Services, General Services Agency
Purchasing: Purchasing, General Services Agency
RCSWMAC/LTF: Riverside County Solid Waste Management Advisory Council/AB 939 Local Task Force
WMD: Waste Management Department

VII. MONITORING AND EVALUATION

Methods to Quantify and Monitor Objective Achievement

The quantification and monitoring of Source Reduction Component objectives has begun with the completion of the Riverside County Waste Generation Study. The study quantified the entire unincorporated area waste stream including those materials that may be included in a source reduction program (i.e. yard waste, paper, and others). The obtained information will serve as baseline data for comparison of future generation and diversion totals.

The County will continue to receive detailed waste stream information through waste characterization and/or diversion studies that will be part of the County's update process. The County is considering annual updates during the early years for its waste characterization and/or diversion studies, despite understanding that yearly updates are not required until the year after the Countywide Integrated Waste Management Plan is submitted to the State (which in the case of Riverside County is 1994). The annual updates, with the constituent characterization and diversion reports, would enable the County to determine if its source reduction programs are achieving stated objectives.

The record keeping systems for Departments and/or Agencies responsible for implementing all or parts of specific programs will be utilized to quantify the reductions achieved where possible. In some instances, the existing record systems may have to be expanded/modified in order to track the information required for the implemented programs.

The County will augment the above methods with surveys of businesses and residents in the unincorporated area. One program slated for implementation involves investigating the amending of County ordinances, or creating new ordinances, to require identified commercial generators or manufacturers to report source reduction activities practiced and diversions achieved through them. County residents will also be surveyed in order to provide a picture of the source reduction activity taking place at the residential level. Surveys will be conducted prior to and after program implementation in order to better identify the impact that particular source reduction programs had on achieved diversions.

Criteria for Evaluating a Program's Effectiveness

The County has identified the following criteria in order to determine if the source reduction programs detailed in this component are effective:

- Are the component diversion objectives being achieved? Is the program contributing to the component diversion objectives at all?
- Are the impacted agencies/entities meeting their programmatic responsibilities?
- Is the program and its associated tasks being implemented on schedule?
- Has the program been promoted adequately to the targeted users of it?
- Is the program adequately reducing targeted materials from impacted generators?

- Has the number of potential program users that have been made aware of the program and/or corresponding program participation rate increased appropriately since its initial implementation?
- Is the program being implemented and administered in an environmentally sound manner?

Agency Responsible for Monitoring and Evaluating Source Reduction Programs

The Riverside County Waste Management Department is the agency with ultimate responsibility for monitoring and evaluating the effectiveness of the implemented source reduction programs for the unincorporated County area. The monitoring of waste reductions achieved in cooperation with the Department of Environmental Health will be maintained by the Health Services Agency. Other County Agencies/Departments responsible for monitoring and evaluating aspects of the source reduction programs include the Purchasing/Mail Services Divisions of the General Services Agency and the Planning Department.

Funding Requirements, Revenues and Revenue Sources

The funding required to conduct the Source Reduction monitoring and evaluation program will be comprised primarily of the staff time needed to review and evaluate submitted reports, to coordinate and support the annual waste characterization and/or diversion studies and to take whatever action is necessary to maintain/improve actual diversion levels. It is believed that the review of reports on the part of the Waste Management Department will entail approximately 160 hours on an annual basis, while the coordination/support of the waste characterization and or diversion studies will require 200-500 hours each year.

It is estimated that 1200 staff hours will be required to develop the data base program and system that is described in Chapter 2. The data base will serve programs of the source reduction component and those of other components. Employee salaries are funded from the Department Enterprise Fund which receives its revenues from tipping fees.

Contingency Measures in Case of Objective Shortfall

The Department's continual monitoring and evaluation of individual source reduction programs will enable it to note shortfalls in expected diversions. If shortfalls are experienced, the following contingency measures will be considered in an effort to improve overall program results:

- A review of individual programs in regard to the criteria stated above in order to locate areas for potential remediation.
- An increase in the frequency of program reviews in order to track progress on a more continual basis.
- A reevaluation/modification of component objectives and programs in order to take into account new developments/hindrances in the existing conditions.

CHAPTER 4

Recycling Component

CHAPTER 4 - RECYCLING COMPONENT

I. INTRODUCTION

This Chapter describes the existing and planned recycling programs which will aid Riverside County in achieving the 25% and 50% waste diversion goals. These programs are aimed at the residential, commercial and industrial sectors for waste diversion. Also included are market development activities, which will increase the end-uses available for recycled materials. Market development activities are crucial in order to assure that the materials collected for recycling are used in the manufacture of new products, instead of being landfilled.

II. RECYCLING COMPONENT GOAL AND OBJECTIVES

The goal of the Recycling Component is to reduce the solid waste stream to the maximum extent possible through recycling and to develop markets for recycled products through market development programs and affiliations.

The objectives developed for the Recycling Component cover the recycling of household materials, commercial waste, industrial/manufacturing waste, and strategies to develop markets for the local and regional area. These objectives were developed using information gathered from the Solid Waste Generation Study and, given favorable market conditions for recyclable materials, reflect realistic and attainable goals.

Recycling Component Objectives

1. Recover 76% of the aluminum cans generated within the unincorporated area of the County by 1995 and 83% by 2000.
2. Recover 49% of the newspaper generated within the unincorporated area of the County by 1995 and 54% by 2000.
3. Recycled product purchases shall constitute 3% of all County purchases by 1995 and 5% by 2000.
4. Recover 17% of high grade waste paper generated within the unincorporated area of the County by 1995 and 23% by 2000.
5. 2% of all manufacturing businesses located within the unincorporated County area will use at least 5% post-consumer materials in the manufacturing process by 1995 and increase to 4% of all businesses by 2000.
6. Recover 61% of corrugated containers generated within the unincorporated area of the County by 1995 and 78% by 2000.
7. Recover 24% of all ferrous metals by 1995 and 31% by 2000.
8. Recover 52% of all CA Redemption glass containers generated within the unincorporated County area by 1995 and 57% by 2000.

9. Recover 51% of all recyclable non CA Redemption glass products generated within the unincorporated County area by 1995 and 57% by 2000.
10. Recover 33% of all CA Redemption PET plastic containers generated within the unincorporated County area by 1995 and 51% by 2000.
11. Recover 19% of HDPE plastic generated within the unincorporated County area by 1995 and 52% by 1995.
12. Recover 2% of other plastic material generated within the unincorporated County area by 1995 and 17% by 2000.

Priority Waste Categories Targeted for Diversion

The priority waste categories targeted for diversion in the Recycling Component include:

Paper -- targeted because it comprises 24% of the unincorporated area waste stream.

Glass -- relatively easy segment of the waste stream to divert

Plastics -- totals nearly 4% of the unincorporated area waste stream and is made of non-renewable resources.

III. EXISTING PROGRAM DESCRIPTION

Riverside County is committed to the promotion and establishment of recycling programs in order to reduce the total amount of refuse entering landfills within its borders. Previously, the County Solid Waste Management Plans (CoSWMPs) were required to include a plan to recycle or divert 20% of the solid waste stream. Riverside County intended to better this 20% requirement by including in its State approved December, 1989 revision of its CoSWMP, a short-term goal of increasing the rate of recycling/waste diversion from existing levels to 25% within three years of adoption of the plan. Tangible efforts by the County to achieve this rate of waste diversion include: designating \$.50 of the 1990 calendar year \$15.00 per ton tipping fee to the Department's Planning Division which includes the Planning and Recycling Sections. This division is responsible for planning and implementing recycling programs. Two staff positions were budgeted and filled during the 1989-90 fiscal year to facilitate achievement of the recycling goals. This \$.50 per ton recycling fund was maintained for the \$23.00 per ton tipping fee for calendar year 1991 and one additional recycling staff position was authorized for the 1990-91 fiscal year. This rate increased to \$1.10 per ton in fiscal year 1991-92, with the intent to continue this funding.

The passage of the California Integrated Waste Management Act of 1989 (Assembly Bill 939, Sher, Chapter 1095, Statutes of 1989) with its waste diversion mandates of 25% by January 1, 1995 and 50% by January 1, 2000 has intensified the County's commitment to recycling and diversion of normally landfilled materials. Please see Table 4 - 1 for a listing of current 1992) diversion and market development programs. Appendix D includes updates on these existing programs.

Existing Recycling Programs -- Public Programs

Curbside Recycling

The advent of AB 939 necessitated the establishment of a policy by the County Board of Supervisors regarding curbside recycling in order to help the County in its efforts to achieve the diversion mandates. This policy had to work within the existing waste collection system for the unincorporated County area.

Table 4 - 1
Summary of Existing Recycling Programs

Existing Program	Sponsor	1990 Diversion*	Comments
Public Programs			
Countywide Curbside Recycling	Private Hauler (regulated by the Waste Regulation Branch of the County Health Services Agency)	No data for 1990 since program officially started on July 1, 1991	Projects formally begin on or before July 1, 1991
Pilot Curbside Projects (5)	Private Hauler and County Waste Mgmt Dept.	Aluminum 1.2 Glass 32.2 Newspaper 107.6 Plastic .2	Diversion estimates include the pilot project for Plam Desert Greens only. Data is not available for the Mira Loma project. The remaining projects (Home Gardens, Sun City and Palm Desert Country Club were not operating in 1990. Project agreements expired on or before June 30, 1991.
Countywide Commercial/Industrial Recycling	Private Hauler (regulated by the Waste Regulation Branch of the County Health Services Agency)	No data for 1990 since program officially started on July 1, 1991	Projects formally began on or before July 1, 1991
Idyllwild Transfer Station Community Lumber Co.	Community Lumber Co. and County Waste Mgmt Dept.	Aluminum .41 Glass 11.00 Newspaper 26.04 PET .02 Cardboard 1.37	Tonnages are quoted from January 1990 - October 1990
County Office Paper Recycling	County of Riverside GSA/Printing Services	Office Paper 17.85	Diversion does not count toward goals since most office buildings are located within Cities.
Private Programs			
Commercial/Industrial Recycling Programs	varies	Unknown	Private programs and other government agencies such as the U.S. Forest Service
Market Development			
County Purchasing Policies	County of Riverside/GSA Purchasing	Diversion is counted in the Source Reduction Chapter	Please see Appendix C for resolutions and policies
Cooperative Purchasing Program	County of Riverside/GSA Purchasing	Please see Source Reduction Reduction chapter	Pending appeal of State CIWMB decision that it would not qualify for Source Reduction diversion credits.

*Materials are quoted in tons

The Riverside County Board of Supervisors approved Resolution 90-668, which contains a phased implementation of curbside recycling, on March 27, 1990. Haulers that are authorized to operate within the unincorporated County permit areas are required to implement curbside recycling collection so that a minimum of 25% of the qualifying residential customers will be serviced by July 1, 1991 and 100% by January 1, 1992. Items to be collected include: newsprint, glass, PET plastic (2 liter soda bottles) and aluminum beverage containers and by July 1992, used motor oil. Permit areas V and VII were exempted from this requirement due to low population densities (please see Appendix D for a map of the permit areas). Currently participation by residents is voluntary in the curbside recycling program, although, the County could, in the future, adopt a mandatory recycling ordinance.

The above recycling policy has led to other developments that were necessary before the July 1, 1991 start date could realistically be met. All impacted haulers have committed to, and signed, an addendum to their hauling permits that they will adhere to the policy regarding phased in curbside recycling. The addendum also specifies that used oil shall be collected from all participating customers commencing July 1, 1992. A study concerning the residential refuse and recycling collection rates has been completed and resulted in the establishment of authorized rates for each permit area for the curbside program.

Comprehensive Collection

Related to refuse collection and curbside recycling is the establishment of comprehensive (also termed mandatory) refuse collection. Comprehensive collection requires residents to subscribe to and pay for refuse collection services. Should residents become delinquent in their payments, the delinquent amount is often added to the annual property assessment. All cities have the authority to require comprehensive collection; although Counties do not. Riverside County supported 1991 state legislation (AB 724 Chapter 248 Statutes of 1991) which authorizes Counties to bill residents for delinquent refuse collection bills through property tax assessments. This new law, however, requires Counties to have contracted haulers in order to collect delinquent bills on the property tax assessments.

The benefits of comprehensive collection areas are:

- an assumed decrease in illegal dumping from persons who do not wish to pay for removal and/or disposal of their waste.
- increased efficiency of landfill operations due to fewer residential vehicles entering landfills and achieving a greater compaction rate because most wastes will be received from commercial compactor vehicles.
- Equitable payment for collection services for residential customers. Presently two or three households may contract as one unit for collection services, thus lowering the cost per household, but marginally increasing the average cost to others.

Riverside County will continue to consider the implementation of pilot comprehensive collection programs in selected areas.

Pilot Curbside Programs

Riverside County, in conjunction with the respective haulers for each area, implemented five pilot curbside recycling programs in the unincorporated County area. The programs are in the Palm Desert (2), Mira Loma, Home Gardens and Sun City sections of the County. These programs expired on/or before June 30, 1991, at which time the County-mandated program became the authority for the programs.

Commercial/Industrial Recycling

Also included in County Resolution 90-668, was a mandate for private haulers in the unincorporated area to offer separate collection of recyclable materials to commercial and industrial customers. Implementation of this program, as amended in Resolution 91-512, will be phased in by offering the services to 25% of hauling customers by January 1, 1992 and maintaining this service level until regional material recovery facilities are available. The products to be collected will be customer oriented. This program will be administered by the private haulers as a condition of the permit and is regulated by the Riverside County Health Services Agency, Environmental Health Department, Waste Regulation Branch, Waste Collections and Monitoring Program.

Drop-off Center

The County of Riverside entered into an agreement with the owners of the Community Lumber Company of Idyllwild on December 5, 1989 to establish a drop-off center at the nearby County operated Idyllwild Transfer Station. The agreement requires the operators to recycle newspaper, aluminum cans/scraps and glass. It also takes into account the current dip in the market rate for newsprint by subsidizing the rate of payment for the material when it falls below an agreed upon rate of return for operational costs.

County Office Recycling

The County of Riverside, through the Printing Division of the General Services Agency, operates a white office paper recycling program. The County contracts with a private recycler to place and service "white paper only" bins at County office buildings. This program has been implemented at many of the major office buildings of the County. However, there are many locations that are too small to justify the program costs. Recycling vendors will not invest in equipment where the volume of paper is low. The current vendor requires at least 250 employees at one site to place and service a bin.

State regulations allow jurisdictions to receive credit only for those programs implemented within their boundaries. Since most of the County offices are located within incorporated cities, the County will not be able to receive diversion credits for the office paper recycling program. It is, however, important to proceed with this program despite the prospect of no diversion credit since it will serve as a model to the private and public sector of how an office recycling program can reduce waste. Additionally, some revenue (through the sale of office paper), which is currently used to fund the Riverside County Employee Picnic, is realized.

Private Recycling Programs

In addition to the County-sponsored programs addressed above, many commercial/industrial entities operate recycling programs. The Waste Management Department has not quantified this diversion, but, plans to in subsequent years (please see Chapter 2, monitoring program for a more complete explanation of how the County will quantify this sector).

Local Market Development

County Purchasing Policies

Riverside County, through purchasing policies A-17 and A-38, has encouraged the purchase of recycled materials. Policy A-38 allows the Purchasing Agent to purchase recycled materials even when the cost is more than the virgin counterparts. In addition, the Purchasing Agent advises the Board of Supervisors

when a contract is awarded for recycled materials exceeding a five percent differential with virgin materials. Board policy A-17 denotes the use of recycled content stationary and business cards; encourages the use of recycled content paper for all printing needs; and encourages the printing of the logo for recycled content on all printed products using recycled content paper. Subsequent to these policies, the County has begun purchasing recycled copier paper and the Printing Services Division has added recycled paper, of all grades, to its list of available printing papers. As other products are due for new contracts, materials containing recycled content will be pursued.

Cooperative Purchasing Program

The Riverside County Local Task Force recently approved a Purchasing Coordinator position for the Purchasing Division of the General Services Agency. The person filling this position would start a cooperative purchasing program for recycled materials. The county, cities, school districts and other qualifying entities would be invited to join in the co-op to reduce the cost of recycled materials for all entities involved. Although the Purchasing Coordinator would be in charge of the effort from the County's end, the co-op would be operated by all members. Each member would be involved in the design of specifications for various materials and the selection of a vendor. This program has been delayed from going to the Board of Supervisors by the Department upon learning from California Integrated Waste Management Board staff that diversion credit even from documented purchases would not be credited to the agency. The program will be advanced to the Board of Supervisors for approval if the State's position is revised.

Education Programs

Riverside County has implemented the following education programs: landfill tours, school/civic group presentations, brochures available to requesting individuals and at all presentations and tours, and an annual recycled products fair. For more information on education programs, please see Chapter 7, Public Education.

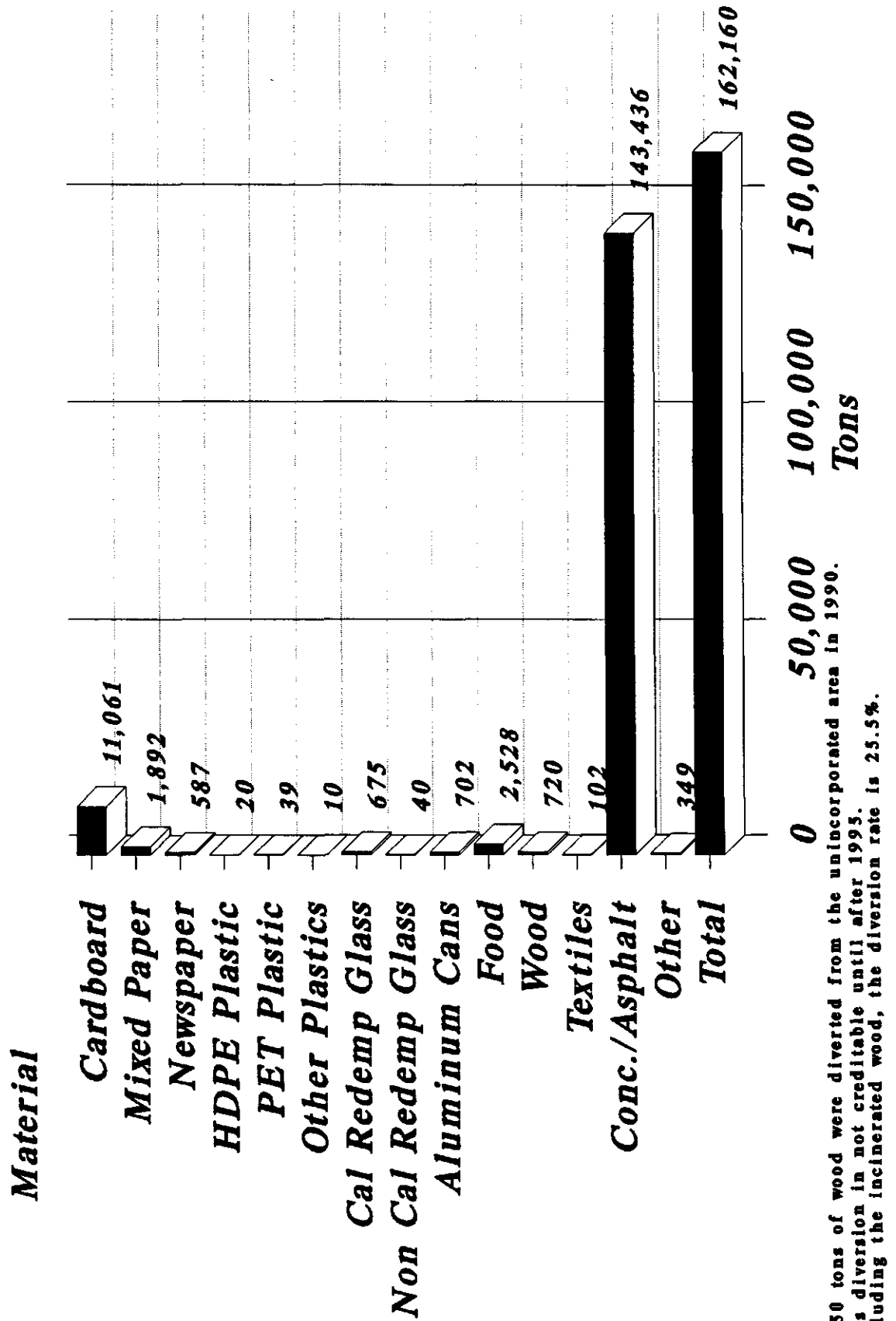
Planned Decreases in Scope of Current Recycling Programs

All the existing diversion programs will be continued throughout the short and medium term planning periods with the exception of the pilot curbside recycling programs. The pilot programs expired on or before June 30, 1991 at which time the County mandated curbside recycling program was in effect.

Current Diversions

The Waste Generation Study indicates that the unincorporated County area achieved a 25% diversion from the landfills in 1990. This diversion is attributed to the pilot curbside programs, commercial and industrial programs and private citizen redemption of recyclable material. Please see Table 4 - 2 for a compilation of the items that comprise this diversion.

Table 4 - 2
Unincorporated Area Materials Diverted
25% Diversion Rate for 1990



IV. EVALUATION OF ALTERNATIVE PROGRAMS

Alternative programs were developed to help achieve not only the objectives for each recyclable material, but also the mandated waste diversions of 25% and 50%. Following is a list which represents a compilation of possible programs which could be implemented (please note that the programs are not listed in order of priority, but rather follow state regulations). Section V of this component lists those slated for implementation.

Existing Programs

- Curbside Recycling
- Commercial/Industrial Recycling
- Drop-Off Center
- County Office Paper Recycling
- County Purchasing Policies

Recycling Component Alternative Programs

Separation of Recyclable Materials from the Waste Stream

Drop-off Recycling Centers

1. Drop-off Centers

Material Recovery Operations

2. Material Recovery Facilities

Salvage at Solid Waste Facilities

3. Salvage Opportunities

Zoning and Building Code Modifications to Encourage Recycling

4. Building Code Modifications
5. Zoning Ordinance Modifications

Changes in Rate Structures to Encourage Recycling

6. Billing Systems to Encourage Recycling

Methods to Increase Markets for Recycled Materials

7. County Purchase of Products Containing Recycled Content
8. State/Federal Policy on Products Containing Recycled Content
9. Technical Assistance Program
10. Private Enterprise Usage of Recyclable Products in the Manufacturing Process

Methods to minimize contamination of collected recyclables

Existing programs, such as public education directed through the Waste Management Department, the Waste Regulation Branch of the County Health Services Agency and the waste haulers will handle contamination problems.

Methods to achieve County Office Recycling

11. Expansion of County Office Recycling

Technical Assistance¹

Other Recycling Programs

12. Anti-Scavenging Ordinance

Evaluation

After compiling the listing of all possible programs for implementation, each program was considered in light of 10 criteria (please see Appendix B for the list of criteria, grading definitions and grading sheet).

Each alternative program was assigned a grade from 1 - 5 based upon its' degree of satisfactorily meeting the criteria. The grading sheet depicting the grades assigned to each program in relation to the criteria can be found in Appendix B.

V. ALTERNATIVE PROGRAM SELECTION

The grading exercise of the previous section facilitated a prioritization of programs to pursue for implementation. A qualitative analysis of each program contributed to the final prioritization of component alternatives.

On the following pages, beginning with page 4 - 10, each of the existing and planned programs are listed with a description of the program, justification for selection, proposed methods for handling and disposal, end-uses (i.e. recycling or disposal) for the materials to be collected, and a description of required additional or expanded facilities.

Immediately following the program descriptions is Table 4 - 3, which lists each chosen diversion alternative and its contribution toward the mandated 25% and 50% diversions. The percentage contribution is shown with and without inert solids diversion because there are indications that the State may disallow this material. Inert solids are not targeted for diversion in this component, but are in the Special Wastes Component.

¹Underlined sections identify those programs which satisfy more than one of the program headings and thus appear more than once in the alternative program section.

EXISTING PROGRAM

County unincorporated residential curbside recycling collection program

DESCRIPTION

This is an existing program. Waste haulers within the unincorporated area are mandated, by County ordinance, to offer curbside recycling collection services to 25% of their customers in the more densely populated areas by July 1, 1991 and 100% by January 1, 1992. The program is operated by each individual hauler under the regulation of the Riverside County Health Services Agency. Initial materials required to be collected include aluminum cans, glass, newspaper and PET plastic. Additional materials may be added as markets improve, and it is assumed that mixed waste paper, HDPE and tin will be researched for possible inclusion in the medium-term planning period (1995 - 2000).

JUSTIFICATION FOR SELECTION

This is an existing program mandated by County Resolution 90-668.

TYPES OF WASTE TO BE DIVERTED

Aluminum Cans

Glass (California Redemption)

Glass (Non-California Redemption)

Newspaper

PET

IDENTIFICATION OF END USES

End-uses for this material can be found throughout the region. For a listing of the major buyers within the region, please see Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Material handling methods for curbside recycling programs are divided into two sections: residents and waste hauler employees. Waste haulers may utilize any collection system desired, except: containers must have a combined capacity of 17 gallons and pick-up must be weekly. Residents are asked to separate recyclable material from non-recyclable material, rinse (if necessary) and place in designated bins. Depending upon the system utilized by the waste hauler, residents may be asked to further separate their recyclables by item. This will be specified by the waste hauler in program literature. Waste hauler employees will pick-up the material from the curb and place into the recycling trucks.

FACILITY REQUIREMENTS

The facility requirements for this program entail: possible storage for recyclable material by haulers (although it is not required), additional equipment, such as, recycling bins (owned by the waste hauler) and recycling trucks (if necessary). Some waste haulers have added sorting facilities at maintenance yards, however, this is not a requirement for haulers to separate materials.

EXISTING PROGRAM

Commercial Unincorporated Business Recycling Collection Program

DESCRIPTION

This is an existing program, mandated by the Board of Supervisors along with the mandated curbside collection program. Waste Haulers are required, per Riverside County Ordinance 657 (Resolution 90-668), to offer commercial/industrial collection of recyclable material to 25% of their customers by January 1, 1992 and maintaining that level of service until regional MRF's are developed. Separate from the County mandated program, but also contributing to commercial/industrial diversion is the collection of recyclable material by private recycling companies not affiliated with waste haulers.

JUSTIFICATION FOR SELECTION

This is an existing program. The mandates by the Board of Supervisors were passed in December of 1990 and the department has had communication with a number of commercial/industrial businesses which already contract with private recyclers for recycling services.

TYPES OF WASTE TO BE DIVERTED

Aluminum Cans
Cardboard
Food
Glass (California Redemption)
Glass (Non-California Redemption)
HDPE
Mixed Paper
Newspaper
Office Paper
Other Plastics
Wood

IDENTIFICATION OF END USES

End-uses for this material can be found throughout the region. For a listing of the major buyers within the region, please see Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Methods for handling of materials are again classified into two categories: customers and the waste haulers/recyclers. The handling of materials for the customers will be subject to specific materials. Mainly, the businesses will be required to collect material(s) in a common location and prepare for deposit into the collection container utilized by the contractor to pick-up the recyclable material. For the waste haulers/recyclers, very little handling of materials is necessary from the point of generation. With most facilities, the contractor (hauler/recycler) will only be required to pick-up, utilizing mechanical equipment, a bin to take to a plant for further processing.

FACILITY REQUIREMENTS

Facility requirements for the commercial institutions would entail space to store recyclables both inside the building and in the trash bin storage area. The stocking of additional bins to handle recyclables will require some additional storage area for the haulers.

EXISTING PROGRAM

Sale of Recyclable Material to Private Buy-Back Centers

DESCRIPTION

This is an existing program which is not sponsored by Riverside County but will always be an ongoing program. Many residents currently sell their recyclable material to private buy-back centers; this activity will continue in the future. The County maintains a current listing of those known buy-back centers and refers residents to the closest facility accepting the materials residents wish to sell.

JUSTIFICATION FOR SELECTION

This is an existing program.

TYPES OF WASTE TO BE DIVERTED

Aluminum Cans

Cardboard

Glass Bottles

HDPE

Mixed Paper

Newspaper

PET Plastic

Other Plastics

IDENTIFICATION OF END USES

End-uses for this material can be found throughout the region. For a listing of the major buyers within the region, please see Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Material handling methods are specific to the type of preparation each resident utilizes. At the minimum recyclable material must be separated from household trash and taken to a buy-back center.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

State/Federal Policy on Products Containing Recycled Content

DESCRIPTION

This program would endorse and/or formulate state and federal policy to allow recovered materials to compete fairly in the open market with virgin materials. Legislation in this area is needed because many resource depleting industries currently receive tax credits due to the nature of their industry. Legislation is needed in this area to either allow the same tax credits for recovered materials or repeal existing credits for virgin materials.

JUSTIFICATION FOR SELECTION

This program was selected due to a perceived effectiveness in creating markets for recycled materials. As tax credits are advanced for products containing recycled content or tax credits are repealed for products made with virgin materials, manufacturers will be economically encouraged to develop products containing recycled content. In addition, this program is consistent with local policies to create markets for recycled materials.

TYPES OF WASTE TO BE DIVERTED

This is a market development activity which would not directly divert materials. In addition, the materials which could be used by manufacturing companies are virtually endless.

IDENTIFICATION OF END USES

The manufacturing companies themselves are the end-users of the materials.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

County Purchase of Products Containing Recycled Content

DESCRIPTION

Through implementation of this program, County Departments would be encouraged to purchase all feasible products containing recycled content(including recycled paint). The encouragement would take the form of education of the comparable quality, expenditure analysis and where applicable, the comparable life of products containing recycled content. This program would extend the purchase of recycled content products above and beyond the current purchase of copier paper containing recycled content.

JUSTIFICATION FOR SELECTION

This program was chosen for implementation due to the effectiveness in creating markets for recycled materials, and its' consistency with local policies (the County currently has a policy encourage the purchase of products containing recycled content). In addition, this program can be implemented with the Purchasing Division's existing duties and will not require the addition of facilities within the County.

TYPES OF WASTE TO BE DIVERTED

This is a market development activity which would not directly divert materials. However, there is a potential source reduction diversion in this program which is quantified in the Source Reduction Component.

IDENTIFICATION OF END USES

Riverside County, through the purchase of products, is the end-user of the materials.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Expansion of County Office Paper Recycling

DESCRIPTION

Expand the existing County Office Paper Recycling program into other appropriate office buildings and satellite offices (including those owned and/or leased by the County) and explore the possibility of expanding the types of materials recycled.

JUSTIFICATION FOR SELECTION

This program was selected for implementation because it is consistent with current policies due to the current program. In addition, there is little need for new or expanded facilities and could be implemented rather quickly, having few institutional barriers.

TYPES OF WASTE TO BE DIVERTED

High Grade Office Paper
Cardboard

(Since most County office buildings are located within Cities, diversion through this program will not count toward the mandated goals. Page 4 - 6 provides further discussion on this issue).

IDENTIFICATION OF END USES

The County currently has an agreement with a contractor who collects and processes all recovered paper. Additional end-users that could be used to recover material can be found in Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Materials are placed into desk-top recycling bins by employees and discarded into appropriate intermediate containers and final (2 yard bins) contractor-owned bins. Contractor currently picks up bins from designated buildings (having 250 or more employees) and delivers to facilities to process for end-users.

FACILITY REQUIREMENTS

The additional facilities which may be required by this program are trucks to facilitate the collection of recyclable material from satellite offices, and additional equipment, such as desk-top bins, intermediate containers and space for the placement of contractor-owned bins.

PROGRAM

Technical Assistance

DESCRIPTION

The technical assistance program would assist commercial, industrial and governmental agencies in increasing the amount of waste they recover and/or reuse through recycling. The program will also encourage the use of recyclable, repairable, reusable products and those made with recycled content. Through this program, the County would also work with the haulers in the unincorporated area, the Cities and the State to develop and implement two uniform reporting factors: conversion factors for determining the amount of material (recyclable and waste) captured from multi-family dwellings and procedures for determining participation rates in curbside recycling programs. (for additional information, please see the program description in the Education and Public Information Component Chapter 7).

JUSTIFICATION FOR SELECTION

This program was chosen for implementation because of its educational value to businesses. It will facilitate the dissemination of educational material on all County programs pertaining to businesses. The program was also selected based up its low institutional barriers to implementation, little to no hazards created by the program, and its flexibility. This program is also listed in the Education and Public Information Component, Chapter 7.

TYPES OF WASTE TO BE DIVERTED

Since this program will not divert material but rather provide assistance to businesses and county government in setting up recycling programs, recycling diversions for this program will be counted towards the overall commercial/industrial collection program. The quantity of waste disposed may decrease through the purchase of products containing recycled content and any other quantifiable source reduction measures. This diversion is counted in the Source Reduction Component, Chapter 3.

IDENTIFICATION OF END USES

End-uses are not directly applicable to this program, however, the end-users can be found in Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Anti-scavenging Ordinance

DESCRIPTION

Riverside County will explore the possibility of enacting an anti-scavenging ordinance for the curbside recycling program. This ordinance would declare materials set at the curbside the property of the waste hauling company, make it illegal for any unauthorized person to take recyclable material from bins placed at the curb and set forth a fine schedule for infractions of the law. This ordinance would be included as a portion of the overall refuse collection regulation ordinance 657. Even though Assembly Bill 1707 (Chapter 420, Statutes of 1991) was passed by the State last year, the County will still endeavor to include anti-scavenging language in the next update to the refuse collection regulation ordinance.

JUSTIFICATION FOR SELECTION

This program was chosen for implementation because of a perceived need to have legal recourse in the event of unauthorized removal of recyclable material from recycling bins. It was also selected due to its low institutional barriers to implementation, little to no hazards created by the program, and its flexibility. In addition, a program designed to deter unauthorized removal of recyclable material from bins is required by the regulations for completing the Source Reduction and Recycling Element.

TYPES OF WASTE TO BE DIVERTED

This program will not divert material, but rather provide a means by which to fine persons stealing recyclable material set at the curb for curbside recycling programs.

IDENTIFICATION OF END USES

End-uses are not applicable to this program.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Billing Systems to Encourage Recycling

DESCRIPTION

This program would devise, in conjunction with the permitted haulers of the unincorporated County, a system(s) of billing that would encourage recycling. One option for the achievement of this program are the variable can rate wherein residents pay for garbage collection based upon the number of cans they set out. This system is based upon usage. Another option is the two-tier tipping fee, which was conceived as an economical mechanism to encourage private haulers to utilize MRF's. Through this system, commercial hauler loads arriving at landfills from MRF's (which would have already been sorted for recyclable materials) would be charged less than non-sorted commercial hauler loads.

JUSTIFICATION FOR SELECTION

This program was selected for implementation because of the possibility to source reduce wastes, while at the same time, encouraging the recycling of all applicable materials. It was also selected due to an unidentified need for new or expanded facilities and the positive consequences on the waste stream.

TYPES OF WASTE TO BE DIVERTED

The variable can rate section of this program will be quantified in source reduction and therefore the diversion will be credited toward source reduction programs. For the two-tier tipping fee portion, the County has not tried to quantify any diversion at this time due to the uncertainty of actual implementation.

IDENTIFICATION OF END USES

End-uses for the material are unidentified due to the nature of the reduction in waste. This program will not actually recycle material, but, encourage through rate structures recycling and source reduction. Therefore, end-uses for the material source reduced is not applicable.

METHODS OF HANDLING MATERIALS

Methods of materials handling are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Drop-off Centers

DESCRIPTION

Riverside County will endeavor to set up drop-off centers at appropriate areas within the County. Initial studies indicate that the rural areas of the County, specifically those not receiving curbside recycling services, will require drop-off centers in order to facilitate residential recycling. The areas identified are Anza and Desert Center. These drop-off centers would be capable of accepting at a minimum: aluminum cans, glass bottles, PET plastic (2 liter soda bottles) and newspaper. Additional materials would be added as reliable markets are found. Public versus private operation of these centers will remain at the discretion of the County.

JUSTIFICATION FOR SELECTION

This program was selected for implementation because of the need to reach the outlying areas of Riverside County with recycling programs (these areas are not included in the County-mandated curbside recycling program). It was also selected based upon its flexibility, consistency with local policies, and low hazard created.

TYPES OF WASTE TO BE DIVERTED

Aluminum Cans

Cardboard

Glass

Newspaper

PET

IDENTIFICATION OF END USES

End-uses for this material can be found throughout the region. For a listing of the major buyers within the region, please see Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Methods of handling materials will be similar to curbside programs in that residents will be responsible for separating recyclables from their regular refuse, but will transport to the drop-off site. The drop-off center operator will collect the material and be responsible for transporting to a processor.

FACILITY REQUIREMENTS

Facility requirements for this program are minute. The drop-off center operator will be required to obtain containers in which to collect the recyclables. A cement slab and fencing may also be necessary.

PROGRAM

Salvage Opportunities

DESCRIPTION

Establish salvage opportunities at County solid waste facilities. These opportunities may be presented as contracts with persons/companies to pull salvageable material from the mixed solid waste before being landfilled. Each solid waste facility, including landfills, will be evaluated in terms of space and appropriateness for a salvaging program.

JUSTIFICATION FOR SELECTION

In 1991, the State passed Assembly Bill 1760 (Chapter 894, Statutes of 1991) which will prohibit the landfilling of white goods and metallic discards on January 1, 1994. Landfills and other solid waste facilities will be able to accept these materials only if a salvaging program is in place to remove the materials from waste destined for the landfill. This program was selected for implementation based upon the new state law, its flexibility, effectiveness in reducing the amount of waste landfilled, and relatively few institutional barriers.

TYPES OF WASTE TO BE DIVERTED

Ferrous Metals

White Goods

IDENTIFICATION OF END USES

End-uses for this material can be found throughout the region. For a listing of the major buyers within the region, please see Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Materials will be pulled from mixed solid waste before being landfilled. This will occur either at the landfill or at a processing facility (MRF).

FACILITY REQUIREMENTS

Facility requirements for this program are relatively minor, and may include storage and fencing.

PROGRAM

Building Code Modifications

DESCRIPTION

Assembly Bill 1327 (Chapter 842, Statutes of 1991) was passed in 1991 and requires the Integrated Waste Management Board to develop a model ordinance allowing for the space allocation of recyclables by March 1993. Local jurisdictions are required to either adopt the State model ordinance or their own by September 1, 1993. The County will work with the State in developing this ordinance and adopt, with any necessary revisions. Modifications would be necessary to allow more space in trash enclosures for commercial/industrial businesses to accommodate the placement of additional bins for recyclable material. Modifications can also address the problems of existing businesses which do not have additional space and recommend corrective measures.

JUSTIFICATION FOR SELECTION

This program was chosen for implementation due to the effectiveness in providing the infrastructure necessary to encourage recycling. The additional space available in trash enclosures and collection areas will facilitate the accessibility of commercial and industrial businesses to recycling programs. It was also selected based upon the unidentified need for new or expanded facilities and the positive impacts upon the waste stream.

TYPES OF WASTE TO BE DIVERTED

This program will not actually divert waste from landfills, yet, will provide the necessary infrastructure to encourage commercial recycling.

IDENTIFICATION OF END USES

End-uses are not applicable to this program.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements were not identified for this program.

PROGRAM

Zoning Ordinance Modifications

DESCRIPTION

Through this program the County would either support state legislation for the modification of zoning ordinances or initiate a local level review and, as necessary, modification of zoning laws to allow the operation of recycling facilities in appropriate land use areas. Through revisions, facilities including, but not limited to, drop-off and buy-back centers would be possible in appropriate residential neighborhoods.

JUSTIFICATION FOR SELECTION

This program was selected for implementation based upon little or no hazards associated with the program, lack of need for new or expanded facilities and the positive impacts upon the waste stream.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

This program will not actually divert waste from landfills, yet, will provide the necessary infrastructure to encourage residential recycling.

IDENTIFICATION OF END USES

End-uses are not applicable to this program.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Private Enterprise usage of Recyclable Products in the Manufacturing Process

DESCRIPTION

Encourage, assist and promote the establishment/expansion of industries in the County which utilize recycled goods in the manufacturing process. This task can be completed via technical assistance from the Economic Development Agency and the Waste Management Department to firms using recyclable materials which are interested in expanding or locating within Riverside County. Technical assistance can be provided by notifying companies of available sites, grants, low-interest loans and quantity of materials available in the County.

The County has also worked with the County of San Bernardino and Cities of Colton, Rialto and Riverside to submit an application to the State in the Spring of 1992 for designation as a Recycling Market Development Zone which would overlay the existing Agua Mansa Enterprise Zone in the Northern section of the County. Should this area be designated, the Economic Development Agency and Waste Management Department will work with the other agencies to bring end-users of recycled materials to the Inland Empire. Riverside County will continue to investigate other areas of the County which may be suitable to designate as a Recycling Market Development Zone.

JUSTIFICATION FOR SELECTION

This program was selected for implementation because of the substantial aid it can provide in creating markets for all types of recyclable materials. Concurrently, the creation of businesses is an economic development activity which benefits the entire County. This program was also selected based upon the few hazards associated with the program and the positive impacts upon the waste stream.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

This program will not actually divert waste from landfills, yet, will aid the provision of markets or end-users for the material collected through recycling programs.

IDENTIFICATION OF END USES

The businesses receiving assistance from the Economic Development Agency and the Waste Management Department will be the end-user of material collected through recycling programs.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements for this program are specific to each individual company. It is anticipated that most, if not all, existing companies would need to retrofit existing machinery to use recycled materials. New businesses would require land, buildings and any necessary machinery.

PROGRAM

Material Recovery Facilities

DESCRIPTION

Through this program, the Riverside County Waste Management Department will endeavor to establish material recovery facilities (MRF's) within Riverside County. MRF's are facilities capable of:

- accepting loads of mixed waste (residential, commercial and industrial) and sorting through the loads in order to extract recyclable material
- accepting loads of source separated recyclable material
- accepting loads of clean green waste (loads with green waste only. For more information on green waste operations at MRF's, please see Chapter 5 -- Composting Component) and wood waste. This material may also be delivered as part of the mixed waste stream
- accepting special wastes such as tires, white goods (i.e. large appliances), construction and demolition debris and household hazardous waste
- compacting and transferring non-recyclable waste to landfills
- providing drop-off/buy-back center operations (if desired)

The technologies utilized in order to sort the materials include mechanized and manual methods. Mechanized methods use sophisticated technologies and machinery in order to sort the materials. Examples of this technology are magnets used to separate the metals and large wind blowers to separate paper. Manual methods employ workers who manually pick recyclables from the waste. A third option is to utilize combinations of both manual and mechanized technologies.

MRF's are desirable facilities because they are capable of integrating resource recovery objectives with disposal objectives. As landfills in the Western portion of Riverside County close, jurisdictions will be transferring their wastes to distant landfills. A MRF offers the ability to accept wastes closer to the center of population, the ability to extract recyclable material and to compact and transfer the non-recyclable waste to the distant landfill.

In order to assist in achieving the mandated diversion goals, Riverside County, is working with its municipalities, to develop a regional network of waste processing facilities to supplement the current landfill system. This regional approach allows for a variety of facilities capable of processing a wide range of waste types. This approach is proposed to incorporate the larger, more cost effective facilities, resulting in cost savings for all participants.

To proceed with the development of a regional system, the cities, Councils of Governments and the county must agree upon the system to be implemented, the roles and responsibilities of each party and financial parameters. The network of facilities would be strategically placed to effectively serve the population centers in the County. Facilities within the system may include MRF's, composting facilities, wood chipping facilities, source-separated recyclables processing facilities, construction and demolition debris processing facilities and other appropriate processing systems, including disposal of residuals at County landfills.

The following discussion focuses upon five of the major issues which must be settled before implementing the system. This discussion includes the proposal submitted to the Cities by the County. It should be noted that as of Spring 1992, discussions were underway between the Cities, Regional Councils of Governments and the County, therefore, these issues are subject to revision. Should this system fail to be implemented, the County and Cities will have to determine for themselves a strategy for developing facilities. Throughout this section the term County means Riverside County, newly formed JPA or newly formed governmental entity or Regional Council of Governments acting through its' governing board (this which would be the agency taking the lead on the project).

Facility Implementation

Facilities are proposed to be constructed and operated by private vendors under the direction of the County, newly formed JPA or newly formed governmental entity acting through its' governing board, and participating local governments. Vendors for each facility would be selected, to the maximum extent possible, through a competitive proposal process. To the extent possible, planned and existing recycling projects will be incorporated into the system, provided they are operated within the system constraints which may include location, rate regulation, and flow control.

Siting Issues

When facilities are sited regionally rather than in each jurisdiction, economies of scale will lead to a lower, long-term cost in terms of unit price processing. Also, environmental impacts can be minimized due to reduced transportation needs and the corresponding air quality impacts.

Proposed Participant Responsibilities

The proposed roles of the different participants in the project are defined below:

- County -- The County would take the lead in implementation of the system. Their tasks would include spearheading the competitive proposal and procurement processes; serving as the lead agency for environmental and California Environmental Quality Act (CEQA) activities where appropriate; establishing financing; and providing the funds for site selection, EIR's and the procurement process. Appropriate assurances for meeting the mandated goals will also be provided through contracts made with private sector vendors.
- Councils of Governments -- The Coachella Valley Association of Governments (CVAG) and Western Riverside Council of Governments (WRCOG) will help define the system parameters, help develop standard flow control agreements, coordinate the cities' review and advisory processes and participate in vendor procurement, site selection and rate review. Where quantity balances are to be maintained between several regional MRF's, the Regional Governments may elect to play a role in monitoring and directing the waste source to selected MRF's.
- Cities -- The cities will advise the County regarding system implementation; take part in selection committees; adopt flow control in their jurisdictions; and direct waste to approved regional facilities at appropriate times. Cities will also commit to certain basic levels of service in their agency to support the system concept.

Flow control will be the most important City commitment. It will enable the jurisdictions to

control the types and amounts of materials which go into and come out of each facility. In order to meet their guaranteed recovery rates and meet market specifications, facility operators will depend on jurisdictions delivering predictable types and quantities of materials. In order to assist participating jurisdictions in meeting the mandated diversion goals, facility operators may require some type of materials guarantees. Thus, each participating jurisdiction must institute and assist the County in enforcing flow control for the system.

-Private Sector -- The private sector will plan, construct and operate the necessary facilities and market recyclables under long-term contract to the County.

Financing and Fees

Under the proposed plan, the County would provide initial funding for development activities such as siting, CEQA compliance and vendor selection. Additionally, it would spearhead a system-wide financing program. This system-wide approach to waste management financing would benefit all parties involved since risks are minimized and the lowest cost financing can be obtained for major aspects of the broader system.

Variable service (tipping) fees will be implemented at the facilities for pre-separated materials versus mixed waste. Separated materials are less expensive for the facilities to process and are in a cleaner form (less contaminated), so the fees would be structured to encourage prior separation of materials. To the extent possible, the system cost will be uniform to each jurisdiction (everyone will pay the same rates for the same types of services). Only in cases where there is a substantial difference in services provided will the costs vary. However, some facilities may provide specialized services for which the County may find it necessary to charge different rates due to specific technical and economic conditions.

It is planned that part of the proposed agreement will call for a "no host fee" clause for system members. A host fee is additional charges that the host agency of a processing or disposal facility may charge users from other jurisdictions. Elimination of the host fee will reduce costs for all users of the solid waste diversion system and eliminate siting decisions that are dictated by this factor. Revenues from gate fees at elements of the system will be used to offset the cost for the entire system. Revenues from the sale of recyclable products will be shared uniformly with participating jurisdictions.

Joining and Withdrawing from the System

A city may join the system by executing an interagency agreement with the County based on the concepts previously discussed. Cities joining the system may receive lower landfill tipping fees than those using facilities not part of the system. Cities may withdraw from the system, however, they will be required to pay a pro rata share of expended or committed funds to minimize the financial effects of their withdrawal on the other system users.

JUSTIFICATION FOR SELECTION

This program was selected based upon the qualitative factor that some landfills in the Western end of Riverside County will be closing near the end of the century and these communities will need to haul their waste to regional landfills located in distant areas. It was also selected based upon its effectiveness in reducing the solid waste stream and consistency with local policies.

TYPES OF WASTE TO BE DIVERTED

Aluminum Cans
Cardboard
Construction/Demolition Materials
Glass (California Redemption)
Glass (Non-California Redemption)
HDPE Plastic
Newspaper
PET Plastic
Wastepaper
Non-Ferrous Metals
Ferrous Metals including Aluminum Scrap

IDENTIFICATION OF END USES

End-uses for this material can be found throughout the region. For a listing of the major buyers within the region, please see Appendix A and Appendix D. This information is updated on a continuous basis by the Waste Management Department.

METHODS OF HANDLING MATERIALS

Methods of handling materials will be specific to the technology utilized to separate recyclable materials.

FACILITY REQUIREMENTS

There are definite facility requirements for this program. The facility built will be capable of the activities described in the program description section above, and will conform to all state and local regulations.

**Table 4 – 3
Recycling Component Diversions (1995)**

Material	1995 Existing Diversion	Curbside Diversion	Multi- Family	Additional Buy – Back	Drop-off Diversion	Additional Commercial Collection	MRF's*	Solid Waste Facility Salvaging	County Office Paper**	Total Tons	Total Landfilled	Total Generated	% Diverted
Cardboard	12,465	X	X	X	X	11,030	3,337	X	50	26,832	37,475	64,307	42%
Mixed Paper	2,135	X	X	X	190	785	275	X	X	3,385	28,142	31,527	11%
Newspaper	660	10,155	1,540	X	300	515	1,551	X	X	14,721	12,302	27,023	54%
Office Paper	X	X	X	X	X	85	24	X	110	109	1,032	1,141	10%
HDPE	25	X	X	X	70	560	746	X	X	1,401	4,777	6,178	23%
PET	45	65	10	55	10	10	34	X	X	229	444	673	34%
Other Plastics	10	X	X	X	X	220	90	X	X	230	9,920	10,150	2%
Ca Red. Glass	760	255	45	305	30	55	90	X	X	1,540	1,777	3,317	46%
Non Ca Red. Glass	45	2,400	260	X	80	190	366	X	X	3,341	3,712	7,053	47%
Aluminum Cans	790	75	5	X	5	25	105	15	X	1,020	438	1,458	70%
Ferrous Metals & Tin	X	X	X	X	X	40	5,801	95	X	5,936	20,769	26,705	22%
Non – Ferrous Metals	X	X	X	X	X	X	456	X	X	456	1,971	2,427	19%
Food	2,850	X	X	X	X	X	X	X	X	2,850	21,035	23,885	12%
Textiles	115	X	X	X	X	X	189	X	X	304	7,733	8,037	4%
White Goods	X	X	X	X	X	X	2,068	120	X	2,188	1,540	3,728	59%
Total Tons Diverted	19,900	12,950	1,860	360	685	13,515	15,042	230	160	64,542			
Diversion %	2.7%	1.8%	0.3%	0.05%	0.1%	1.9%	2.1%	0.03%	0.0%	9%			

Estimated Diversion		Estimated Diversion without Inert Solids
Total Diverted 1995	64,542	Total Diverted 1995 64,542
Total Generated 1995	728,624	Total Generated 1995 515,857
Total % Diverted 1995	9%	Total % Diverted 1995 13%

*MRF Diversions do not include green waste, wood, inert solids or tire diversions. Chapter 6 – Special Wastes Component discusses the expected diversions of these materials from MRF's. Total estimated MRF diversions, including green waste, wood waste and source separated residential and commercial recyclables, for 1995 is 8.8% and 2000 17.6%.

**The County office paper recycling program has not been included in the estimated diversions because most of the County buildings are located within Cities. State regulations only allow jurisdictions to take credit for diversions within their boundaries.

**Table 4 – 3 (Cont.)
Recycling Component Diversions (2000)**

Material	2000 Existing Diversion	Curbside Diversion	Multi- Family	Additional Buy – Back	Drop – off Diversion	Additional Commercial Collection	MRF's* Salvaging***	Solid Waste Facility Paper**	County Office	Total Tons	Total Landfilled	Total Generated	% Diverted
Cardboard	14,225	X	X	X	X	19,100	7,842	X	100	41,167	32,200	73,367	56%
Mixed Paper	2,435	9,900	1,310	X	225	5,175	646	X	X	19,691	16,277	35,968	55%
Newspaper	755	11,585	1,760	X	370	2,330	3,644	X	X	20,444	10,387	30,831	66%
Office Paper	X	X	X	X	X	155	55	X	140	210	1,092	1,302	16%
HDPE	25	1,790	265	X	85	1,160	1,752	X	X	5,077	1,972	7,049	72%
PET	50	75	15	125	10	60	79	X	X	414	354	768	54%
Other Plastics	15	X	X	X	X	1,900	X	X	X	1,915	9,665	11,580	17%
Ca Red. Glass	870	290	50	380	35	145	212	X	X	1,982	1,803	3,785	52%
Non Ca Red. Glass	50	2,740	300	X	95	660	861	X	X	4,706	3,341	8,047	58%
Aluminum Cans	900	90	10	X	10	95	246	X	X	1,351	312	1,663	81%
Ferrous Metals & Tin	X	735	130	X	X	100	13,624	X	X	14,589	15,878	30,467	48%
Non – Ferrous Metals	X	X	X	X	X	X	1,072	X	X	1,072	1,697	2,769	39%
Food	3,250	X	X	X	X	X	X	X	X	3,250	24,000	27,250	12%
Textiles	130	X	X	X	X	X	455	X	X	585	8,584	9,169	6%
White Goods	X	X	X	X	X	X	2,835	X	X	2,835	1,419	4,254	67%
Total Tons Diverted	22,705	27,205	3,840	505	830	30,880	33,323	0	240	119,288			
Diversion %	2.7%	3.3%	0.5%	0.07%	0.1%	3.7%	4.0%	0.00%	0.0%	14%			

Estimated Diversion without Inert Solids

Total Diverted 2000	119,288
Total Generated 2000	588,538
Total % Diverted 2000	20%

Estimated Diversions	
Total Diverted 2000	119,288
Total Generated 2000	831,282
Total % Diverted 2000	14%

*MRF Diversions do not include green waste, wood, inert solids or tire diversions. Chapter 6 – Special Wastes Component discusses the expected diversions of these materials from MRF's. Total estimated MRF diversions, including green waste, wood waste and source separated residential and commercial recyclables, for 1995 is 8.8% and 2000 17.6%.

**The County office paper recycling program has not been included in the estimated diversions because most of the County buildings are located within Cities. State regulations only allow jurisdictions to take credit for diversions within their boundaries.

***Solid waste facility salvaging is included in the MRF diversion estimated since it is assumed that all solid waste will enter a MRF before a landfill.

Market Contingency Plan

Should unfavorable market conditions for recyclable materials or other conditions occur which are not within the control of Riverside County and prevent the attainment of diversion goals, the County will consider each of the following:

- Identify the problem in order to further determine options
- Determine if existing contractors are pursuing all available outlets for the material
- Identify alternative uses for materials (i.e. use newspaper as animal bedding)
- Encourage the establishment of long term market agreements

Should this type of situation occur, cooperation between private haulers and contractors will be vastly important as the County currently does not provide collection services.

Alternatives Affecting Residential, Commercial and Industrial Wastes

The alternatives selected for implementation by Riverside County include programs for collection, separation of recyclables, removal of barriers to implementation of collection programs and market development. The following section addresses those alternatives which will directly affect the handling of waste.

Residential

The existing programs or those selected for implementation which affect residential waste include curbside recycling and material recovery facilities. Curbside recycling will require separation of waste by residents, while MRF's will both separate recyclables from mixed waste and accept commingled recyclables.

Commercial/Industrial Waste

The programs, both existing and planned, affecting commercial and industrial waste include separate commercial collection of recyclables by haulers and MRF's. Separate commercial collection of recyclables by haulers will require separation by commercial customers while MRF's will both separate recyclables from mixed waste and accept commingled recyclables.

Public vs. Private Ownership

Each of the preceding programs are operated and/or owned by both public and private entities in other jurisdictions. In the unincorporated area of Riverside County, collection programs, both curbside and commercial collection, are currently handled by private companies. The haulers are regulated by the County through the permitting system. The County plans to continue private collection through public regulation. Private vendors will also be sought to construct, operate and maintenance facilities under strong public control.

VI. IMPLEMENTATION PLAN

Table 4 - 4.1 shows the existing programs which will be continued. Tables 4 - 4.2 - 4.3 depicts an implementation plan for each of the planned programs. This plan will serve as a guideline for the County, showing a time frame in which all programs will be implemented. This plan lists necessary steps to implement each program, the responsible agency(ies), and the year in which each task will commence and end with appropriate labeling for those programs which are ongoing. Also shown are the estimated public implementation costs of each program, public revenues generated as a result of the program, private implementation costs, private revenues as a result of the program and the anticipated revenues sources available to fund implementation. The public revenues generated as a result of the program are represented on a break even basis. Revenues are not anticipated which go beyond the point of simply covering costs of the program.

Table 4 – 4.1
Recycling Component Implementation Plan
Existing Programs

Existing Program	Existing Program	Frequency
Countywide Curbside Recycling	Private Hauler with Regulation Riverside County Health Services Agency	Weekly pick-up by Garbage Haulers
Countywide Commercial/Industrial Recycling	Private Hauler with Regulation Riverside County Health Services Agency	Dependent upon Quantities, Hauler and Customer Coordinate Specifics of the Program
Idyllwild Drop-Off	Community Lumber Company and Waste Management Department	Ongoing Program
County Office Paper Recycling	General Services Agency/Purchasing Division	Ongoing Program
Cooperative Purchasing Program	General Services Agency/Purchasing Division	Pending appeal of State CIWMB decision that it would not qualify for Source Reduction diversion credits.
Private Recycling	Varies	Continual

Table 4 - 4.2
Recycling Component Implementation Plan

ALTERNATIVE PROGRAM	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. Material Recovery Facilities*	WMD & Cities	X									
1. Network with incorporated cities to develop a Countywide coordinated approach											
2. Determine areas and time schedules for MRF development		X									
3. Develop each facility according to schedule			X -- Ongoing until completion								
4. Monitoring			X at least annual monitoring of each facility once developed								
B. State/federal Policy on Products Containing Recycled Content	WMD & A.O.										
1. Support formulation of such legislation through letters of support to State & Federal Government representatives		X									
2. As legislation is introduced, analyze for adequacy and either support through Board of Supervisors resolution or suggest alternative language.			Specific as to the date of introduction for legislation								
3. As legislation is formally supported, send copies of County action to cities and urge similar actions			Specific as to the date of introduction for legislation								
4. Monitoring			X	X	X	X	X	X	X	X	X
C. Private Enterprise Usage of Recyclable Products in the Manufacturing Process	EDA & WMD	Ongoing Program									
1. Determine existing opportunities		X									
2. Determine capabilities to increase current assistance, including, but not limited to the application for a Market Development Zone through the CIWMB		XX									
3. Work with EDA to attract industries		X									
4. Monitoring			X	X	X	X	X	X	X	X	X

*Material Recovery Facilities will be operational in either 1994, 1999 or somewhere in between those years. The decision as to when to develop each facility has not been made. For more information on Material Recovery Facilities, please see page 4 - 6.

**Table 4 – 4.2 (Cont.)
Recycling Component Implementation Plan**

ALTERNATIVE PROGRAM	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
D. County Purchase of Products Containing Recycled Content	GSA/P.D. & WMD	Ongoing Program									
1. Develop informational brochures on the advantages of products containing recycled content			X								
2. Distribute information to purchasing agents, at purchasing liason meetings, & management, at Management Council Meetings.				X							
3. As individual County Departments request specific products, Purchasing will encourage the purchase of recycled products				X --	Ongoing						
4. On an as needed basis, one – on – one meetings will be encouraged to discuss individual departmental resistance to the use of recycled products.				X --	Ongoing						
5. Monitoring					X	X	X	X	X	X	X
E. Technical Assistance Program	WMD/DEH										
1. Work with the haulers in an effort to develop uniform methods for calculating participation rates.				XXX							
2. Work with the haulers in an effort to develop uniform conversion factors for multi – family waste collection.				XXX							
3. Monitor effectiveness of uniform methods developed.					X	X	X	X	X	X	X
Also reference Chapter 7 – Education and Public Information Component for other pertinent portions of this program.											
F. Anti – scavenging Ordinance	DEH & WMD										
1. Gather and review existing ordinances from other jurisdictions				X							
2. Develop a draft ordinance				X							
3. Coordinate development of draft ordinance with County Counsel				X							
4. Submit draft ordinance for review to the Waste Collection Advisory committee and Task Force				X	X						
5. Board of Supervisors Adoption					X						

**Table 4 – 4.2 (Cont.)
Recycling Component Implementation Plan**

ALTERNATIVE PROGRAM	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
G. Expansion of County Office Recycling	GSA/P.D. & WMD	Ongoing Program									
1. Determine additional items to include in County program				X							
2. At the end of the upcoming contract, negotiate for inclusion of additional items and pick-up of materials at satellite offices with current contractor.				X							
3. If current contractor will not include additional items and offices, an RFP requiring consideration of these services will be distributed.				XX							
4. Review RFP's and Select Vendor											
5. Execute Agreements				X							
6. Maintain and Monitor Agreement				X							
7. Monitoring				X							
H. Salvage Opportunities											
1. Determine appropriate salvage method for each landfill	WMD										
2. Determine schedule to implement at each landfill.				X							
3. Develop Request for Proposal (RFP's) for services.				X							
4. Distribute RFP's according to implementation schedule for each landfill.				X							
5. Review Proposals											
6. Select a vendor.				X							
7. Negotiate contract.				X	X						
8. Board of Supervisors approval.				X							
9. Monitoring					X		X	X	X	X	X

**Table 4 – 4.2 (Cont.)
Recycling Component Implementation Plan**

ALTERNATIVE PROGRAM Recycling Code Modifications	Responsible Agency/Person P.D., P.C. & WMD	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
I. Building Code Modifications											
1. Provide comments to the State in their development of a model building code ordinance	WMD			X							
2. Review state model ordinance to determine if revisions will be necessary in order to adopt for Riverside County				X							
3. If necessary, make revisions				X							
4. Coordinate approval of modifications with the Planning Commission and Local Task Force				X							
5. Board of Supervisors Consideration				X							
6. Monitor Ordinance Requirements					X	X	X	X	X	X	X
J. Drop – off Centers	WMD										
1. Determine exact locations (i.e. Desert Center, Anza etc)				X							
2. Determine ownership/operation (public, private or both)				X							
2. If needed, release RFP and/or work with private sector					X						
3. Establish Center					XX						
4. Monitoring					X	X	X	X	X	X	X
K. Zoning Ordinance Modifications	P.D., P.C. & WMD										
1. Support passage of State legislation (begin local review only if state legislation is not implemented)		X									
2. Review current zoning ordinances to determine deficiencies				X							
3. Gather and review zoning ordinance modifications from other jurisdictions.				X	X						
4. Determine committee structure/membership for development of modifications					X						
5. Set up committee					X						
6. Determine specific modifications needed for Riverside County					XX						
7. Develop modifications					XX						
8. Coordinate approval of modifications with the Planning Commission and Local Task Force					X						
9. Board of Supervisors Consideration						X					
10. Monitoring							X	X	X	X	X

Table 4 – 4.2 (Cont.)
Recycling Component Implementation Plan

ALTERNATIVE PROGRAM	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
L. Billing Systems to Encourage Recycling	EHS & WMD										
1. Research existing similar programs					X						
2. Develop a committee of County, waste hauler and citizen representatives					X						
3. Review options available (i.e. Variable can rate, Two-tier Tipping Fee)					XX						
4. Develop each option as a proposal					XX						
5. Evaluate each proposal in light of current conditions in Riverside County & in terms of applicability and ease of implementation					X						
6. Develop a recommended action						X					
7. Present recommended action to both the Waste Collection Advisory Committee & the Local Task Force, and if approved carry forward for Board of Supervisors consideration						XX					
8. Monitoring								X	X	X	X

WMD = Waste Management Department
A.O. = Administrative Office
PD = Planning Department
EDA = Economic Development Agency

GSA/PD = Purchasing Division of the General Services Agency
DEH = Department of Environmental Health of the Health Services Agency
PC = Planning Commission

Table 4 – 4.3
Recycling Component Cost Estimate for Implementation Plan*

ALTERNATIVE PROGRAM	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp Costs	Public Revenues	Private Revenues	Available Revenue Sources
A. Material Recovery Facilities (MRF's could be developed either developed either publicly, privately or through a combination of the two)	WMD, Planning LEA, & affected Cities	Start-up 2,400 OPA Start-up 80 Annual 160	Staff Costs \$67,000 OPA Staff Costs \$2,200 Annual Staff Costs \$4,500	\$4,191,000 – \$37,150,000 per MRF** (Annual operating costs estimated at \$1,514,000 – \$12,299,000 per facility**)	\$0	\$188,000 – \$5,071,000 per MRF (Assumes \$20 per ton from sale of recyclable material received at MRF's**)	WMD Funds & private funds
B. State/federal Policy on Products Containing Recycled Content	WMD	Start-up 40 Annual 16	Start-up Staff Costs \$1,100 Annual Staff Costs 400	\$0	\$0	\$0	WMD Funds
C. Private Enterprise Usage of Recyclable Products in the Manufacturing Process	EDA & WMD	WMD Start-up 160 OPA Start-up 160 WMD Annual 160 OPA Annual 160	WMD Staff Costs \$4,500 OPA Staff Costs \$4,500 Supplies \$500 WMD Staff Costs \$4,500 OPA Staff Costs \$4,500 Annual Operating \$500	\$0	\$0	\$0	EDA, WMD Market Dev Zone

* All Costs shown in 1991 dollars

**Reference: Riverside County Waste Management Department, "System Cost Study", July 1991.

Table 4 – 4.3 (Cont.)
Recycling Component Cost Estimate for Implementation Plan*

ALTERNATIVE PROGRAM	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
D. County Purchase of Products Containing Recycled Content	GSA/Purchasing Division & WMD	WMD Start-up 5 OPA Start-up 220 OPA Annual 280	WMD Staff Costs \$100 OPA Staff Costs \$6,200 OPA Annual Staff Costs \$7,800 Annual Operating Purchasing expense will increase 5 – 10% from higher cost of products	\$0	\$0	\$0	GSA
E. Technical Assistance Program Please see Chapter 7, Education & Public Information for additional information)	WMD, DEH	WMD Start-up 100 OPA Start-up 100	WMD Staff Costs \$2,800 OPA Staff Costs \$2,800				
F. Anti – Scavenging Ordinance	DEH & WMD	WMD Start-up 8 OPA Start-up 60	WMD Staff Costs \$200 OPA Staff Costs \$1,700	\$0	\$0	\$0	EHS Funds
G. Expansion of County Office Recycling Program	GSA/Purchasing & WMD	WMD Start-up 30 OPA Start-up 120	WMD Staff Costs \$900 OPA Staff Costs \$3,400	\$0	Assume revenue of \$60 per ton of paper	\$0	GSA &/or revenues from sale of material
H. Salvage Opportunities	WMD, Purchasing & County Counsel	WMD Start-up 100 WMD Annual 60	WMD Staff Costs \$2,800 WMD Annual Staff \$1,500	\$0	Depends upon each specific landfill system	up to \$13,000 (assuming \$20 per ton revenue)	WMD Funds

Table 4 - 4.3 (Cont.)
Recycling Component Cost Estimate for Implementation Plan

ALTERNATIVE PROGRAM	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
I. Building Code Modifications	Planning Dept. & WMD	WMD Start-up 40 OPA Start-up 100	WMD Staff Costs \$1,100 OPA Staff Costs \$2,800	\$0	\$0	\$0	Planning Dept Funds
J. Drop-off Centers (At least one of the identified centers, Desert Center, will be privately owned and operated. The second could be public or private or a partnership)	WMD & County Counsel	WMD Start-up 100 WMD Annual 3,544	WMD Staff Costs \$2,800 Supplies \$280,000** WMD Annual Staff \$70,000 Operating \$88,000**	Supplies \$106,000 Operating \$94,000 for material)	\$28,000** (Assumes \$20 per ton for material)	\$0	WMD Funds
K. Zoning Ordinance Modifications (if legislation passes, staff hours required to implement this program will decrease)	Planning Dept./ Planning Commission, & WMD	WMD Start-up 40 OPA Start-up 180	WMD Staff Costs \$1,100 OPA Staff Costs \$5,000	\$0	\$0	\$0	Planning Dept.
L. Billing Systems to Encourage Recycling	DEH & WMD	WMD Start-up 40 OPA Start-up 170	WMD Staff Costs \$1,100 OPA Staff Costs \$4,800	Costs will vary among haulers. Main cost will be in revising billing system	\$0	Revenues will not increase for haulers, will stay the same	EHS Funds

* All Costs shown in 1991 dollars

**Reference: Riverside County Waste Management Department, "System Cost Study", July 1991.

OPA = Other Public Agencies

WMD = Waste Management Department

A.O. = Administrative Office

DEH = Department of Environmental Health of the Health Agency

EDA = Economic Development Agency

**Reference: Riverside County Waste Management Department, "System Cost Study", July 1991.

VII. MONITORING AND EVALUATION PLAN

Riverside County will monitor and evaluate the implemented recycling programs in order to determine success in meeting stated diversion objectives. This section describes: the methods to be utilized in monitoring success of the programs in meeting stated objectives; criteria for evaluating program effectiveness; the agencies responsible for program monitoring and evaluation and contingency measures to be implemented if monitoring and evaluation determine a shortfall in meeting stated objectives. The monitoring program for the recycling component is identical to the database described in Chapter 2 which will be used to monitor success in meeting overall waste diversion goals.

Methods to Quantify and Monitor Success in Achieving Recycling Program Objectives

The objectives for Riverside County's Recycling Component are stated on page 4 - 1. The basic premise of these objectives is to recycle the stated percentage of each recyclable material.

Program monitoring shall quantify the amount of material diverted from the unincorporated area waste stream. In order to obtain information on the composition of the waste stream and the amount of materials diverted, the following two methods will be utilized:

- Waste generation study updates will be considered in order to determine the overall tonnage and composition of the unincorporated area waste stream.
- A database will be developed to track the diversion of recyclable material in the unincorporated County. Information will be derived from: Haulers offering curbside and commercial/industrial recycling services (reporting is a requirement of County resolution 90-668) and perhaps on a voluntary basis from recycling companies (i.e. processors, end-users) located in the unincorporated area, and commercial and industrial business which recycle their material.

The County has recently considered a business license ordinance that would have been primarily for revenue generation, but in addition would have required recycling companies to report, to the County, the jurisdiction of origin, material type and weight of the material it receives. The issuance of the business license would be dependent on adequately meeting this reporting requirement. The reports generated as a result of the ordinance would enable the County to track the diversion of recyclable material from the landfill. Although opposition to the new tax by businesses has put the proposal aside for now, future revenue needs and the existence of similar licenses in the County cities are expected, within time, to renew this tax and the Department will again renew its proposal for recycling reporting as a condition of the license. The required information will be expanded to include tonnage totals for any material that cannot be processed due to contamination (or any other reason) and must therefore be landfilled by the facility operator. Such information is necessary in order to determine the actual amount of material that is diverted due to recycling programs.

Criteria for Evaluating Program Effectiveness

Each program shall be evaluated in terms of effectiveness in either diverting solid waste or in meeting its specific goal. The methods to be employed are:

- Are the component diversion objectives being achieved?
- Are the impacted agencies/entities meeting their programmatic responsibilities?

- Are the component program and the associated tasks being implemented on schedule?
- Are component programs adequately diverting recyclable materials from all impacted generators?
- Are the materials being adequately marketed?
- Are the programs from the Education and Public Information being successfully implemented?

Agencies Responsible for Program Monitoring and Evaluation

The Waste Management Department, Environmental Health Department of the Health Services Agency, Purchasing Division of the General Services Agency and the Economic Development Agency will be responsible for monitoring and evaluating the Recycling Component programs. Agencies other than the Waste Management Department are only responsible for monitoring the programs for which they have the responsibility for implementing.

Funding Requirements

The funding requirements for the monitoring and evaluation program consist mainly of staff hours. It is estimated that 1200 staff hours will be required to develop the database program and system. The Waste Management Department owns the computer hardware necessary to manage the data and intends to create the computer software in-house. This database will provide information on activities other than recycling. The 1200 hours represents total hours.

It is estimated that approximately 160 annual hours will be required to review data, prepare and analyze reports. Coordination/support of the waste characterization and/or diversion studies will require approximately 200 - 500 staff hours per year. Costs for implementing each program are discussed in the implementation plan. Employee salaries are funded from the Department Enterprise Fund which receives its revenues from tipping fees.

Contingency Measures

Contingency measures are identified in the event that monitoring methods determine a shortfall in attainment of recycling objectives. The contingency measures are:

- Increase public education in the generator sector for which monitoring determines a shortfall.
- Analyze affected programs to determine if shortfalls are a result of deficiencies in the execution of programs.
- Consider the use of financial incentives to participating in recycling programs.
- Consider re-evaluating the diversion goals for objectives.

CHAPTER 5

Composting Component

CHAPTER 5 -- COMPOSTING COMPONENT

I. INTRODUCTION

The State of California's second level of priority in an Integrated Waste Management System includes composting. Composting is the controlled biological decomposition of the organic fraction of the municipal solid waste stream. This organic fraction includes yard, vegetable, and wood wastes among others.

Riverside County is committed to diverting a portion of its organic wastes through the compost process. The potential contribution of composting to the attainment of the State mandated diversion goals (i.e. 25% by 1995 and 50% by 2000) is considerable when one considers that 19.8% of the landfilled waste stream for the unincorporated area is yard waste.

This component will serve as the County's plan for developing and implementing a composting program that will serve the residents of the unincorporated County area. It should be noted, however, that any composting facilities established in the County will serve both incorporated and unincorporated areas in order to be viable concerns. The programs outlined in the following pages are intended to help meet the State's diversion requirements for the unincorporated area but must be viewed as one part of a Countywide composting system.

II. COMPOSTING COMPONENT GOAL AND OBJECTIVES

The composting component goal is to divert the greatest amount of yard waste and applicable municipal solid waste from County landfills and to develop markets for compost through market development programs and affiliations.

The objectives developed for the composting component cover the diversion of yard waste from County landfills through the biological decomposition of the material as a result of the compost process. Local market development for the finished compost material is also addressed in the component objectives. The objectives express County expectations for both the short and medium term planning periods. They were developed using information gathered from the Solid Waste Generation Study and reflect realistic and attainable goals.

Other materials that potentially could be diverted through compost programs are listed after the objectives. The actual amount of these materials to be diverted will depend on the types of facilities established within the County. They are listed in order to further illustrate the diversion possibilities characteristic of a composting program.

Composting Component Objectives

1. Divert 60% of the yard waste generated within the unincorporated area of the County by 1995 which results in 8.9% of the total unincorporated solid waste stream and 70% of the yard waste by 2000 which equates to 10.3% of the entire unincorporated solid waste stream.
2. County Departments with a need for ground cover, mulch and soil amendment shall procure 50% of their needed supply from composting facilities within Riverside County by 1995 and 100% of their needed supply by 2000 if supplies are available.

Material Types with Diversion Potential

1. **Sludge:** The unincorporated area presently has 2,686 dry tons of sludge allocated to it. Applying the growth rates used in the Solid Waste Generation Data Projections of the Waste Generation Study, this amount could grow to an estimated total of 3,030 dry tons in 1995 and 3,455 tons in 2000. The present status of sludge as a material that is creditable for purposes of achieving the mandated diversion goals in 1995 and 2000 is discussed in the existing conditions section.
2. **Wood:** The portion of the unincorporated area waste stream that is landfilled is comprised of 9.1 % wood waste. This percentage translates into an estimated 49,556 tons in 1995 and 56,538 tons in 2000 if present conditions persist. Wood is utilized as a bulking agent in composting sludge. The actual amount of wood diverted as a result of the composting program will depend on two things: i) whether sludge is creditable as a diversion alternative and ii) whether wood is used as a bulking agent by the operating facilities. Wood may also be chipped for use as mulch. The waste diversion study showed that 720 tons of wood were chipped for landscape enhancement purposes during 1990.
3. **Municipal Solid Waste Stream:** The organic fraction of the landfilled municipal solid waste stream (other than yard and wood waste) totals 29.5%. This percentage equates to an estimated 214,944 tons in 1995 and 245,228 tons in 2000 if the waste management system remains unchanged. The incorporation of this tonnage into the composting program will be based on whether municipal solid waste composting facilities are established in the County. Some of the materials included in this portion of the waste stream are recyclable (i.e. newspaper) and may be diverted through other programs.

III. EXISTING CONDITIONS DESCRIPTION

Riverside County realizes the value of composting as part of an integrated system of waste management. This value is exhibited in the State approved (December, 1989) revision of the Riverside County Solid Waste Management Plan where Section 8B of Chapter VII is entitled Develop Comprehensive Composting Program. A sludge composting operation was listed as a potential facility in the very same CoSWMP.

Composting Facilities/Pilot Programs

The Temescal Canyon sludge composting facility referenced as a goal in the 1989 CoSWMP, was fully permitted and began accepting sludge in December, 1990. This regional facility is now in full operation for sludge. It utilizes the aerobic windrow composting process. The mixture utilized approximates a 1:1 ratio of sludge to yard/wood waste. Permitted facility capacity is 600 tons per day of sludge and 600 tons per day of yard/wood waste. Other bulking agents/amendments that may be used in the process include, but are not limited to, the following: recycled compost, stable wastes and sawdust. At the time of the waste diversion study that was completed as a part of the initial waste generation study (1991), this site had yet to accept any yard wastes from the unincorporated area for use in its operation. The facility has since accepted yard waste from the unincorporated area and received a small quantity of the material through a pilot program conducted at the Highgrove Landfill in late 1991 (Please see Table 5-1 for a listing of existing programs).

A second composting operation is located in the Coachella Valley. The site currently composts sludge by itself and with yard waste/sawdust as bulking agents. It is sited for 2500 tons/day of material of

Table 5 - 1
Summary of Existing Composting Programs

Existing Program		1990		Waste Diversion		Comments
Private Programs		Sponsor		Facility Types:		
Composting Facilities (2)		(a) RECYC Inc. (b) Chino - Corona Farms, Inc.		No diversion of unincorporated area material during 1990 with these facilities		(a) One sludge composting site (b) One sludge composting site
Public Programs		Sponsor		Project Types:		
Pilot Program(s)		Eastern Municipal Water District (EMWD)		Programs completed in 1991		-One in -vessel operation -One windrow operation
Christmas Tree Recycling		Riverside County		Program conducted October to December 1991		1175 tons of "Clean Green" material diverted from Highgrove landfill from various jurisdictions
County Planning Process		Riverside County/ City of Riverside		Nearly 100 Tons of trees (At this time, cannot count toward goals)		Diversion total for both County and City combined
		Riverside County		No data to date		Conditions of Approval to date: -Seek feedstock (i.e. sludge) first within Riverside County before out - of - county sources in regard to one composting facility
Market Development Activities		Sponsor		Encouragement began in		
Encourage Entities to include the use of compost in specifications for projects		*Riverside County Solid Waste Management Advisory Council/ Local AB 939 Task Force *Riverside County		1991, No data to date		

which it is planned 500 would be reserved for yard waste. The facility is on lands outside the local or state jurisdiction but has received clearance from the State of California Regional Water Quality Control Board. It is not permitted by the State of California Integrated Waste Management Board, but the operators have met with the State and are pursuing a permit in order to be considered a permitted facility under the regulations. Jurisdictions that send material to this facility would then be able to receive diversion credit toward meeting the State mandated diversion goals of 25% by January 1, 1995 and 50% by January 1, 2000. Assembly Bill 240 (Chapter 805, Statutes of 1991) would allow this composting operation the opportunity to negotiate with the State to reach a cooperative agreement which provides for regulation that is functionally equivalent to that provided under the applicable state laws. As disclosed in the initial waste generation study (1991), this site has yet to accept any yard waste material from the unincorporated County area for use in its operation.

The location of these two facilities in opposite sides of the County gives the unincorporated County and other jurisdictions in the respective areas a solid base with which to begin Compost related activities directed toward the achievement of the above stated diversion goals.

The Eastern Municipal Water District (EMWD) conducted a pilot composting program at one of its plant locations. The pilot program used a mobile in-vessel operation to process a 1/4 cubic yard per day of sludge and sawdust or shavings. The pilot evaluated different blends and operating efficiencies and lasted from approximately the middle of March 1991 to the last part of May 1991. This pilot program utilized no materials from the unincorporated County area.

EMWD conducted a second pilot program at another of its plant locations which featured the windrow composting process. The pilot began on July 1, 1991 and ended in December 1991. Materials composted included sludge with sawdust and stable waste. This second pilot utilized eight to ten wet tons of sludge per day and followed a mixture ratio of 2:1 stable waste to sludge and eventually 4:1 sawdust to sludge (ratios are by volume).

Another composting operation has received the necessary local permits and has been approved by the California Integrated Waste Management Board. This site will actually process green waste for use as mulch and is progressing with the state permit process required for a composting operation. This site's capacity is 500 tons per day. Once the State permit is granted by the Riverside County Local Enforcement Agency (LEA), this operation could begin at its site located adjacent to the Edom Hill landfill located in the Coachella Valley.

A processing unit for wood waste and green/yard waste has been submitted as part of the May 1992 revision to the solid waste facilities permit by the firm that owns and operates one of the landfills in the County. This unit would be located at the landfill.

Biomass Fuel Plant

A biomass fuel plant has been constructed in the Coachella Valley near Mecca. This facility is outside the local or the state jurisdiction and it is not currently permitted by the State of California Integrated Waste Management Board. The operators have met with the State in the past about receiving a permit in order to be considered a permitted facility under the regulations when diversion to waste-to-energy plants may receive credit during 1995-2000. The passage of AB 240 (Chapter 805, Statutes of 1991) as discussed above will also impact this facility. The firm has an agreement with the County to sublease property within the two disposal sites located in the Coachella Valley in order to divert acceptable woody wastes to the plant. As part of the agreement, the company will be required from January 1,

1995, through December 31, 1999, inclusive, to divert a minimum of 30% of such woody wastes to sites for use in the production of compost material or to other sites for other recycling purposes, subject to the written approval of the County Director of Waste Management.

Other Programs

The County, in conjunction with the City of Riverside, operated a pilot Christmas tree recycling program after the 1990 Holiday Season. The program designated a number of parks in the City and unincorporated area as drop off locations on consecutive weekends where residents could take their trees in order to have them recycled. Crews from the City and private hauling companies transported the trees in hauling vehicles to a site adjacent to the County Highgrove Landfill where the material was ground up. Residents could also take their trees directly to the grinding site during the regular weekday operating hours or on the appointed weekends. The resultant material was eventually shipped to a waste-to-energy facility. The County and City understand that such diversion cannot be counted toward achievement of the required goals at this time, but establishment of the program will ensure that it is operating at peak efficiency when composting facilities are available and can utilize the material in their operations. Shipments to waste-to-energy facilities can count for credit after 1995. The pilot program resulted in nearly 100 tons of Christmas trees being diverted from the landfill. Appendix E describes the 1991 Christmas tree recycling program.

Riverside County has utilized the planning process in order to enhance the establishment of the County Composting system. A condition of approval for the first composting facility discussed above requires the operation to seek its feedstock (i.e. sludge) from within Riverside County before considering out-of-county sources. In another instance, the Riverside County Solid Waste Advisory Council/AB 939 Local Task Force supported a privately proposed Material Recovery Facility with the provision that a yard /wood waste staging area be included in its design as a condition of approval. The MRF in question did not complete the planning process and is now located in the newly incorporated City of Murrieta.

Market Development

The County acknowledges the importance of local market development activities in order to adequately utilize the supply of compost that will be produced from the aforementioned facilities and others that will begin operations in the years ahead. The Riverside County Solid Waste Management Advisory Council/AB 939 Local Task Force has expressed an interest in encouraging entities that potentially need compost and could benefit from its use to include its utilization in any specifications written for related projects. Some entities that the Local Task Force have indicated an interest in contacting include: a landscape architect group, an association of municipalities, and Parks Departments. The County understands that this effort is only the first step in ensuring that the compost supply has a destination waiting for it as it exits the facility.

Sludge

A review of the above composting projects shows a preponderant usage of sludge as part of the production process. The County considers the use of sludge in the compost process to be an ideal usage and diversion of the material. There is also a strong interest on the part of the County and other parties to consider co-composting as an alternative method of managing sludge and municipal solid waste. Assembly Bill 1520 (Chapter 718, Statutes of 1991) extended the deadline in Section 41781 (f) of the Public Resources Code (PRC) for the inclusion of sludge in Integrated Waste Management Plans to July 1, 1992. Local jurisdictions are allowed to include sludge diversion as one part of their overall plan to

meet the January 1, 1995 goal of 25% waste diversion with the provision that each diversion will need to receive a permit that illustrates it meets required standards for the protection of the public health and the environment. The exact nature of the regulatory program will be developed during the period before July 1, 1992.

It should be noted that, until a decision is made to count sludge as a material creditable toward AB 939 goals, any material type mixed with sludge in the composting process cannot be counted in a jurisdiction's diversion total. The rationale for this neutralizing of a material's worthiness as a divertable substance is based on a belief that it may be contaminated by the sludge.

Riverside County currently does not landfill sludge in any of its facilities. This existing condition involving sludge means that under the regulations the County and its cities may not be able to take credit for its diversion since it has not been "normally disposed of" in County landfills as of January 1, 1990. The County does not believe that the County and its cities should be penalized for its history of responsible management of sludge. Riverside County jurisdictions should be allowed to count diversion programs involving sludge toward the diversion goals as in the case of other materials.

IV. EVALUATION OF COMPOSTING ALTERNATIVE PROGRAMS

The alternative programs are intended to help achieve the objectives of the Composting component and in the process contribute to the overall attainment of the mandated waste diversions of 25% and 50%. The list below represents a compilation of all possible programs which could be implemented throughout the planning period. Section V of this component lists those alternative programs that are actually slated for implementation. Please note that backyard composting is considered a method of source reduction under AB 939 and is discussed in Chapter 3, source reduction.

Composting Component Alternative Programs

1. Impose conditions on compost permittees that will require them to obtain their raw materials (i.e. sludge and yard waste, etc.) from within Riverside County before considering out-of-county sources for their feedstock.
2. Encouragement of entities that have a need for compost as part of their function to include its use in any specifications written for related projects.
3. Amend County purchasing policy to mandate applicable County Departments (and their yard maintenance contractors) to purchase reasonably priced compost/mulch from Riverside County composting facilities if supplies are available.
4. County to require all Material Recovery Facilities (MRF's) within the unincorporated area and encourage all MRF's within cities to include a separate yard/wood waste staging area (Some MRF's may conduct the composting process at the site.).
5. Christmas tree recycling program.
6. Phase in a ban on all nonprocessed, uncontaminated yard waste at County landfills so that none of the material will be accepted for disposal except as approved by the State for landfill cover material.

7. The investigation of the use of compost as cover material at County landfills.
8. The biomass fuel plant that is located in the County to divert 30% of its woody waste/compostable material that is diverted at County landfills to a credit worthy composting/recycling operation.
9. The investigation of the use of mulch as cover material at County landfills.
10. Curbside separation and pick up of yard waste in portions of the unincorporated area of the County.
11. Site a sludge/yard waste composting facility(s).
12. Site a yard waste only composting facility(s).
13. Site a facility(s) that will enable applicable municipal solid waste to be diverted from the unincorporated area through appropriate composting technologies.

Evaluation

Each alternative program was assigned a grade from 1-5 based upon its' degree of satisfactorily meeting specific criteria (for a listing of criteria and grading definitions please see Appendix B). Criteria grades for each program were added together and the resultant total considered the alternative's score. The scoring process facilitated a prioritization of programs to pursue for implementation. A table listing the composting alternative programs and their final scores is located in Appendix B.

A qualitative analysis of each program contributed to the final prioritization of component alternatives. The alternatives slated for implementation are noted as first tier programs.

V. SELECTION OF PROGRAMS

Existing Programs

Riverside County currently has a number of programs that will continue to help meet the objectives of the composting component. The existing programs include:

Composting Facilities (2)

Both facilities practice sludge composting. (See Table 5-1 for names of facility sponsors/owners).

Pilot Program(s)

Eastern Municipal Water District (EMWD) has completed two pilot programs. A third pilot program operated in late 1991 at the County Highgrove landfill where "clean green" material was diverted to a State permitted composting facility.

Christmas Tree Recycling

The County will continue to conduct its annual Christmas Tree Recycling Program in conjunction with other jurisdictions and private haulers.

County Planning Process

The County will continue to utilize the planning process to require conditions of approval in those instances that will enhance the overall County composting program. To date, a condition of approval has been achieved in regard to a composting facility being required to seek its sludge from within Riverside County before considering out-of-County sources.

Market Development Activities

The encouragement of entities by County Departments and the Riverside County Solid Waste Management Advisory Council/AB 939 Local Task Force to include the use of compost in specifications for projects.

First Tier Programs

Each new program or expansion of an existing program chosen for implementation is described and justified on the following pages (beginning on page 5-9). Each page describes only one program and includes the following information: program name, description, justification for selection, quantities and types of waste to be diverted, identification of end uses, methods of handling materials, and facility requirements.

PROGRAM

Compost permittees to obtain their raw materials (i.e. sludge and yard waste, etc.) from within Riverside County.

DESCRIPTION

This program will continue the County practice of requiring composting facilities to obtain their raw materials from sources within the County before considering out-of-county sources. The County planning process will continue to be the method for ensuring that County feedstock sources receive first consideration. An example of the condition of approval that has been required of a composting facility in Riverside County is the following:

"Sludge produced by Riverside County Treatment Plant Operators shall be given first priority to use this composting facility over other importing agencies from other counties; so long as their sludge meets quality standards required for the site; and, so long as the POTW's enter freely into contracts for such use before available site capacity is consumed. Access to the use of this facility by Riverside County POTW's and the monitoring of its compliance shall be confirmed annually by the applicant's submittal of data by July 1, of each year to the Riverside County Director of Waste Management."

(Addenda to Change of Zone No. 5286, Conditional Use Permit No. 2999 Amended No.1, Surface Mining Permit No. 175 and EIR No. 326.)

JUSTIFICATION FOR SELECTION

The program is consistent with existing policy. It would assist the establishment of local markets for the materials that are to be diverted to composting facilities in Riverside County.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
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This program is intended to facilitate the utilization of waste materials at County composting facilities. The diversion that will result will be detailed under the facility program.

IDENTIFICATION OF END USES

The diverted materials will be utilized at the facilities in the production of finished compost material for distribution among competing markets.

METHODS OF HANDLING MATERIALS

It is believed that the materials will be transported to the compost facilities by truck in bulk quantities.

FACILITY REQUIREMENTS

The implementation of this program will not necessitate new or expanded facilities.

PROGRAM

Encouragement of the use of compost in any specifications written for related projects.

DESCRIPTION

This program would encourage groups/agencies that could utilize compost as part of their daily operations to include it in any specifications written for related projects. This encouragement will come from the Riverside County Solid Waste Management Advisory Council/AB 939 Local Task Force and County staff in the form of letters and public education/technical assistance.

JUSTIFICATION FOR SELECTION

It is believed that this alternative will enhance the market for compost (and its constituent materials) by increasing its usage among applicable groups/agencies.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
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This program will not divert waste from the landfill but is intended to improve the market for the finished compost that is produced from the diverted material.

IDENTIFICATION OF END USES

The purchased compost will be utilized by groups/agencies that include landscape duties as part of their functional mandate.

METHODS OF HANDLING MATERIALS

It is believed that the finished compost will be purchased in bulk and transported by truck to the appropriate receiving location.

FACILITY REQUIREMENTS

The implementation of this program will not necessitate new or expanded facilities.

PROGRAM

County Departments (and their yard maintenance contractors) to purchase compost/mulch from Riverside County composting facilities.

DESCRIPTION

This program would require applicable County departments to purchase reasonably priced compost/mulch from Riverside County composting facilities when feasible on the basis of intended use and consistency with overall County policy regarding the purchase of recycled products. This requirement would extend to any landscape/gardening companies utilized by County Departments in the course of caring for County lands.

JUSTIFICATION FOR SELECTION

The program will assist the development of local markets for the compost that is produced in Riverside County facilities. The improved market situation will ensure a demand for the materials that will be diverted to the facilities through the programs included in the composting component.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

This program will not divert waste but is intended to improve the market for the finished compost that is produced from the diverted material.

IDENTIFICATION OF END USES

The purchased compost will be utilized by County Departments that include landscape duties as part of their functional mandate.

METHODS OF HANDLING MATERIALS

It is believed that the finished compost will be purchased in bulk and transported by truck to the appropriate receiving location.

FACILITY REQUIREMENTS

The implementation of this program will not necessitate new or expanded facilities.

PROGRAM

Material Recovery Facilities (MRF's) to include a separate yard/wood waste staging area/composting area as a condition of their permit approval.

DESCRIPTION

This program would require planned MRF's to include a separate yard/wood waste staging area in their design and final construction as a condition of their approval. The staging area would enable yard/wood waste from dedicated trucks and mixed loads that require material separation at the MRF to be processed for composting. Some MRF's may conduct the composting process at the facility. The County planning process will be the method utilized in ensuring the inclusion of such areas in planned MRF's. The County would also encourage cities to require MRFs within their boundaries to include a separate yard/wood waste staging/composting area as a condition of their approval.

The Riverside County Solid Waste Advisory Council/AB 939 Local Task Force supported a MRF in September, 1990 with the provision that a yard/wood waste staging area be included in its design as a condition of approval (among others). The condition reads as follows:

"The design of the recovery facility shall also include a separate green waste/woody waste reception loading area which may be utilized as a component of a green waste collection and composting system (located elsewhere) to help the affected agencies achieve their 50% waste stream reduction goal by the year 2000."

(Riverside County Solid Waste Management Advisory Council/AB 939 Local Task Force, September 20, 1990 meeting)

NOTE: The MRF in question is now located in the newly incorporated City of Murrieta. It did not complete the County planning process before its geographic location became a part of Murrieta.

JUSTIFICATION FOR SELECTION

The requirement of yard/wood waste staging areas in MRFs is consistent with proposed policy. The program enhances the development of the infrastructure required to encourage and sustain the diversion of materials that are appropriate for processing at composting facilities.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

The staging areas will not divert waste but serve as a collection and/or a preparation point for the material to be shipped to the composting facilities. The possibility of the MRF's conducting the composting process on site is discussed at the beginning of this section. Any diversion that would result from composting at MRF's is included in the program regarding facilities.

IDENTIFICATION OF END USES

The materials received at the MRF yard/wood waste staging areas may be transported to composting facilities. After January 1, 1995, some of the wood material may be shipped to waste-to-energy facilities.

METHODS OF HANDLING MATERIALS

The material will be transported to the staging area by truck where it will be processed with appropriate grinding, shredding and screening equipment in anticipation for composting. Material that arrives as part of a mixed load will more than likely be separated from the rest of the refuse at the MRF with an on-

site skip loader. The facilities will need to have the proper equipment in order to complete the compost process (See Appendix E for a description of compost equipment).

FACILITY REQUIREMENTS

This program will require additional facility capacity at MRF's in the form of a staging area and possible composting location.

PROGRAM

Christmas tree recycling program.

DESCRIPTION

The County, in conjunction with the City of Riverside, conducted a pilot Christmas tree recycling program at the close of the 1990 Holiday season. It is described in the existing conditions section. The inclusion of other neighborhood areas of the two jurisdictions and additional jurisdictions in this particular program will be encouraged on an annual basis.

JUSTIFICATION FOR SELECTION

This program is considered to be very effective in diverting a particular subset of the green waste stream from the landfill. It is also believed to have value in educating residents to consider recycling first when they handle their waste materials.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
Christmas Trees*	113 Tons	130 Tons
TOTAL	113 Tons	130 Tons

IDENTIFICATION OF END USES

The Christmas trees diverted from the landfill during the pilot program were transported to a waste-to-energy facility. The County and City understand that this diversion cannot presently be counted toward the State mandated goals. It is believed that establishment of the program at this time will ensure that it is operating efficiently when the composting facility infrastructure can adequately accommodate the material for use as a bulking agent and when the shipment of the material to waste-to-energy facilities can count as diversion.

METHODS OF HANDLING MATERIALS

Trees were transported to the grinding site by commercial hauling vehicles. After grinding, the material was transported off-site by truck. Other handling methods will be considered annually.

FACILITY REQUIREMENTS

Privately permitted facilities or arrangements for use of a grinding site at selected County landfills and proper on-site handling and transfer vehicles are required for the program.

*Estimated totals are based on the current program which included the County and the City of Riverside. The totals are not counted toward the 1995 and 1999 goals at this time due to the involvement of the two jurisdictions. Efforts will be made to track the jurisdiction of origin in future administrations of the program with the intent of receiving credit for all diversion that takes place.

PROGRAM

Curbside separation and pick up of yard waste.

DESCRIPTION

This program would require that residents in portions of the County unincorporated area separate their yard waste from the rest of the refuse before it is set out at the curb. The separated material would be picked up by commercial haulers for transport to the MRF/compost facility. This program would necessarily begin after the facility infrastructure has reached a stage in development where curbside separation and pick up of yard waste is feasible. A phased-in implementation would allow further development of the facility infrastructure and markets.

JUSTIFICATION FOR SELECTION

Once initiated, curbside pick up of yard waste is a program that would have difficulty changing with social, economic and technological trends. It is believed to be very effective in facilitating the diversion of the material from the landfill. It also increases the likelihood that the material is free of contaminants when it reaches the MRF/compost facility.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

This program facilitates the diversion of potentially clean yard waste from the landfill to composting sites. The material is diverted if it actually is delivered to the composting facility or some other recycling operation. The diversion will be detailed in the facility program.

IDENTIFICATION OF END USES

Curbside pick up of yard waste would ensure that it would be utilized in composting and/or mulch facilities.

METHODS OF HANDLING MATERIALS

The methods for handling the yard waste will differ from one hauler to another. Some may require their customers to place the material in dedicated cans, while others may desire that it be placed in bags. The method of choice may require residents to place their yard waste in piles at the curb where it could be picked up by hand, a vacuum or a skip loader. Those companies that utilize the skip loader approach would need another vehicle to accompany it where the material could be deposited for final transport. Methods for handling materials on the facility site are detailed in Appendix E.

FACILITY REQUIREMENTS

This program may require additional trucks for its implementation. New or expanded fleet yard facilities would be needed in order to accommodate any additional trucks.

PROGRAM

Phased in ban of nonprocessed, uncontaminated yard waste at County landfills.

DESCRIPTION

This program would phase in a ban on all nonprocessed, uncontaminated yard waste material from entering the County landfills except as approved by the State for landfill cover material. The ban would take place after the composting facility infrastructure had reached a point in its development where it required a steady flow of yard waste to ensure its viability. The delay in implementation would also enable those parties impacted by the ban (i.e. landscapers, residents, etc.) to make adequate preparations for it.

JUSTIFICATION FOR SELECTION

The program is believed to be a very effective method for diverting yard waste from the County landfills. There may be some institutional barriers to the program from residents and impacted parties, but the program is considered an essential step in assuring that yard waste will be diverted from the landfill and the systems that make use of the banned material will be able to depend on a steady supply of it.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

This program will effectively lead to the diversion of material from the landfill. It will not be a total ban since some contaminated yard waste that is unacceptable for composting and other diversion programs will need to be landfilled. The diversion that actually takes place within the unincorporated county will be detailed in the facility program.

IDENTIFICATION OF END USES

The ban would ensure that the yard waste would be utilized in composting facilities.

METHODS OF HANDLING MATERIALS

It is believed that the banned materials would be transported by truck and/or residential vehicles to County sited MRFs and composting facilities for processing.

FACILITY REQUIREMENTS

The ban itself would not require any new or expanded facilities. It is understood that MRF and composting facilities need to be in existence before the ban can be effective or efficiently implemented.

PROGRAM

Investigate the use of compost as cover material.

DESCRIPTION

This program would investigate the use of finished compost as daily cover material at County landfills. Part of the investigation would include acquiring approval from the California Integrated Waste Management Board for the use of compost as daily cover material. The possibility of using compost as intermediate and final cover would be explored and pursued if the law and regulations ever change in order to allow it.

JUSTIFICATION FOR SELECTION

The composting process produces a finished product that results from a biological decomposition of materials. Though this program would result in material being placed in the landfill, this program is considered to be very effective in reducing the amount of compostable materials that ultimately enter the facilities. The use of compost as daily cover material is a beneficial usage of the material that in some cases may also save the amount of soil imported for use at the landfill. This program ensures that the compost produced within the County has a destination waiting for it. This destination will become increasingly important if the market ever experiences a downturn.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

This program is a utilization of the finished compost that is produced from materials diverted from the landfill. The existence of this use will ensure that the final product has a place waiting for it once the process is complete.

IDENTIFICATION OF END USES

The compost would be utilized in landfill operations as daily cover material.

METHODS OF HANDLING MATERIALS

The finished compost would be loaded into vehicles for transport to the landfill site.

FACILITY REQUIREMENTS

This program would require that the landfills have adequate storage capacity for the compost as it awaits usage.

PROGRAM

The biomass fuel plant located in Riverside County to divert 30% of its woody waste/compostable material diverted at County landfills to a credit worthy composting/recycling operation.

DESCRIPTION

As part of an agreement with the County regarding woody waste diversion from the Coachella Valley landfill sites, The biomass fuel plant located within the County will be required from January 1, 1995, through December 31, 1999, inclusive to divert a minimum of 30% of such woody wastes to sites for use in the production of compost material or to other sites for additional recycling purposes.

JUSTIFICATION FOR SELECTION

A waste-to-energy facility located in Riverside County has met with the State in the past about receiving a permit in order to be considered a permitted facility under the regulations (see discussion in Section III, existing conditions). Credit for material shipped to transformation facilities can amount to no more than 10% of the overall 50% diversion rate each City/County must meet by January 1, 2000 (No credit can be attributed to transformation for the first 25% goal due by January 1, 1995). This provision in the contract enables the County and impacted cities in the Coachella Valley to receive more than the maximum 10% credit for the woody waste the facility uses since at least 30% of the material processed at the landfill stations must be transported to Composting or other recycling facilities.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
Yard Waste*		1,375 Tons
TOTAL		1,375 Tons
% of Mandated Goal (w/Inert Solids)		.2%
% of Mandated Goal (wo/Inert Solids)		.2%
(i.e. 50%/2000)		

(As part of "Woody Waste"-See glossary-the diverted material could actually be a mix of yard and wood waste.)

IDENTIFICATION OF END USES

The diverted material will be used in the production of compost at permitted facilities or transported for use in some other recycling function.

METHODS OF HANDLING MATERIALS

The woody waste will be processed with grinders/shredders on-site (at the landfill) and shipped by vehicle to a permitted composting/recycling site (Please see Appendix E for a description of the composting process.).

FACILITY REQUIREMENTS

This program will require equipment to shred/grind the material to the proper size for use and a composting/recycling facility in order to receive it for further recycling.

*NOTE: The estimated diversion total is for the unincorporated area only.

PROGRAM

Investigate the use of mulch as cover material at County landfills.

DESCRIPTION

This program would investigate the use of mulch as daily cover material at County landfills. Part of the investigation would include acquiring approval from the State of California Integrated Waste Management Board for the use of mulch as daily cover material. The possibility of using mulch as intermediate and final cover material would be explored and pursued if the law and regulations ever change in order to allow it.

JUSTIFICATION FOR SELECTION

It is believed that this program would result in a more efficient placement of yard waste in the landfill than occurs at the present time. The use of mulch as daily cover material may in some cases also save the amount of soil imported for use at the landfill. This program ensures that County mulch has a destination waiting for it after it is processed. This destination will become increasingly important if the market ever experiences a downturn.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
---------------	------	------

This program is a more efficient utilization of yard waste in the landfill after it has undergone processing. The existence of this use will ensure that material has a place waiting for it once the processing is complete.

IDENTIFICATION OF END USES

The mulch would be utilized in landfill operations as daily cover material and for ground cover on steep exterior slopes to help control erosion.

METHODS OF HANDLING MATERIALS

The processed mulch would be loaded into vehicles for transport to the landfill site.

FACILITY REQUIREMENTS

This program would require that the landfills have adequate storage capacity for the mulch as it awaits usage.

PROGRAM

Expand the number of Composting Facilities in the County.

DESCRIPTION

This program would increase the number of composting facilities in Riverside County where the yard and wood waste generated from the unincorporated area could be diverted for use in the production of finished compost. Composting facilities in general are included in this program where further investigation will determine which types are eventually implemented for use by County residents. Appendix E describes various approaches to composting.

JUSTIFICATION FOR SELECTION

Expansion of the facility infrastructure is viewed as imperative for the continual diversion of yard and wood waste from County landfills. The essential nature of this program will require all environmental issues regarding facility establishment to be considered and mitigated at the time of project implementation. Potential institutional barriers in the form of residential resistance will be handled in a straight forward and direct manner. The facility type scores shown in Appendix B indicate the present priority for implementation if existing facilities remain operational. Additional investigation may require a second look at the facility type preferences that survived the staff/Local Task Force analysis.

QUANTITIES AND TYPES OF WASTE TO BE DIVERTED

Type of Waste	1995	2000
Yard Waste	64,540	84,490
TOTAL (tons)	64,540	84,490
% of Mandated Goal (w/Inert Solids)	8.9%	10.2%
% of Mandated Goal (WO/Inert Solids)	12.5%	14.4%
(i.e. 25%/1995 and 50%/2000)		

NOTE: The above diversion totals are for composting that will take place at either MRFs or dedicated facilities. Please see the discussion under "facility requirements" concerning the concept of a system wide approach toward solid waste management.

IDENTIFICATION OF END USES

The diverted materials will be utilized in the production of finished compost. Compost may be used for landfill cover (with State approval) as well as agriculture and horticulture soil supplements.

METHODS OF HANDLING MATERIALS

Appendix E includes details on methods of handling the diverted materials as part of the descriptions of various approaches to composting.

FACILITY REQUIREMENTS

This program will result in the establishment of facilities. The County is currently working with the cities on the concept of a system wide approach toward solid waste management. The system approach would establish facilities that would meet the city and county disposal and diversion needs in the coming years. Under a countywide system, composting could take place at either MRFs or dedicated facilities.

A recently completed study (i.e. Riverside County Waste Management Department, "System Cost Review", July 1991) estimated that, with composting taking place at MRF's, a total of four dedicated

composting facilities will be required to serve the city and county needs. The actual number of dedicated facilities to be sited in the coming years will be based on: 1) the capacity of existing facilities, 2) how much composting is actually done at MRF's, and 3) any remaining shortfall in capacity needs.

In light of the above discussion, the County understands that the need and timing of additional dedicated composting facilities will be evaluated on a continual basis. Table 5 - 2.2 indicates that facilities will be in operation in 1994. The emphasis in regard to Table 5 - 2.2 should be on the estimated total time to develop a facility since the timeline would engage once the need for additional facilities is evident.

Compost Markets

The County realizes that the development of markets is crucial to a successful composting program. This commitment is exemplified in two of the programs described above that focus on different angles of market development: 1) one that attempts to strengthen the local market for the finished compost product with County Department purchases and 2) a second one that tries to enhance the local market for the material feedstock by having County facilities consider sources in the County before those from outside of it.

The purchase of compost by County Departments establishes the local market and serves as an example to the private sector regarding the material's availability and acceptability. The requirement that County raw materials receive first consideration for diversion to local composting facilities will ensure that resources are not sent to the landfill since a diversion alternative is available to them. These two programs can potentially impact the market beyond the boundaries of Riverside County when they serve as examples that other jurisdictions can follow.

Operators of both existing compost facilities in the County have indicated that they have a market for their finished product and there is potential for expansion.

It should be noted that the County intends to require proponents of new facilities (i.e. MRF's, Compost sites, etc.) to disclose a marketing plan for the processed materials before any agreements are entered into by the parties regarding facility construction and operation.

The advent of unfavorable and/or uncontrollable conditions that would impact the compost market will be met by the County in a forthright manner. Steps that would be taken in such instances include:

- *Investigate the market situation both locally and statewide and estimate the impact on the County composting system. This research will determine if any immediate actions regarding the present system can alleviate the problem.

- *Research if there are any sound markets that have yet to be utilized by the County composting system which would help improve the final utilization of the finished product.

VI. IMPLEMENTATION PLAN

Tables 5-2.1 to 5-2.3 depict an implementation plan for each of the selected programs including existing and planned. This plan will serve as a guideline for the County, showing a time frame in which all programs will be implemented. This plan lists necessary steps to implement each program, the responsible agency(ies), and the year in which each task will commence and end, with those programs which are ongoing appropriately labeled. Also shown are the estimated public implementation costs of each program, public revenues generated as a result of the program, private implementation costs, private revenues generated as a result of the program and the anticipated revenue sources available to fund implementation.

Table 5 – 2.1
Composting Component Implementation Plan
Existing Programs

Existing Program	Responsible Agency	Frequency of Program
Composting Facilities	BOS WMD LEA DEH Planning	Periodic, subject to need, private investment
Current Pilot Program(s)	EMWD	Two pilots completed
	WMD	Three month pilot completed in late 1991
Christmas Tree Recycling	WMD Cities Printing Services BOS	Annual Administration
County Planning Process	WMD Planning RCSWMAC/LTF	Periodic, subject to Facility Permit Process
Market Development – Encouragement of the use of compost in specifications for projects	RCSWMAC/LTF WMD	Continuous Program
BOS = Board of Supervisors		
WMD = Waste Management Department		
LEA = Local Enforcement Agency		
DEH = Department of Environmental Health of the Health Services Agency		
EMWD = Easter Municipal Water District		
RCSWMAC/LTF = Riverside County Solid Waste Management		
Advisory Council/Local AB 939 Task Force		

Table 5 – 2.2
Composting Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. Composting Facilities First Consider Riverside County Feedstock		Ongoing Program									
1. Meet with facility principals	WMD Planning	X									
2. Begin planning process with expectation of condition of approval		X									
3. Notify agencies/jurisdictions responsible for feedstock supplies regarding condition of app.		X									
4. Monitoring			X	X	X	X	X	X	X	X	X
B. Material Recovery Facility (MRF) Yard/Wood Waste Staging/Composting Area		Ongoing Program									
1. Meet with MRF principals	WMD Planning RCSWMA/LTF	X									
2. Determine if composting is to take place at site		X									
3. Begin planning process with expectation of condition of approval		X									
4. Submit MRF proposal to Riverside County Solid Waste Mgt. Advisory Council/Local Task Force		X									
5. Construct MRF facility		X	X	X	X	X	X	X	X	X	X
6. Monitoring											
C. Biomass – Fuel Plant to Divert 30% of Its Woody Waste/Compostable Material that is diverted at County Landfills to a Credit Worthy Operation		Ongoing Program									
1. Negotiate agreement between County and Plant to require 30% of woody waste/compostable material to be transported to a credit worthy operation	CC WMD Printing AO	X									
2. Execute agreement		X									
3. Complete tasks 3 – 5 of program entitled: "Processing Station for Woody Waste at Edom Hill and Coachella Landfills" in Chapter 6.		X	X	X							
4. 30% diversion required between 1 – 1 – 95 & 12 – 31 – 99 (Please see Appendix ___ for a discussion concerning plans concerning this program after 1999.)					X						X
5. Monitoring									X	X	X

Table 5 – 2.2 (Cont.)
Composting Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
D. Purchase of Compost by County Departments	CC	Ongoing Program									
1. BOS mandate dept. use of compost/mulch where appropriate (phase in)	County Depts. WMD		X								
2. Meet with applicable County depts.	DEH		X								
3. Establish compost uses & specifications for Cnty Depts	Purchasing		X								
4. RFP development and issuance			X								
5. Negotiate agreements between Cnty. depts. & Composting facilities				X							
6. Execute agreements				X							
7. Monitoring					X	X	X	X	X	X	X
E. Christmas Tree Recycling	WMD	Ongoing Program									
1. Evaluate pilot program	Cities	X									
2. Redesign program based on pilot program	Printing	X									
3. Meet with dept. personnel and cities to coordinate the program	AO	X									
4. Investigate whether area compost Facilities can utilize the material		X									
5. Agreement with a vendor to grind the trees		X									
6. Set up grinding site		X									
7. Meet with private haulers		X									
8. Contact tree lots		X									
9. Design and implement public education campaign		X									
10. Print and distribute flyers		X									
11. Implement the program		X									
12. End of annual program			X								
F. Encouragement of Entities to Use Compost	WMD	Ongoing Program									
1. Determine Agencies/Entities that include landscape duties as part of their function	RCSWMA/LTF		X								
2. Compose and transmit letter to all targeted agencies/entities			X								
3. Design and implement public educ. campaign			X								
4. Monitoring				X	X	X	X	X	X	X	X

**Table 5 – 2.2 (Cont.)
Composting Component Implementation Plan**

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
G. Curb Side Separation and Pick Up of Yard Waste	DEH	Ongoing Program									
1. Survey existing and planned composting facilities to evaluate the quantity and quality of yard waste to be diverted	WMD		X								
2. Evaluate the impact of curbside separation & pick up of yard waste on diversion	GRHC		X								
3. Design amendment to Ordinance 657	RCSWMA/ LTF										
4. Present amended Ordinance 657 to the Garbage Refuse Hauler Committee and the Riverside County Solid Waste Mgt. Advisory Council/Local Task Force				X							
5. Present amended Ord. 657 to BOS											
6. Monitoring				X	X	X	X	X	X	X	X
H. Composting Facilities	WMD	Ongoing Program									
1. Identify potential quantity & quality of compost material & (data base study) users/uses of compost & determine necessary makeup of compost material (nutrients to promote sales). Network with incorporated cities for County-wide coordinated approach.	LEA DEH Planning CC		X								
2. Determine composting approaches/technologies that can produce the desired quality compost	Cities/Districts Printing AO		X								
3. Survey state regulations regarding compost sludge management to determine if they impact finding in the above tasks.											
4. Evaluate potential locations of yard waste composting programs including equipment & operational requirements			X								
5. Investigate the establishment of composting facilities on or near County landfills			X								
6. Determine accurate cost estimates & projections of potential revenues for cost comparison			X								
7. Prepare RFP/contract for acquisition of vendors to implement program			X								
8. Select firm				X							
9. Design and implement a public education program to enhance market development and facilitate collections				X							
10. Submit programs to the Riverside County Solid Waste Mngmnt. Advisory Council/Local Task for consideration					X						
11. Implement programs where environmental and economic feasibility can be assured					X						
12. Maintain present markets and develop additional outlets					X						
13. Monitoring										X	

**Table 5 – 2.2 (Cont.)
Composting Component Implementation Plan**

Alternative Program Use of Compost as Cover Material at County Landfills	Responsible Agency	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1. Investigate the Use of Compost as Cover Material at County Landfills	CIWMB LEA										
1. Survey jurisdictions in CA that may be using compost as cover material	WMD CC			X							
2. Evaluate County compost system regarding present & future capacity, inventory & market conditions				X							
3. Evaluate the need to pursue the use of compost as cover material at County landfills				X							
4. If determined to proceed, submit proposal request to the CIWMB and LEA for consideration				X							
5. If CIWMB approves request, establish a demonstration project				X	--X						
6. At the end of demonstration project, CIWMB & LEA evaluate the suitability of the demonstration cover material					X						
7. If material deemed "suitable cover", file an Amended Report of Disposal Site Information & an application to revise the Solid Waste Facilities Permit						X					
8. Upon receiving approval, contact local compst. facilities regarding the use of finished compost as cover material						X					
9. Negotiate agreements with compost facilities						XX					
10. BOS consideration of agreements						X					
11. Monitoring							X	X	X	X	X

**Table 5 – 2.2 (Cont.)
Composting Component Implementation Plan**

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
J. Investigate the Use of Mulch as Cover Material at County Landfills	CIWMB LEA										
1. Survey jurisdictions in CA that may be using mulch as cover material	WMD			X							
2. Determine the quantities of yard waste disposed and diverted in the County	CC			X							
3. Evaluate the need to pursue the use of mulch as cover material at County landfills											
4. If determined to proceed, submit proposal request to the CIWMB and LEA for consideration				X							
5. If CIWMB approves request, establish a demonstration project				X	--X						
6. At the end of demonstration project, CIWMB & LEA evaluate the suitability of the demonstration cover material					X						
7. If material deemed "suitable cover", file an Amended Report of Disposal Site Information & an application to revise the Solid Waste Facilities Permit						X					
8. Upon receiving approval, determine potential sources of mulch, needs in terms of machinery, sites, etc.						X					
9. Negotiate agreements with vendors for mulch, equipment, etc.						XX					
10. BOS consideration of agreements						X					
11. Monitoring							X	X	X	X	X

**Table 5 – 2.2 (Cont.)
Composting Component Implementation Plan**

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
K. Phased in Ban of Yard Waste at County Landfills	WMD										
1. Survey existing composting facilities to evaluate the quantities of yard waste diverted	Cities AO					X					
2. Survey County landfills to evaluate the quantities of yard waste disposed	RCSWMAC/LTF					X					
3. Survey existing diversion programs to evaluate how the County and cities are progressing toward the state goals						X					
4. Determine if a ban on yard waste at the County landfills is necessary to ensure that the County & Cities achieve the State goals						X					
5. If a ban is needed, determine landfill priority for implementing it & the corresponding schedule						X					
6. Meet with cities and impacted companies regarding the ban and its implications						X					
7. Design public information campaign						X					
8. Submit ban of yard waste to the Riverside County Solid Waste Mgt. Advisory Council/LTF for consideration						X					
9. Board of Supervisors consider the ban of yard waste at County landfills						X					
10. If BOS approves the ban, implement it, phase in over time, and monitor the program							X	X	X	X	X

Legend to Abbreviations

CC: Riverside County Counsel
 Cities: Incorporated Cities of Riverside County
 CIWMB: California Integrated Waste Management Board
 County Depts.: Riverside County Departments
 Districts: Special Districts, Water Districts, etc.
 DEH: Department of Environmental Health of the Health Services Agency
 GRHC: Garbage & Rubbish Haulers Committee

LEA: Local Enforcement Agency of Riverside County
 Planning: Riverside County Planning Department
 Printing: Printing Services, General Services Agency
 Purchasing: Purchasing, General Services Agency
 RCSWMAC/LTF: Riverside County Solid Waste
 Management Advisory Council/AB 939 Local Task Force
 WMD: Waste Management Department

Table 5-2.3
Composting Component Cost Estimate for Implementation Plan

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
A. Composting Facilities Consider Riverside Cnty. Feedstock First	WMD Planning	Start up Hr. 20/Facility Annual Hrs. 15 OPA*/Facility 10	Staff Costs \$600 Annual Staff Cst. \$400 OPA \$300		\$0	\$0	WMD Funds, Planning Dept. Funds
B. MRF yard/wood waste staging area	WMD Planning RCSWMA/C/LTF	Start up Hr. 45/Facility Annual Hr. 15 OPA Strt.Up 10/Facility	Staff Cost \$1,300 Ann. Staff Cst. \$400 OPA Staff Cst. \$300	Capital \$148,000 - \$7,132,000 per MRF** Operating \$18,000 - \$2,040,000 per MRF**	\$0	\$0	WMD Funds, Planning Dept. Funds, Private Funds, Recyc. Mkt. Dev. Zones
C. Diversion of 30% of Woody Waste/Compostable Material Diverted at Cnty. Landfills to a Credit Worthy Program	CC WMD Printing AO	Included in biomass related program listed in Chapt. 6.	Included in biomass related program listed in Chapt. 6	Included in biomass related program listed in Chapter 6***	\$0	Potential sale of Material	WMD Funds, CC Funds, Private Funds
D. Purchase of Compost by County Departments	CC Cnty. Depts. WMD DEH Purchasing	Start up 60 Annual Hrs. 40 OPA Strt. up 170 OPA Ann. Hrs. 140	Staff Costs \$1,700 Annual Staff Cst. \$1,100 OPA Staff Cst. \$4,800 OPA Ann. Cst. \$3,900 Ann. Cost Price of Compost, if any.	\$0	\$0	Revenue from the sale of compost	WMD Funds, Cnty. Dept. Budgets DEH Funds, GSA Funds

**Reference: Riverside County Waste Management Department, "System Cost Review", July 1991

It should be noted that the estimated costs are for facilities that will also compost at the MRF location.

***Does not include truck costs. All private costs of this program were totaled after talking with vendor advisor.

Costs included in Chapter 6 include transportation costs to the biomass plant but not to credit worthy diversion programs.

**Table 5—2.3 (Cont.)
Composting Component Cost Estimate for Implementation Plan**

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
E. Christmas Tree Recycling	WMD Cities Printing AO	Start up 85 Annual 85 OPA 25 OPA Ann. Hrs. 25	Staff Cost \$2,400 Ann. Staff Cst. \$2,400 OPA Stff. Cst. \$700 OPA Ann. Cst. \$700 Supply Cost \$1,200 Annual Supp. Cst. \$1,200	\$1,500 (Grinding Site set up/tear down cost) Supply Cost \$100 (Fuel Cost) Costs under current program include staffing drop – off sites with trucks, labor.	\$0	\$0	WMD Funds, City Budgets, Private Funds
F. Encouragement of Entities to Use Compost	WMD RCSWMAC/ LTF	Start up Hr. 25 Annual Hrs. 35	Staff Costs \$700 Annual Stff. Cst. \$1,000 Supply Cost \$100 Ann.Supp.Cst. \$100	\$0	\$0	\$0	WMD Funds
G. Curbside Separation/ Pick up of Yard Waste	DEH WMD GRHC RCSWMAC/LTF	Start Up 55 Annual Hrs. 15 OPA 35 OPA Ann. Hrs. 15	Staff Costs \$1,500 Annual Stff. Cst. \$400 OPA Stff. Cst. \$1,000 OPA Ann. Cost \$400	Capital \$19,886,000* Operating Cost \$4,950,000*	\$0	\$0	WMD Funds, DEH Funds, Private Funds

Table 5-2.3 (Cont.)
Composting Component Cost Estimate for Implementation Plan

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
H. Compost Facilities	WMD LEA DEH Planning CC Cities/Districts Printing AO	Start up 925/Facil. Annual Hrs. 240 OPA Sirt. up 75/Facility OPA Ann. hr. 40	Staff Costs \$25,900 Ann. Stff. Cst. \$6,700 OPA Stff. Cost \$2,100 OPA Ann. Cost \$1,100 Supply Cost \$200 Annual Supp. Cst. \$200	Yard Waste Composting Capital \$764,000 - \$5,670,000* Operating \$345,000 - \$2,801,000* Sludge/Yard Waste Composting Capital \$7,150,000 - \$17,500,000** Operating \$750,000 - \$1,730,000** MSW Composting Capital \$2,750,000 - \$30,000,000*** Operating \$500,000 - \$6,300,000***	\$0	(Compost assumed to have no market value)	\$0 WMD, LEA, DEH, and Planning Dept. Funds, Cities/Dist. Funds, private Funds, Recyc. Mkt. Dev. Zones
I. Compost as Cover Material	CIWMB LEA WMD CC	Start up 385 Annual Hrs. 15 OPA Sirt. up 265 OPA Ann. Hrs. 15	Staff Costs \$10,800 Annual Stff. Cst. \$400 OPA Stff. Cost \$7,400 OPA Ann. Cost \$400	\$0	\$0	Sale of Compost	WMD Funds, LEA Funds

*Reference: Riverside County Waste Management Department, "System Cost Review", July 1991. Land Costs not included.

All Costs are per facility. Debt service is not included in the estimated costs.

**Reference: Waste Mgt. Dept. phone survey of sludge/yard waste composting sites. Capital costs do not include costs of land. Permitting/environmental cost may be included. Debt service is not included.

***Reference: Waste Mgt. Dept. phone survey of MSW composting sites. Capital costs do not include the purchase of land, however, permitting/environmental costs may be added. Debt service not included in the costs.

**Table 5-2.3 (Cont.)
Composting Component Cost Estimate for Implementation Plan**

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
J. Mulch as Cover Material	CIWMB LEA WMD CC	Start up 385 Annual Hrs. 15 OPA Sirt. up 265 OPA Ann. Hrs. 15	Staff Costs \$10,800 Annual Stff. Cst. \$400 OPA Stff. Cst. \$7,400 OPA Ann. Cst. \$400		\$0	\$0 Sale of Mulch	WMD Funds, LEA Funds
K. Phased in Ban of Yard Waste	WMD Cities AO RCSWMAC/LTF	Start up 110 Annual Stff. Cost 15 OPA 30	Staff Cost \$3,100 Ann. Stff. Cost \$400 OPA Staff Cost \$800 Supply Cost \$200 Annual Cost Loss of Tipping Fee Revenue		\$0	\$0	WMD Funds, Cities Funds

Legend to Abbreviations

CC: Riverside County Counsel
 Cities: Incorporated Cities of Riverside County
 CIWMB: California Integrated Waste Management Board
 County Depts.: Riverside County Departments
 Districts: Special Districts such as water districts
 DEH: Department of Environmental Health
 of the Health Services Agency
 GRHC: Garbage & Rubbish Haulers Committee
 LEA: Local Enforcement Agency of Riverside County
 OPA: Other Public Agency
 Planning: Riverside County Planning Department
 Printing: Printing Services, General Services Agency
 Purchasing: Purchasing, General Services Agency
 RCSWMAC/LTF: Riverside County Solid Waste Management
 Advisory Council/AB 939 Local Task Force
 WMD: Waste Management Department

VII. MONITORING AND EVALUATION

Methods to Quantify and Monitor Objective Achievement

The quantification and monitoring of Composting Component objectives has begun with the completion of the Riverside County Waste Generation Study. The study quantified the entire unincorporated area waste stream including those materials that may be included in a composting program (i.e. yard waste, wood, sludge and other organic materials). The obtained information will serve as baseline data for comparison of future generation and diversion totals.

The County has recently considered a business license ordinance that would have been primarily for revenue generation, but in addition would have required recycling companies (including composting facilities under the ordinance) to report the jurisdiction of origin, material type and weight of the material it receives. The issuance of the business license would be dependent on adequately meeting this reporting requirement. The reports generated as a result of the ordinance would enable the County to track the diversion of compostable material from the landfills. Although opposition to the new tax by businesses has put the proposal aside for now, future revenue needs, and the existence of similar licenses in the County cities, are expected within time to renew this tax and the Department will again renew its proposal for recycling reporting as a condition of the license. The required information will be expanded to include tonnage totals for any material that cannot be processed due to contamination (or any other reason) and must therefore be landfilled by the facility operator. Such information is necessary in order to determine the actual amount of material that is diverted due to composting programs.

The above reporting systems will be backed up by waste characterization and/or diversion studies that will be part of the County update process. The County is considering annual updates, during the early years for its waste characterization and/or diversion studies, despite understanding that yearly updates are not required until the year after the Countywide Integrated Waste Management Plan is submitted to the State (which in the case of Riverside County is 1994).

A data base will be developed to track the diversion of materials through the composting programs in the unincorporated County. This data base is described in Chapter 2.

It is believed that this monitoring system of regular reports and annual waste characterization and/or diversion studies will enable the County to evaluate whether the composting diversion objectives are being achieved by the implemented programs.

Criteria for Evaluating a Program's Effectiveness

The County has identified the following criteria in order to determine if the overall composting program detailed in this component is effective:

- Are the component diversion objectives being achieved?
- Are the impacted agencies/entities meeting their programmatic responsibilities?
- Are the component programs and the associated tasks being implemented on schedule?
- Are component programs adequately diverting compostable materials from all impacted generators?

-Is the finished compost material adequately marketed?

-Are component programs being implemented and administered in an environmentally sound manner?

Agency responsible for monitoring and evaluating Compost programs.

The Riverside County Waste Management Department is the agency with ultimate responsibility for monitoring and evaluating the effectiveness of the implemented compost programs for the unincorporated County area. Other County Agencies/Departments responsible for monitoring and evaluating aspects of the compost programs include the Environmental Health Services Division of the Health Agency, the Local Enforcement Agency and the Purchasing Division of the General Services Agency.

Funding requirements, revenues and revenue sources

The funding required to conduct the Compost monitoring and evaluation program will be comprised primarily of the staff time needed to review and evaluate submitted reports, to coordinate and support the annual waste characterization and/or diversion studies and to take whatever action is necessary to maintain/improve actual diversion levels. It is believed that the review of programs/reports on the part of the Waste Management Department will entail approximately 150 hours on an annual basis, while the coordination/support of the waste characterization and/or diversion studies will require 200-500 hours each year. Other Departments/Agencies that will monitor aspects of some of the programs include the Environmental Health Services Division of the County Health Agency, the Local Enforcement Agency and the Purchasing Division of the General Services Agency.

It is estimated that 1200 staff hours will be required to develop the data base program and system that is described in Chapter 2. The data base will serve programs of the composting component and those of other components. Employee salaries are funded from the Department Enterprise Fund which receives its revenues from tipping fees.

Contingency Measures in case of compost objective shortfall

The Department's continual monitoring and evaluation of individual compost programs will enable it to note any shortfalls in expected diversions. If shortfalls are experienced, the following contingency measures will be considered in an effort to improve overall program results:

- A review of individual programs in regard to the six criteria stated above in order to locate areas for potential remediation.
- An increase in the frequency of program reviews in order to track progress on a more continual basis.
- A reevaluation/modification of component objectives and programs in order to take into account new developments/hindrances in the existing conditions.

CHAPTER 6

Special Wastes Component

CHAPTER 6 -- SPECIAL WASTES

I. INTRODUCTION

This component deals with the special wastes identified in Riverside County's waste stream. Special wastes are classified as all substances which, due to their special characteristics, require special collection, handling, treatment or disposal. The regulations developed for AB 939 define special wastes as,

...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.

Examples of special wastes are sewage sludge from wastewater treatment plants, discarded automobiles, tires, asphalt and concrete. Although some of these wastes do not enter public landfills, they are part of the waste stream and therefore require disposal and management.

This Component is organized differently from the preceding components. The existing conditions section focuses on the special wastes identified by Riverside County, instead of the existing programs. The existing programs are discussed under each waste type heading along with the alternative programs which were evaluated for implementation.

This component discusses the current disposal and/or recycling practices for special wastes, identifies programs for proper handling and recycling all applicable wastes and includes a monitoring and evaluation plan for those programs.

II. SPECIAL WASTE COMPONENT GOAL AND OBJECTIVES

The goal of the Special Waste Component is to ensure proper handling practices and to recycle to the maximum extent all applicable special wastes generated in the unincorporated area. The objectives developed for the Special Waste Component include continuation of existing programs, as well as, waste reduction objectives.

Special Waste Component Objectives

1. Maintain the policy that 100% of the discarded automobiles in the County will not be accepted for disposal at County operated landfills through 1995 and 2000.
2. Maintain the practice of prohibiting sewage sludge at County operated landfills.
3. Continue disposal of certain hard-to-handle and special wastes at County operated landfills because of their size, potential health hazard or security reasons.
4. Maintain the practice of limiting the number of dead animals that are taken to County operated landfills for disposal to those instances when it is not economical to pursue rendering services.
5. Continue to dispose of street sweepings at approved disposal facilities when alternative uses for the material cannot be found.
6. Recover 26% of the tires generated by 1995 and 53% by 2000.
7. Recover 80% the amount of inert solids landfilled by 1995 and 84% by 2000.

8. Recover 81% of the wood waste generated in the County by 2000.
9. If feasible, eliminate septic tank wastes from landfills by 2000, while continuing to use septage ponds at county landfills for chemical toilet wastes until alternate disposal methods are found.

Priority Waste Types Targeted for Diversion

The priority waste categories targeted for diversion in Riverside County include: wood waste, tires, inert solids, liquid wastes and sludge.

III. EXISTING CONDITION DESCRIPTION

Riverside County has identified those wastes included in this section as being part of the waste stream. This section discusses the current practices for handling each material, the possibility for recycling applicable materials and recommendations for handling of the materials. Please see Table 6 - 1 for a listing of current practices with respect to special wastes.

Abandoned Automobiles

Automobile bodies are classified as a special waste due to the size and difficulty in handling and the presence of hazardous wastes (e.g. asbestos on brake pads, electrical components and safety air bags). Riverside County disposal site regulations specifically prohibit the disposal of discarded automobiles at County-operated landfills. Therefore, an alternative method of disposal must be used; of which, the most common method involves recycling. Normally, the automobiles are dismantled to reclaim parts for resale and metals for sale to scrap metal dealers. With the high cost of automobile parts today, the used parts market has become a substantial player in the automotive industry. In addition, the average American automobile contains approximately one and one-half tons of salvageable metals. These metals have proven to be economically marketable and their recycling is considered to be the leading method of disposal.

The County Building and Safety Department organizes the County effort in managing abandoned automobiles on private property. Those found on public property are handled by the State of California Highway Patrol. The Building and Safety Department is notified of abandoned automobiles either through telephone reports by residents or through routine code enforcement activities. Certified notices are sent to the last known registered owner of the vehicle and the property owner upon whose land it is reported. For those auto's which are not claimed by the owner or removed by the property owner, the County authorizes a contracted towing service to remove from the property and deliver to an auto recycler.

Alternative Program: Continue recovery of abandoned autos's through the effort of the Building and Safety Department and the County Trashbuster events.

Dead Animals

Dead animals are classified as a special waste due to the need for immediate burial to protect against health hazards. Riverside County experiences a vast number of animal fatalities annually which require sanitary disposal. In urban areas, most of the animal deaths are limited to small house pets, such as domestic cats and dogs. While, in the rural areas many are large animals such as cattle and horses. The disposal of animals on private property is the responsibility of the property owner. Those discovered on public land are the responsibility of local government agencies.

Table 6 - 1
Summary of Existing Special Waste Programs

Existing Program	Sponsoring Agency	Comments
Continue to recover abandoned automobiles.	Building and Safety Department	
Maintain additional fee for disposal of dead animals	Waste Management Department	
Continue to encourage the utilization of private rendering facilities for the disposal of dead animals.	Waste Management Department	
Continue additional fee for the disposal of hard-to-handle refuse.	Waste Management Department	Fee, as of Spring 1992, was \$40.00 per ton.
Maintain additional fee for the disposal of tires.	Waste Management Department	
Maintain prohibition of sewage sludge from entering county landfills.	Waste Management Department	
Continue to monitor the amount of asbestos waste requiring disposal and if present disposal methods decrease capacity or are closed, investigate alternative disposal sites.	Department of Environmental Health of the Health Services Agency and Waste Management Department	
Continue to encourage environmentally feasible and application of sludge.	Department of Environmental Health of the Health Services Agency and Waste Management Department	
Continue to encourage current methods utilized for the disposal of agricultural manure waste.	Department of Environmental Health of the Health Services Agency and Waste Management Department	
Continue to encourage current methods utilized for the disposal of agricultural crop residue.	Department of Environmental Health of the Health Services Agency and Waste Management Department	

Although permitted for disposal at County-operated landfills, only a small percentage of all dead animals enter the sites. Nearly all large animals (e.g. cattle, horses, etc.) and many smaller animals are removed to rendering facilities located in San Bernardino and Los Angeles Counties. Rendering facilities utilize the animal remains in the manufacture of many products. Presently, there are no estimates on the number of animals disposed of at rendering facilities. The remainder are either disposed of at public landfills or buried on-site in rural outlying areas. For those which are disposed of in county landfills (other than a small house pet thrown into residential trash cans) an additional fee, totaling \$40.00 (for 1992) per ton, is charged.

Alternative Program: **Maintain additional fee for the disposal of dead animals at County landfills.**

Continue to encourage the utilization of private rendering facilities for the disposal of dead animals.

Bulky and Hard-to-Handle Wastes

According to the Riverside County Waste Generation Study, in 1990 approximately 1,650 tons of bulky wastes, originating in the unincorporated area, were deposited in County landfills.

Bulky wastes are generally classified as "hard-to-handle" due to their size or difficulty in handling. The Riverside County Waste Management Department has in the past identified these items as special wastes due to difficulty in handling. Yet, many of these wastes, which include furniture and large household appliances, can be donated to charitable organizations to repair and resell or, as the case is with appliances, can be dismantled for the scrap value of the metal. Assembly Bill 1760 (Chapter 894, Statutes of 1991) will prohibit the landfilling of metallic discards and white goods on January 1, 1994. Unless alternative options are found, salvaging operations may be required at County landfills and solid waste facilities.

There are a wide variety of hard-to-handle wastes which require special attention at County landfills. These include, but are not limited to:

Books and records

Hardened resins

Root balls and tree trunks (over 200 pounds each, seven feet in length or 24 inches in diameter)

Hard-to-handle wastes are currently assessed an additional fee at all landfills due to the special attention required. As of 1992, the additional fee was \$8.50 per ton (a total of \$40.00) for the disposal of bulky and hard-to-handle wastes. It is believed that through this extra per ton charge, the use of recycling facilities for these wastes is more economically attractive.

The County is currently negotiating with a biomass fuel plant, currently operated by Colmac, to lease property at each of the two desert landfills (Edom Hill and Coachella). The leased land would be utilized as a "staging" area for the firm to accept wood wastes. The wood waste would be ground on-site and transported to the biomass fuel plant owned by the firm. It is anticipated that tree trunks and other bulky wood wastes would be accepted at the staging area.

Alternative Program: **Maintain additional fee for the disposal of bulk and hard-to-handle wastes at County landfills.**

Encourage the siting/usage of wood grinding operations that will divert root balls and tree trunks and other hard-to-handle pieces of wood.

Develop a Referral system for white/repairable goods (see Chapter 4 Source Reduction for additional information)

Establish salvage opportunities at County solid waste facilities. Recovered materials could include scrap metals and large appliances.

Investigate the need for rate incentives on recyclable special wastes, including concrete/asphalt, demolition debris, white goods, tree trunks and other hard-to-handle wood wastes to further encourage recycling.

Tires

According to the Waste Generation Study, in 1990 approximately 5,000 tons of tires and rubber products from the unincorporated area of the County were landfilled. Through the County record keeping system at the gated landfills, it is known that a total of 3,150 tons of tires (delivered in loads of strictly tires), from all jurisdictions, were landfilled at the gated landfills (gated landfills are those which receive a heavy volume of waste and utilize scales. Non-gated landfills are operated through land-use assessment fees paid only by the residents which use the landfill).

Tires are classified as a special waste because of the unique problems they present when disposed of in landfills. One problem is, due to the spongy nature of tires, that when landfilled they "spring" back into their original shape and eventually rise to the surface of the landfill. Another potential problem is that if improperly mixed with other refuse, a spongy spot will be created in the landfill.

Riverside County currently stockpiles and shreds tires at the Highgrove and Lamb Canyon landfills. The County utilizes a contractor for shredding. Once shredded, the tires are mixed with refuse and landfilled. Tires are accepted at all landfills, however, the County shreds tires only at the two previously mentioned. The tipping fee for the disposal of tires is - \$81.50 per ton for loads of tires totaling more than 13 and for loads less than 13, the charge is \$31.50 per ton with a \$.50 surcharge per tire.

An alternative to the disposal of tires are retreading facilities. Retreading facilities take old tires, with worn out tread, add a new layer of tread and sell the tires. Retreading is widely used for truck and large vehicle tires, but not as much for passenger vehicles. There are a couple of retreading facilities located within the Riverside County area, Goslin Tire Service and Viking Retread.

Other alternatives to the land disposal of tires include use as a base in asphalt (often termed rubber asphalt), the manufacturing of rubber tile products and waste-to-energy facilities.

The County has previously researched tire recycling options, but has been unsuccessful in locating a contractor able to shred, and remove the tires for recycling. The county will continue to research options in an effort to locate a viable recycling option.

Alternative Program: Maintain additional fee for the disposal of tires at County landfills.

In cooperation with the incorporated cities, investigate alternative disposal/reuse methods for tires.

In cooperation with the incorporated cities, encourage the siting of a tire recycling facility within Riverside County or the region.

Asbestos

Asbestos is considered a special waste because of its classification as a carcinogenic agent when airborne and its classification as a hazardous waste. However, when secured in an air-tight container, it is classified as a Group III inert substance and may be accepted at selected Class III landfills. In the past, the Highgrove landfill accepted asbestos waste, however, the County discontinued acceptance in November of 1983 because the asbestos section of the landfill reached capacity. Since this time, County Landfills have not accepted asbestos waste. The BKK Landfill in West Covina and the Kettleman Hills Landfill near Fresno are the two closest landfills accepting asbestos waste.

In 1990, based upon the Department of Health Services Manifest Program, approximately 1,000 tons of asbestos (about .05% of the total waste stream), originating in Riverside County, were disposed of in out-of County disposal sites.

Alternative Program: **The Waste Management Department, in conjunction with the Health Agency, will continue to monitor the quantities of asbestos waste requiring disposal and the available disposal sites. Should the availability of the present disposal sites decrease significantly, either through closure or limited capacity, the County should investigate alternative asbestos disposal sites to serve the industries located in the County.**

Sewage Sludge

Sewage sludge is the residue from sewage treatment at wastewater treatment facilities. Sludge is classified as a special waste due to the remaining constituent materials and possibility for heavy metal contamination. It is defined by the Integrated Waste Management Board as:

"residual solids and semi-solids 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.

Current State regulations do not allow sludge to count toward the mandated 25% and 50% diversion goals until July 1, 1992, pending additional studies. Riverside County however, has included sludge diversion estimates in this component in anticipation that the State will approve sludge diversion. The methodology currently utilized by the State gives credit only to the city or unincorporated area in which the treatment plant is located. Table 6 - 2 shows the generation of sludge both by jurisdiction in which the treatment plant is located and by city allocation in case current law is altered to allow allocation.

Many jurisdictions allow the landfilling of sludge, however, Riverside County prohibits the landfilling of sludge, although municipal sewage treatment plant screenings are currently and will continue to be accepted at County landfills. Even though the State does not currently allow materials not constituting .001% of the waste stream to be counted toward diversion credit, Riverside County intends to lobby the State to obtain credit for this diversion. The previous action of the County has forced the issue of

Table 6 - 2

Riverside County Sludge Allocation (by City) 1990				
City	Population	%	Allocated by Water District*	Allocated by Capita*
Banning	20950	1.9%	269	328
Beaumont	9750	0.8%	52	138
Blythe	8400	0.8%	0	138
Calimesa†	8067	0.7%	0	121
Canyon Lake ††	6585	0.6%	0	103
Cathedral City	31750	2.8%	0	483
Coachella	14950	1.3%	40	224
Corona	70000	6.3%	2500	1087
Desert Hot Springs	11200	1.0%	100	172
Hemet	35650	3.2%	0	552
Indian Wells	2700	0.2%	0	34
Indio	36000	3.2%	316	552
Lake Elsinore	15950	1.4%	666	242
La Quinta	11850	1.1%	0	190
Moreno Valley	114900	10.8%	1314	1777
Norco	25350	2.3%	0	397
Palm Desert	20650	1.8%	2199	311
Palm Springs †††	38925	3.5%	367	604
Perris	18900	1.7%	569	293
Rancho Mirage	9250	0.8%	0	138
Riverside	218500	19.5%	5519	3365
San Jacinto	15300	1.4%	0	242
Temecula†	27000	2.4%	657	414
Unincorporated***	345798	31.0%	2686	5349
Total	1118375	100.0%	17254	17254

* Units are in dry Tons

** Original data was acquired from a telephone survey conducted by the Riverside County Health Department, Environmental Health Services Division in 1990 and pertinent verifications were obtained during the Waste Generation Study.

***There are also 730 tons of water treatment plant sludge generated in the unincorporated area. Sewage treatment does not take place at the facility so the tonnage is left out of the above sewage sludge total.

All population except where noted are based on D.O.F., Jan. 1990

† Source: Riverside County Planning Department, Building Permit Activity Report, June 1990

†† Source: Riverside County Planning Department, Feb. 1991, and the Consultant report for city incorporation by Christensen and Wallace, Inc., Mar. 1990.

††† Source: California State Senate, September, 1987

beneficial uses for sludge in Riverside County and has lead to the development of reuse alternatives for this material. By denying the County and its' incorporated cities the ability to obtain credit for sludge diversion, it would be penalized for implementing sound waste management practices "prematurely".

Options for the reuse of sludge exist within Riverside County. These options include sludge/green waste composting and land application of sludge, and represent the recommended methods for disposing of sludge. Since many of these options are currently used by treatment plants, it is expected that current practices will continue. Any changes to operations at treatment plants must be cleared through the Regional Water Quality Control Board. For more information on composting facilities, please see Chapter 5 -- Composting Component.

Sludge/Green Waste Composting

There are currently two composting operations within Riverside County. Recyc., Inc., is located in the western end of the County, near the City of Corona, and began composting green waste and sludge in 1991 (please note that Riverside County terms co-composting as the mixing of municipal solid waste and sludge in the composting process). Recyc, Inc. has obtained all of the necessary State and Local permits for the operation of its' facility.

The second composting operation is located in the eastern end of the County, near the unincorporated community of Mecca. This facility is owned and operated by Chino-Corona Farms, Inc., and utilizes green waste and sludge. However, it is located on Indian land and is not currently permitted by the Integrated Waste Management Board (it does have an operating agreement "permit" from the Regional Water Quality Control Board). The operator is working with the State to obtain the necessary permits for this facility. Assembly Bill 240 (Chapter 805, Statutes of 1991), would allow this composting operation the opportunity to negotiate with the State to reach a cooperative agreement which provides for regulation that is functionally equivalent to that provided under the applicable state laws. As of September 1991 this bill was not yet signed by the Governor. It is hoped that jurisdictions could then receive credit for recycling at such facilities.

Land Application

In March of 1991, the Riverside County Board of Supervisors passed Ordinance 696 regulating the land application of sludge on agricultural land in the County. This ordinance was initiated due to the high amount of unregulated land application of sludge (from Riverside County, as well as, Los Angeles and Orange Counties) in the desert areas of Riverside County. It requires, among other items, applicators and land owners to submit plans to the Health Services Agency. Sludge applicators are required to submit Sludge Management Plans to the Health Services Agency for approval prior to transporting sludge for land application. Sludge applicators which have received approval of their Sludge Management Plans are further required to submit Sludge Site Plans for each site to be used prior to land application. The ordinance restricts land application to only PSRP (process to significantly reduce pathogens) and PFRP (process to further reduce pathogens) sludge and the types of crops to which sludge can be applied. It is designed to adequately regulate the land application of sludge in order to protect public health, ground and surface waters and agricultural markets.

Due to the restriction to solely PSRP or PFRP sludge, in the Spring of 1992, sludge from Riverside County wastewater treatment plants did not qualify for land application. In 1990, the major companies involved with land application of sludge estimated the intake capacity of Riverside County agricultural land for application was approximately 10,000 tons of dry sludge annually.

Alternative Program: **Maintain prohibition of sewage sludge at County landfills.**

In order to encourage the management of sludge, the County should work with other agencies to encourage all sewage treatment facilities to develop sludge management plans.

Continue to encourage environmentally feasible land application of sewage sludge.

Encourage/site green waste/sewage sludge composting facilities.

Liquid Wastes

Liquid wastes entering Riverside County landfills includes septic tank, chemical toilet, grease and other liquid wastes (a catch all category which is approved for disposal on a case by case basis). Most liquid wastes entering County landfills are deposited in ponds where the liquid is allowed to evaporate and the remaining dirt is excavated and landfilled. Liquid wastes are unique in the waste management system because it often leaves Riverside County. Whereas the County landfills do not accept liquid wastes originating out-of-county, a significant amount of septic tank and chemical toilet waste is sent to water treatment facilities in bordering counties.

In 1992, evaporation ponds were located at the Lamb Canyon, El Sobrante, Edom Hill, Anza and Blythe landfills. According to the Waste Generation Study, approximately 5,000 tons of liquid wastes entered County landfills in 1990 from the unincorporated area. The County, as a whole, deposited approximately 20,000 tons of liquid wastes in 1990 in the evaporation ponds at the five previously mentioned landfills. A breakdown between the types of liquid wastes landfilled is not available from the Waste Generation Study. However, through the County record keeping system, it is known that approximately 85% of the liquids entering the gated landfills (Edom Hill, El Sobrante and Lamb Canyon) are chemical toilet waste, 10% is septic tank waste and the remaining 5% is other liquids.

Septic Tank, Chemical Toilet and Grease Waste

Septic tank and chemical toilet wastes are common throughout Riverside County due to the persisting rural nature, despite rapid population growth. Septic tank systems require the periodic pumping and maintenance to assure proper operation. The wastes pumped from the tank systems may be disposed of at some wastewater treatment facilities or either the Lamb Canyon, El Sobrante, Anza or Blythe landfills. The Edom Hill Landfill, due to cooperation with the local treatment facilities, no longer accepts septic tank or chemical toilet wastes. This type of cooperation between public agencies will enable the Waste Management Department to achieve the goal of eliminating septic tank and chemical toilet wastes from entering county landfills.

Chemical toilet wastes differ from septic tanks in that they are generated more often by recreational areas and businesses (i.e. construction sites, sporting events..etc). As long as the waste meets State discharge requirements, it can be landfilled. Otherwise, those chemical toilet wastes containing chemicals prohibited from sale in California must be hauled to Class I, hazardous waste, disposal sites.

While most septic tank waste is disposed at treatment facilities, a large majority of the chemical toilet waste is disposed in seepage ponds at County Landfills. Chemical toilet waste is not always applicable to disposal at treatment facilities due to the constituent chemicals utilized to treat the seepage. These

chemicals have the propensity to cause problems with the biological processes utilized at treatment facilities.

All liquid wastes are not appropriate for disposal at a treatment facility. Included in this category are greasy and oily liquid wastes. Greasy and oily wastes have the propensity to cause problems in aerobic and degradation processes at treatment facilities. Therefore, the most appropriate method of disposal for these wastes is reuse alternatives and landfilling. Grease waste is primarily generated from restaurants.

Reuse alternatives for grease waste do exist within the Southern California area. There are two processing plants, Southwest Processors and Granada Grease (both located in or near the City of Los Angeles), which process grease waste into cattle feed. These facilities are not widely utilized due to the distance from Riverside County. Generally, only haulers having access to trailer trucks are capable of delivering loads with volume sufficient to justify the long haul distance.

A closer reuse alternative is the Econo Pumping Service site in the Coachella Valley. Econo has several tanker trailers located at this site to collect grease waste from their trucks and other liquid waste haulers in the area. Once the trailers are full, I-Tre Corporation picks them up and transports them to their processing facility in Stockton. At this facility, the waste is processed for use as either an additive to fuel or soaps. Econo is the licensed distributor for I-Tre in the Riverside County area.

Riverside County will research and encourage viable alternatives to the landfilling of grease waste.

Other Liquid Wastes

Other liquid wastes are classified as materials which must receive approval from the Waste Management Department, Local Enforcement Agency and the Regional Water Quality Control Board prior to disposal in any Riverside County landfill. These types of liquid wastes include: egg wastes (generally accepted only when mixed with septic tank wastes), glue, laundry wastes, starch, cosmetics, soap, citrus wastes and vegetable oil, and are generally accepted only at the Lamb Canyon, Edom Hill, Coachella and Blythe landfills.

In addition to the above wastes, the Edom Hill Landfill has previously accepted animal blood, beer, water base paint, wine, mayonnaise, latex rinsing water, liquid roofing tar and water soluble oil. Acceptance of these wastes is infrequent and on a case by case basis. Due to the unknown nature of each "special" liquid waste, approval prior to disposal is the best means to protect the health and safety of landfill workers and surrounding residents. The generation of these wastes is expected to continue. Riverside County will continue to evaluate the disposal of these wastes at County landfills on a case by case basis.

Alternative Program:	Encourage the dedication of adequate wastewater treatment capacity when plants are proposed or expanding.
	Encourage development of alternative liquid/sludge disposal, treatment and/or recycling facilities.
	Investigate, through the Department of Environmental Health, the potential for establishing Septic Tank Maintenance District(s) in isolated areas where septic tanks are the only feasible long term

option. This action would help to ensure that proper maintenance is performed to reduce or eliminate failures and to provide for an acceptable disposal site for wastes generated within the district.

Investigate the need to increase the per ton charge for septic tank and other applicable wastes to encourage their disposal at wastewater treatment facilities.

Promote source reduction of special wastes through alternative technologies

Provide economic data to treatment plant operators based upon County customer base at the landfill septage ponds and consider aid to small operators to encourage them to accept septage.

Agricultural Wastes

Agricultural Crop Residues

According to the Waste Generation Study, in 1990 approximately 500 tons of agricultural crop residues were deposited in Riverside County landfills from the unincorporated area. This tonnage figure represents about .1% of the waste stream for the unincorporated area.

Agricultural crop residues consist of field crop, row crop, fruit and nut residues. The majority of these wastes are handled through recycling for reuse in crop production or destruction onsite. The waste may be burned onsite, where permitted by Regional Air Quality Control Board guidelines, or tilled back into the soil for use as a soil stabilizer and conditioner. Grain wastes can be used as livestock feed or stable bedding.

Alternative Program: Current methods of disposing of agricultural crop residues should continue. Consideration should also be given to the waste's potential use for composting and co-composting.

Manure

According to the Waste Generation Study, in 1990 approximately 1700 tons of manure, from the unincorporated area of the County, was disposed of in County landfills. This tonnage figure represents about .4% of the waste stream for the unincorporated area.

Manure is principally generated from animals raised for food production, such as cattle and poultry. The prevailing method of disposal for these wastes is processing manures for use as commercial fertilizer or basic land application for the production of animal fodder.

Alternative Program: Current methods of disposing of agricultural manure wastes should be continued. If regulations on the use of manures as fertilizer are imposed during the short or medium-term planning periods, alternative methods of disposal including composting, methane recovery and use as a fuel for waste-to-energy facilities should be evaluated and implemented as may be possible.

Street Sweepings

Very little data presently exists on street sweeping quantities and disposal method throughout Riverside County. These Wastes are primarily generated by municipal street sweeping operations and private sweeping of driveways and parking lots. Composition of street sweeping waste vary, but is predominately sand and gravel with a mix of municipal refuse (i.e. glass, paper, plastic, etc.). Only a small amount of street sweepings enter public landfills. Due to the high composition of sand and gravel, it is often used by municipalities for repair of minor storm damage to drainage facilities and roadway shoulders. It is assumed that most street sweepings are produced in urban areas throughout the County. Estimates of quantities are difficult to develop since it is largely dependent upon the total area of street and parking lots swept and the amount of dirt and debris which is removed.

Alternative Program: **Research constituent materials in street sweeping waste and evaluate the applicability of reuse methods.**

Inert Solids (Construction/Demolition Debris)

Construction/demolition debris mainly consists of concrete, and construction wood and asphalt. It is generated through the construction and the demolition process. According to the Waste Generation Study, in 1990 approximately 44,800 tons of inert solids were landfilled. This represents approximately 9% of total solid waste landfilled. Construction wood is not quantified because the Waste Generation Study did not classify construction wood separately from other wood debris.

Presently a majority of the concrete/asphalt generated within the unincorporated area of Riverside County is recycled. In 1990, 143,400 tons, or approximately 80%, of the concrete/asphalt generated was recycled. This material is most often recycled by grinding the material into small pieces and using as road base or as aggregate for the creation of new concrete or asphalt.

Alternative Program: **Maintain additional fee for the disposal of hard-to-handle refuse at County landfills.**

Encourage the development of demolition materials recycling facilities in Riverside County.

Encourage the usage of mobile demolition recycling facilities.

Ash

Ash is a by-product of waste-to-energy and biomass fuel facilities. It is classified as a special waste due to the possibility that it contains hazardous, caustic and/or abrasive properties and because it can create dust or excessive moisture problems in landfills. Generally ash is classified as a hazardous waste, but, may be reclassified, with State approval, to a non-hazardous waste. When classified as a non-hazardous waste, ash still requires special handling practices at landfills. The problems are the result of the moisture content of the ash; therefore, if the ash is too dry, it may become air borne and create an air pollution problem and similarly, if the ash is too wet, it would be difficult to handle and may exceed the landfill moisture holding capacity. The 1990 Waste Generation Study indicated that ash is not disposed of in any of the County's landfills.

Alternatives to the disposal of ash include use as a fill material and in the manufacture of concrete and concrete blocks.

A biomass fuel facility, currently operated by Colmac Energy Inc., is located on an Indian Reservation in Riverside County and produces some ash. Because Indian land is not regulated by the State, but by the Federal Government, this facility is not required to be permitted by the State of California. However, in order to obtain diversion credits for transformation after 1995, the facility must be permitted by the State. The operators have met with the State in the past about receiving a permit in order to be considered a permitted facility under the regulation. AB 240 (Chapter 805, Statutes of 1991), would allow this operation the opportunity to negotiate with the State to reach a cooperative agreement which provides for regulation that is functionally equivalent to that provided under the applicable state laws. It is hoped that jurisdictions could then receive credit for material sent to this facility.

This facility became operational in the Fall of 1991 and accepts only wood waste. Colmac is currently working with the State Department of Health Services to reclassify its' ash from a hazardous waste to a Class III (or non-hazardous) waste. If the reclassification is approved, ash from the Colmac plant may be entering Riverside County landfills if alternative disposal methods are unavailable.

Alternative Program: **Encourage all incineration facilities within the County to utilize appropriate methods to source reduce and recycle their ash and if necessary, investigate alternatives to landfilling incinerator ash.**

Waste-to-Energy

Wood and other organic wastes are applicable for diversion not only to composting, but also to waste-to-energy facilities. Waste-to-energy facilities burn waste to generate electricity. There are two main categories of waste-to-energy facilities, mass burn and biomass, which are distinguished by the type of waste accepted. Mass burn facilities accept mixed solid waste whereas biomass facilities accept only the woody and organic fractions of the waste stream.

The waste-to-energy facilities currently receiving Riverside County waste are biomass facilities. These facilities are located in Imperial County, the San Joaquin Valley and the Coachella Valley. Assembly Bill 939 (Chapter 1095, Statutes of 1989) allows the receipt of diversion credits for waste-to-energy only after the 25% diversion goal is reached. Once the 25% goal is reached, the County can claim up to 10% diversion from waste-to-energy toward the 50% goal. Diversion cannot be claimed until the 25% goal is reached.

The facility in the Coachella Valley became operational in the fall of 1991. The Waste Management Department entered into an agreement with the current operator, Colmac Energy Inc., to sublease a portion of the land at each of the Coachella and Edom Hill landfills for the establishment of a woody waste processing station. It is envisioned that loads comprised solely of woody waste will be diverted from the face of the landfill to this processing station. The processing station will grind the wood, load onto transfer vehicles and transport to the biomass facility located in Mecca. In addition to diverting woody wastes for waste-to-energy, the proposed contract with the company will to require the diversion of 30% of the woody waste received at the processing station to credit worthy operations (those end-uses not restricted by the state to 10% of the required 50% diversion) after 1995. See Chapter 5, Composting Component, for more information regarding the 30% diversion.

Alternative Program: **Processing station for woody wastes at Edom Hill and Coachella Landfills**

Continue to encourage the pursuit of environmentally feasible waste-to-energy as a diversion alternative for wood and organic wastes not directed to composting operations.

IV. EVALUATION OF ALTERNATIVE PROGRAMS

In order to adequately address the problems that the disposal of special wastes present, Riverside County developed alternative programs to consider for implementation. The recommendations listed in the previous section represent existing programs which will be continued and new programs which were considered for implementation. Section V of this component discuss the programs chosen for implementation.

Existing Programs

Continue to recover abandoned automobiles.

Maintain additional fee for the disposal of dead animals.

Continue to encourage the utilization of private rendering facilities for the disposal of dead animals.

Maintain additional fee for the disposal of bulk and hard-to-handle wastes at County landfills.

Maintain additional fee for the disposal of tires at County landfills.

Maintain prohibition of sewage sludge at County landfills.

Maintain additional fee for the disposal of hard-to-handle refuse at County landfills.

Continue to monitor the amount of asbestos waste requiring disposal.

Continue to encourage environmentally feasible land application of sewage sludge.

Continue to encourage current methods utilized for the disposal of agricultural crop residues.

Continue to encourage current methods utilized for the disposal of agricultural manure waste.

Continue to encourage the pursuit of environmentally feasible waste-to-energy as a reuse alternative for wood and organic wastes not applicable to composting operations.

New Programs

Encourage the siting/usage of a wood grinding operations that will divert root balls, tree trunks and other hard-to-handle pieces of wood.

Referral system for white/repairable goods (see Chapter 4 - Source Reduction for additional information)

In cooperation with the incorporated cities, encourage the siting of a tire recycling facility within Riverside County or the region.

In cooperation with the incorporated cities, investigate the alternative disposal/reuse methods for tires.

Encourage/site green waste/sewage sludge composting facilities.

Encourage the development of demolition material recycling facilities in Riverside County.

Encourage the usage of mobile demolition recycling facilities

Encourage the dedication of adequate wastewater treatment capacity when plants are proposed or expanding.

Encourage development of alternative liquid/sludge disposal, treatment and/or recycling facilities.

Investigate, through the Department of Environmental Health, the potential for establishing Septic Tank Maintenance District(s) in isolated areas where septic tanks are the only feasible long term option. This action would help to ensure that proper maintenance is performed to reduce or eliminate failures and to provide for an acceptable disposal site for wastes generated within the district.

Investigate the need to increase the per ton charge for septage and other applicable liquid wastes to encourage their disposal at wastewater treatment facilities.

Promote source reduction of special wastes through alternative technologies

Provide economic data to treatment plant operators based upon County customer base at the landfill septage ponds and consider aid to small operators to encourage them to accept septage.

Research constituent materials in street sweeping waste and evaluate the applicability of reuse methods.

Encourage all incineration facilities within the County to utilize appropriate methods to source reduce and recycle their ash and if necessary, investigate alternatives to landfilling incinerator ash.

Work with other agencies to encourage all treatment facilities to develop sludge management plans.

Investigate the need for rate incentives on recyclable special wastes, including concrete/asphalt, demolition debris, tree trunks and other hard-to-handle wood wastes and white goods to further encourage recycling.

Establish salvage opportunities at County solid waste facilities. Recovered materials could include scrap metals and large appliances.

Processing station for woody wastes at Edom Hill and Coachella Landfills.

Evaluation

After compiling the listing of all possible programs for implementation, each program was considered in light of 10 criteria. Each alternative program was assigned a grade from 1 - 5 based upon its' degree of satisfactorily meeting the criteria (for a listing of the criteria, grading definitions and grading sheet, please see Appendix B).

V. ALTERNATIVE PROGRAM SELECTION

The grading exercise of the previous section facilitated a prioritization of programs to pursue for implementation. A qualitative analysis of each program contributed to the final prioritization of component alternatives.

On the following pages each of the existing and planned programs are listed with a description of the program, justification for selection, proposed methods for handling and disposal, end-uses for the materials to be collected, and a description of required additional or expanded facilities.

Encourage the siting/usage of wood grinding operations that will divert root balls, tree trunks and other hard-to-handle pieces of wood from landfilling.

The Department is working with the current operator of a biomass fuel plant, Colmac, near the Coachella Valley to set up wood grinding stations at each of the two regional desert landfills (Edom Hill and Coachella). This specific program will divert green and woody waste to the grinding site located at the landfill. The green and wood waste will be ground at the landfill and then transported to the Colmac facility (after 1995 30% of acceptable waste must be dedicated to AB 939 creditable diversions). The Waste Management Department will encourage the development of similar facilities broadly spaced throughout the County, which could be located at landfills or MRF's, capable of handling large as well as smaller pieces of wood. Potential end-uses for ground wood are biomass fuel plants, the closest operations are located in Brawley, in Imperial County, and the one previously mentioned, near the Coachella Valley. Other uses include use as a bulking agent in compost, mulch and perhaps for animal bedding. Ownership and operation of these facilities could be public, private or a public/private partnership.

This program was selected for implementation based upon its effectiveness in diverting the larger pieces of wood from landfills. There are already private facilities capable of handling wood, however, large tree trunks are often excluded. The establishment of these operations would not require the addition of extensive facilities, only equipment and perhaps some minor site work.

Materials would be transported by generators to the site where site workers would process and transport for beneficial use.

Develop a referral system for white/repairable goods.
(see Chapter 4 - Source Reduction for additional information)

A referral system for white/repairable goods would provide residents with a listing of not only repair shops for white and other goods, but also retail outlets for refurbished appliances and other household items. Through research, the Waste Management Department will develop the listing of stores for the entire county, publish a booklet to inform residents of these options and update the list annually.

This program was selected for implementation based upon its relative ease in implementing and relatively low cost. In addition, the implementation of this program would not require the addition or expansion of facilities.

In cooperation with the incorporated Cities, encourage the siting of a tire recycling facility within Riverside County or the region.

Through this program, Riverside County would encourage the siting and development of an environmentally feasible tire recycling facility as an important element of its system of waste disposal for the region. Potential locations include the Riverside County region. Encouragement could include, but not be limited to, informal meetings, technical assistance in the permitting process and the use of landfills/MRF's as a collection point. The disposal of waste tires poses a problem not only for Riverside County, but surrounding counties as well. Therefore any tire recycling facility should be capable of serving the Inland Empire area, not solely one community.

Through advances in technology, beneficial uses for waste tires are increasing. The products made with used tires include rubber asphalt and the manufacturing of other rubber consumer products.

This program was selected for implementation due to the need for an environmentally sound tire recycling facility in the Riverside County region. Presently nearly all tires generated in the region are disposed of in landfills. The addition a recycling facility would help not only Riverside County in pursuit of its diversion goals, but also surrounding counties.

In cooperation with the incorporated Cities, investigate the alternative disposal/reuse methods for tires.

The existence of alternative disposal options for tires within the Inland Empire is nominal. There are a few tire retreaders, however, these facilities mainly use truck tires, as they have a better market. Until a viable tire recycling option is developed for the Inland Empire, Riverside County will investigate alternative disposal methods. The Waste Management Department will research existing alternatives to the land disposal of tires. Alternatives which are found to be viable would then be further researched and recommended for implementation.

This program was selected for implementation based upon the effectiveness of utilizing alternative disposal methods for tires. Riverside County currently landfills tires, but is interested in diverting them to recycling.

Encourage/site green waste/sludge composting facilities.

This program would encourage and/or site green waste and sludge composting facilities as an important portion of an overall waste disposal system. The operation of these facilities could be either public, private or a public/private partnership. Through the establishment of these facilities green and wood waste will be diverted from landfills for beneficial use (for more information on composting, please see Chapter 5 -- Composting Component).

This program was selected for implementation based upon the effectiveness in diverting sludge and wood/green waste. The end-use for the sludge would be as the finished product, compost. Compost has many applications, including, but not limited to, use as a soil amendment.

Composting operations will require the addition of new facilities, however, the main component of these facilities are the addition of land and equipment necessary to the operation of the facility.

Encourage the development of demolition materials recycling facilities in Riverside County.

Demolition materials include concrete, asphalt and construction wood. Riverside County will promote the development of facilities able to recycle these materials in appropriate areas. At this time, there are at least 5 recycling facilities for demolition waste in the western end of the county. However, other areas of the county may need facilities in order to divert this waste type. These facilities may be developed as public, private or a public/private partnership within the overall waste disposal system.

Normally either the generator of the material or the waste hauler delivers the material to the facility. The materials are then processed and marketed as a finished product. Typically the concrete and asphalt is crushed into an aggregate which is suitable in making new asphalt/concrete or for use as a road base. The wood is normally ground into mulch and sold to biomass fuel plants.

This program was selected for implementation based upon its' effectiveness as an alternative to the disposal of demolition waste, its' consistency with local policies and relatively few institutional barriers.

Encourage the usage of mobile and permanent demolition recycling facilities.

Riverside County, through the use of brochures at Planning and Building and Safety Department counters, will promote the usage of mobile demolition recycling facilities. These brochures will explain the need to recycle and advantages of utilizing mobile and already existing recycling facilities for demolition materials (See Chapter 7 -- Education and Public Information for more information).

Mobile operations typically grind the material from a demolished building onsite and use as road base or fill material. Fixed site operations typically have the same end-uses, but require transportation of the material to a specific site.

This program was selected for implementation due to its' flexibility, relatively few institutional barriers to implementation and the effectiveness of the program.

Encourage dedication of adequate wastewater treatment capacity when plants are proposed or expanding.

The Waste Management Department can encourage the dedication of adequate wastewater treatment capacity by providing technical assistance, reviewing environmental documentation and working directly with plant operators.

Technical assistance to treatment plants to increase septic tank treatment capacity can be achieved through the County "Fast Track" system. The County "Fast Track" system places a higher priority on specific projects when moving through the County permitting process. The Waste Management Department will work with the Planning Department to devise procedures for allowing wastewater treatment plants, which commit to dedicating adequate capacity to septage and other applicable liquid wastes, to participate in the "Fast Track" process.

Another method which will be utilized is the review of environmental documentation. The Waste Management Department will work with the Planning Department and/or the subject water or sewer district to be added to the list of reviewing agencies for environmental documentation for wastewater treatment plants. The Department will examine the documents for, among other issues, adequacy in

addressing the disposal needs for septage and other applicable liquid wastes originating within and out of the treatment plant service area.

Finally, the Waste Management Department can work with specific wastewater treatment plant projects and operators to encourage dedication of adequate capacity to septage and other applicable liquid wastes.

This program was selected for implementation based upon its effectiveness in encouraging the acceptance of septage and other applicable liquid wastes and its consistency with local policies to work with other agencies to develop sound waste handling practices.

Encourage development of alternative liquid/sludge disposal, treatment and/or recycling facilities.

Riverside County will encourage the development of alternative liquid/sludge disposal, treatment and/or recycling facilities. The alternative technologies could include, but would not be limited to, grease processing facilities and Refuse Derived Fuel (process in which waste is compacted and processed into fuel pellets. The pellets are then used as boiler fuel). Another option includes investigating the feasibility of using the Santa Ana Regional Interceptor as a disposal point for chemical toilet waste. The County will research existing facilities/technologies capable of handling special wastes such as grease waste, sludge, and chemical toilet waste. In addition, the County will meet with proposers of specific projects to offer information.

This program was selected for implementation based upon the need for alternative methods of disposal, treatment and recycling for liquid wastes and its' consistency with existing policies.

Investigate, through the Department of Environmental Health, the potential for establishing Septic Tank Maintenance District(s) in isolated areas where septic tanks are the only feasible long term option. This action would help to ensure that proper maintenance is performed to reduce or eliminate failures and to provide for an acceptable disposal site for wastes generated within the district.

Riverside County will investigate the feasibility of establishing Septic Tank Maintenance Districts. The maintenance districts can provide a mechanism for ensuring proper maintenance and a disposal site for wastes generated in the district. Problems with septic tanks arise from improper and poor maintenance. Often residents do not have the tanks pumped regularly or pump only when experiencing overflow from the tank. When a septic tank overflows, there is a tendency to believe that the drains are clogged and use caustic agents to free the clog. These caustic agents will accumulate in the tank and make the waste unacceptable for a treatment plant (the caustic agents cause problems for biological processes at treatment plants). The second benefit of the maintenance districts are that a disposal site can be guaranteed because the waste originates in a specific area. This program can also help minimize the illegal disposal of wastes by encouraging the use of proper disposal facilities. Presently, septic tank waste is often generated outside of a treatment plant service area. Treatment plants often charge a premium for wastes generated out of the service area, and therefore, landfilling becomes the economically preferred alternative.

This program was chosen for implementation based upon its' effectiveness in alleviating many of the problems associated with septic tanks and the disposal of this waste type.

Investigate the need to increase the per ton charge for septage and other applicable liquid wastes to encourage their disposal at wastewater treatment facilities.

It is believed that the main reason for landfilling septage and other liquid wastes applicable to wastewater treatment facilities is economics. Normally landfill fees are lower than treatment plant fees

for waste originating out of the plant's service area (where most septage originates). The Waste Management Department will investigate the capacity for septage and other applicable liquid wastes. Potential impacts of this program will also be researched prior to considering for implementation. If it is found that adequate capacity exists, yet, economics is still driving this liquid wastes to the landfill, the Waste Management Department will consider increasing the fee for landfilling septage and other applicable liquid wastes to encourage their disposal at wastewater treatment facilities. The County will work with the wastewater treatment plants in implementing this program in order to address potential impacts they might experience.

Promote source reduction of special wastes through alternative technologies.

The first priority in the waste management hierarchy is source reduction. Source Reduction is any activity which reduces the amount of waste requiring disposal and/or recycling. As technology evolves, the source reduction of special wastes, including but not limited to, liquids and sludge, will be feasible. The Waste Management Department will endeavor to stay abreast of evolving technology and work with enterprises desiring to utilize technology which would source reduce special wastes.

This program was selected for implementation based upon its' potential to effectively reduce the amount of special wastes entering the waste stream.

Research constituent materials in street sweeping waste and evaluate the applicability of reuse methods.

The Waste Management Department will research the constituent materials in street sweeping waste. The research on the constituent materials and additional research on the applicability to reuse methods will help the Department to evaluate the applicability of street sweeping waste to various reuse methods. Methods which are determined to be environmentally feasible will be encouraged. This program was selected for implementation based upon its effectiveness in determining alternative reuse methods and relative lack of institutional barriers.

Encourage all incineration facilities within the County to utilize appropriate methods to source reduce and recycle their ash and if necessary, investigate alternatives to landfilling incinerator ash.

Riverside County does not currently landfill ash. However, a biomass fuel plant was constructed in the desert portion of the county, near the Coachella Valley, and became operational in the Fall of 1991. The company currently operating the facility, is applying to the State to reclassify their ash from hazardous to non-hazardous. If this application is accepted, the County could consider receiving ash at either the Edom Hill and/or Coachella Landfills.

In the event that this ash is reclassified, the Waste Management Department will promote alternatives to landfilling the ash and promote source reduction methods which may be utilized by the operators of the facility. Feasible reuse alternatives will also be researched.

Work with other agencies to encourage all treatment facilities to develop sludge management plans.

Sludge management plans generally include sludge generation forecasts based upon population growth and alternatives to the landfilling of sludge. A couple of treatment plants in the County have developed plans which could be used as models for encouraging other plants to develop their own plans. Through this program, the County will encourage the development of sludge management plans and the improvement of existing ones in the area of disposal alternatives.

The benefits to a sludge management plan are that the plant is able to determine the approximate amount of sludge which will require disposal, whether through landfilling or reuse, and plan future sludge management practices.

Using this model, the County, in conjunction with the incorporated cities and regulatory agencies, should encourage all treatment facilities within the county to develop these plans.

Investigate the need for rate incentives on recyclable special wastes, including concrete/asphalt, demolition debris, tree trunks, other hard-to-handle wood wastes and white goods to further encourage recycling.

Riverside County will investigate the need to establish rate incentives to encourage the reuse of recyclable special wastes, such as concrete/asphalt, demolition debris, tree trunks, other hard-to-handle wastes and white goods. By altering the rate structure at the landfills for specified items, generators of these materials can be encouraged to recycle and private facilities can be encouraged to develop within a waste management system.

The Department will determine the recycling rate for recyclable special wastes. If this rate is below the projected recycling rate, the Department will consider the use of rate incentives and cooperative ventures with private recyclers to encourage increased recycling.

Establish salvage opportunities at County landfills. Recovered materials could include scrap metals and large appliances.

These opportunities may be presented as contracts with persons/companies to pull salvageable material from the landfill face or establishing salvage areas in front of landfills and other solid waste facilities, such as MRF's. Each landfill will be evaluated in terms of space and appropriateness for the two methods. This program, however, will only be applicable to landfills which receive waste directly from haulers and residents, not those which receive all waste directly from a MRF (See Chapter 4 -- Recycling Component for more information).

This program was selected for implementation based upon its flexibility, effectiveness in reducing the amount of waste landfilled, and relatively few institutional barriers.

Processing station for woody wastes at Edom Hill and Coachella Landfills.

Negotiations with the current operator of the biomass fuel facility, Colmac Energy, Inc., resulted in a contract which allows the operator to sublease land at each of the Edom Hill and Coachella Landfills for the establishment of a woody waste processing station. It is anticipated that wood entering the landfill will be redirected to the processing station instead of the face of the landfill. The processing station will grind, load into transfer vehicles and transport the wood to the fuel facility.

This program was selected for implementation based upon the need for end-uses for woody waste and other organic materials not directed to composting operations, relatively few barriers to implementation and its' effectiveness in diverting waste from the landfills.

Required New or Expanded Facilities and End-uses for Materials Targeted for Recycling

Each of the programs selected for implementation can be found on Table 6 - 3 along with a listing of whether facilities will be required in order to implement and the identified end-uses for the material.

Estimated Diversions

Table 6 - 4 lists the estimated diversions Riverside County will achieve through implementation of the selected special waste programs.

The estimated wood waste diversions include wood directed to the biomass fuel plants directly and wood recovered at MRF's and then sent to these facilities. The estimated diversions for inert solids and tires are also derived from the estimated MRF diversions. Diversions beyond the MRF's for Inert solids and tire diversions are not assumed.

Tier 2 Programs

The following is a Tier 2 program, which will be pursued for implementation only if monitoring shows a shortfall in the attainment of diversion goals:

- Provide economic data to treatment plant operators based upon County customer base at the landfill septage ponds and consider aid to small operators to encourage them to accept septage.

VI. PROGRAM IMPLEMENTATION

Tables 6 - 5.1 - 6 - 5.3 depict an implementation plan for each of the selected programs including existing and planned. This plan will serve as a guideline for the County, showing a time frame in which all programs will be implemented. This plan lists necessary steps to implement each program, the responsible agency(ies), and the year in which each task will commence and end with appropriate labels for those programs which are ongoing. Also shown are the estimated public implementation costs of each program, public revenues generated as a result of the program, private implementation costs, private revenues as a result of the program and the anticipated revenues sources available to fund implementation. The public revenues generated as a result of the program are represented on a break even basis. Revenues are not anticipated which go beyond the point of simply covering costs of the program.

Table 6 – 3
Required Facilities and Available End–Uses for
Special Wastes Programs Selected for Implementation

Selected Program	Facilities Required	Available End–Uses
Encourage the Siting/Usage of Wood Grinding Operations that will Divert Root Balls, Tree Trunks and other Hard–to–Handle pieces of Wood	Equipment to Grind wood	Mulch, Compost, and incineration
Referral System for White/Reparable Goods	N/A	N/A
In Cooperation with the Incorporated Cities, Encourage the Siting of a Tire Recycling Facility within the Inland Empire Region	Facility Required	Rubber Asphalt, household items
In Cooperation with the Incorporated Cities, Investigate Alternative Disposal/Reuse Methods for Tires	At most, a site to collect Tires	Rubber Asphalt, household items
Encourage/Site Green Waste/Sewage Sludge Composting Facilities	Equipment, Land	Soil Amendment
Encourage the Development of Demolition Materials Recycling Facilities in Riverside County	Equipment, Land	Road Base, Aggregate
Encourage the Usage of Mobile Demolition Recycling Facilities	Road Base, Aggregate	N/A – Educational
Encourage the Dedication of Adequate Wastewater Treatment Capacity when Plants are Proposed or Expanding	Facilities Already Proposed	N/A – Alternative Disposal Method
Encourage the Development of Alternative Liquid/Sludge Disposal, Treatment and/or Recycling Facilities	N/A	N/A
Investigate the Potential for Establishing Septic Tank Maintenance Districts	N/A	Wastewater Treatment Plants
Investigate the Need to Increase the per ton charge for Septage and other applicable Liquid Wastes to Encourage their Disposal at Wastewater Treatment Facilities	N/A	Wastewater Treatment Plants
Promote Source Reduction of Special Wastes through Alternative Technology	N/A	N/A
Research the constituent materials in Street Sweeping Waste and Evaluate the applicability of reuse methods	N/A	N/A
Encourage all incineration facilities within the County to utilize appropriate methods to source reduce and recycle their ash, and if necessary, investigate alternatives to landfilling incinerator ash	N/A – Facilities would already be established	N/A – may not be necessary
Work with Other Agencies to Encourage all Treatment Plants to Develop Sludge Management Plans	N/A	N/A
Investigate the Need for Rate Incentives on Recyclable Special Wastes	N/A	Wood – – mulch, compost, waste–to–energy White Goods – repair shops sale for scrap metals
Establish Salvage Opportunities at County Solid Waste Facilities	Storage Shed & Fencing	Recycling as Scrap Metals
Woody Waste Processing Station	Grinding & Transfer Equipment	Waste–to–Energy (30% required to be directed toward composting)

Table 6 – 4
Estimated Special Wastes Diversions (1995)

Material	Existing 1995 Diversion	Incineration*	Tire Diversion	Liquids Diversion	C/D Diversion	Sludge Diversion	Total Tons	Total Landfilled	Total Generated	% Diverted
Wood Waste	3,325	36,455	X	X	X	X	39,780	13,912	53,692	74%
Yard Waste	0	8,600	X	X	X	X	8,600	98,898	107,498	8%
Tires	0	X	1,583	X	X	X	1,583	4,598	6,181	26%
Other Special Wastes**	0	X	X	2,760	X	X	2,760	93,445	96,205	3%
Inert Solids	161,673	X	X	X	8,537	X	170,210	42,557	212,767	80%
Total Tons Diverted	164,998	45,055	1,583	2,760	8,537	0	174,553		728,624	24%
Program Diversion %	22.65%	6.18%	0.22%	0.38%	1.17%	0.00%	24%			
<i>Without Inert Solids</i>										
Total Diverted 1995	174,553								4,343	
Total Generated 1995	728,624								515,857	
Total Diverted 1995	24%								1%	

Estimated Special Waste Diversions (2000)

Material	Existing 2000 Diversion	Incineration*	Tire Diversion	Liquids Diversion	C/D Diversion	Sludge Diversion	Total Tons	Total Landfilled	Total Generated	% Diverted
Wood Waste	3,793	45,716	X	X	X	X	49,509	11,748	61,257	81%
Yard Waste	0	9,810	X	X	X	X	9,810	112,833	122,643	8%
Tires	0	X	3,721	X	X	X	3,721	3,331	7,052	53%
Other Special Wastes**	0	X	X	14,145	X	X	14,145	95,615	109,760	13%
Inert Solids	184,458	X	X	X	20,076	X	204,534	38,210	242,744	84%
Total Tons Diverted	188,251	55,526	3,721	14,145	20,076	0	281,719		831,282	
Program Diversion %	22.65%	7.62%	0.51%	1.94%	2.76%	0.00%	39%			
<i>Without Inert Solids</i>										
Total Diverted 2000	281,719								77,185	
Total Generated 2000	831,282								588,538	
Total Diverted 2000	34%								13%	

*Wood incineration diversion is not eligible, per State Law, for diversion credit until after January 1, 1995, after 25% diversion is achieved.
 **Includes other wastes in addition to liquids.

Table 6 – 5.1
Implementation Plan for Existing Programs

Existing Program	Responsible Agency	Frequency of Program
Continue to recover abandoned automobiles.	Building and Safety Department	Continual
Maintain additional fee for disposal of dead animals	Waste Management Department	Continual
Continue to encourage the utilization of private rendering facilities for the disposal of dead animals.	Waste Management Department	Continual
Continue additional fee for the disposal of hard – to – handle refuse.	Waste Management Department	Continual
Maintain additional fee for the disposal of tires.	Waste Management Department	Continual
Maintain prohibition of sewage sludge from entering county landfills.	Waste Management Department	Continual
Continue to monitor the amount of asbestos waste requiring disposal and if present disposal methods decrease capacity or are closed, investigate alternative disposal sites.	Department of Environmental Health of the Health Services Agency and the Waste Management Department	Continual
Continue to encourage environmentally feasible land application of sludge.	Department of Environmental Health of the Health Services Agency and the Waste Management Department	Continual
Continue to encourage current methods utilized for the disposal of agricultural manure waste.	Department of Environmental Health of the Health Services Agency and the Waste Management Department	Continual
Continue to encourage current methods utilized for the disposal of agricultural crop residue.	Department of Environmental Health of the Health Services Agency and the Waste Management Department	Continual

Table 6 -- 5.2
Special Waste Component Implementation Plan

ALTERNATIVE PROGRAM		Responsible Agency	Year									
			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. Processing Station for Woody Wastes at Edom Hill and Coachella Landfill		WMD CC										
1. Negotiate agreement between County & Operator to sublease sites at area landfills to process wood waste for transport to plant.			X									
2. Execute Agreement			X									
3. Make any modifications to landfill administration/operations that result from diversion of wood waste to the designated processing site.			X	X								
4. Promote the program and its procedures to businesses/individuals that would normally bring the appropriate woody waste material to the landfill for disposal.				X								
5. Begin processing woody waste material at the designated landfill sites for shipment to Plant.				X								
6. Monitor Program				X	X	X	X	X	X	X	X	X
B. Encourage the siting of a tire recycling facility within Riverside County or the region.		WMD/ Cities										
1. Hold meetings with proposers of specific projects to gain information and evaluate the proposals.			Ongoing									
2. Support viable recycling alternatives to the landfilling of tires.			Ongoing									
3. Monitoring			X	X	X	X	X	X	X	X	X	X
C. Encourage/site Green Waste/Sewage Sludge Composting Facilities		(See Chapter 5 -- Composting Component)										
D. Referral System for White/Reparable Goods		(See Chapter 3 -- Source Reduction Component)										
E. Encourage Usage of Mobile Demolition Recycling Facilities		(See Chapter 7 -- Education and Public Information)										

Table 6 – 5.2 (Cont.)
Special Waste Component Implementation Plan

ALTERNATIVE PROGRAM	Responsible Agency	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
F. Encourage the Dedication of Adequate Wastewater Treatment Capacity when Plants are Proposed or Expanding	WMD, & Planning										
1. The Waste Management Department will work with the Planning Dept. to be added to the list of reviewing agencies for environmental documents for expansions to or new wastewater treatment plants.			X								
2. The Waste Management Department will work with the Planning Dept. to develop procedures for including wastewater treatment plants to the County "Fast Track" system.			X								
3. Review environmental documents, as they as submitted, for adequacy in dedicating capacity for septic tank and chemical toilet waste generated both within and outside of the service area.				X -- Ongoing							
4. Implement procedures for including wastewater treatment plants to the County "Fast Track" system.				X							
5. Monitoring					X	X	X	X	X	X	X
G. Investigate Alternative Disposal/Reuse Methods for Tires	WMD/Cities										
1. Identify existing facilities/technologies capable of processing tires for reuse.				X							
2. Research the methods employed and the feasibility of using the existing facilities.				X							
3. If feasible, implement programs to direct waste tires to viable recycling alternatives.				X							
4. Monitoring					X	X	X	X	X	X	X
H. Encourage all Incineration Facilities within the County to utilize appropriate methods to source reduce and recycle their ash, and if necessary, investigate alternatives to landfilling incinerator ash.	WMD										
1. Identify existing facilities/technologies capable of processing ash for reuse.				X							
2. Research the methods employed and the feasibility of using existing facilities/technologies.				X							
3. Encourage the usage of viable reuse alternatives.					X						
4. Monitoring.						X	X	X	X	X	X

Table 6 – 5.2 (Cont.)
Special Waste Component Implementation Plan

ALTERNATIVE PROGRAM	Responsible Agency	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
I. Encourage the Development of Demolition Materials Recycling Facilities in Riverside County.	WMD/ Cities										
1. Evaluate the need for demolition materials recycling facilities within the various landfill/MRF service areas of the County.			X								
2. Evaluate demolition materials generation in those service areas.				X							
3. In areas with sufficient generation of demolition materials, and a need for recycling facilities, the Department will consider establishing these facilities.				X							
4. Establish/Encourage Development					X						
5. Monitoring						X	X	X	X	X	X
J. Encourage the Development of Alternative Liquid/Sludge Disposal, Treatment and/or Recycling Facilities.	WMD/ Cities										
1. Research alternative disposal methods for liquids and sludge				X							
2. Evaluate environmental and technical feasibility of alternatives				X							
3. Meet with proposers of specific projects and support environmentally feasible projects.					X -- Ongoing						
4. Monitoring						X	X	X	X	X	X
K. Encourage the siting/usage of wood grinding operations that will divert root balls, tree trunks and other handrd -- to -- handle pieces of wood.	WMD/ Cities										
1. Evaluate the need for wood grinding sites at each landfill/MRF.			X								
2. Evaluate the private sector involvement in wood grinding in each landfill/MRF service area.			X								
3. Develop a listing of sites requiring wood grinding.				X							
4. Develop an implementation schedule.				X							
5. Implementation.					X						
6. Monitoring.						X	X	X	X	X	X
L. Establish salvage opportunities at County solid waste facilities											

(See Chapter 4 -- Recycling Component)

**Table 6 – 5.2 (Cont.)
Special Waste Component Implementation Plan**

ALTERNATIVE PROGRAM	Responsible Agency	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
M. Promote Source Reduction of Special Wastes	WMD										
1. Research source reduction methods and technologies for special wastes.				X							
2. Evaluate the feasibility of each method.				XX							
3. Develop a report, to be sent to various industries handling special wastes in the County, on the available source reduction methods.				X							
4. Monitoring.						X	X	X	X	X	X
N. Work with Other Agencies to Encourage all Treatment Plants to Develop Sludge Management Plans.	WMD										
1. Through written correspondence, notify the Regional Water Quality Control Board of the Waste Management Department's support for the development of sludge management plans.				X							
2. Through written correspondence, notify treatment plant operators of the Waste Management Department's support for the development of sludge management plans.				X							
3. The Department will offer all feasible technical assistance in preparing these plans.				X	--Ongoing						
4. Monitoring.					X	X	X	X	X	X	X
O. Investigate the Potential for Establishing Septic Tank Maintenance Districts.	DEH & WMD										
1. Research existing similar programs.					X						
2. Develop a committee, composed of residents, liquid waste haulers, and municipal wastewater treatment plant operators to work through the specifics of this program.					X						
3. Working with the committee, develop procedures for establishing septic tank maintenance districts.					X	X					
4. Implement.						X					
5. Monitoring.							X	X	X	X	X

**Table 6 – 5.2 (Cont.)
Special Waste Component Implementation Plan**

ALTERNATIVE PROGRAM	Responsible Agency	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
P. Research Constituent Materials of street sweepings and its' applicability to reuse methods.	WMD										
1. Research the constituent materials in street sweepings					X						
2. Research the applicability of street sweeping material to reuse methods.						X					
3. Encourage the usage of environmentally feasible reuse methods for street sweepings.						X					
4. Monitoring							X	X	X	X	X
Q. Investigate the Need for Rate Incentives on Recyclable Special Wastes	WMD										
1. Determine the recycling rate for concrete/asphalt, demolition debris, tree trunks, other hard – to handle wood waste, & white goods.								X			
2. If the recycling rate is low, consider the use of rate incentives and ventures with private recyclers to encourage their recycling.								X			
4. Monitoring.									X	X	X
R. Investigate the Need to Increase the per Ton Charge for Septage and other applicable Liquid Wastes to Encourage their Disposal at Wastewater Treatment Facilities	WMD										
1. Research amount of liquid wastes entering landfills which are acceptable for treatment plants.									X		
2. Investigate the capacity at treatment plants for septic tank and other applicable liquid wastes.									X		
3. Investigate potential impacts of increasing tipping fee on septage and other applicable liquid wastes.											
4. If adequate capacity exists and impacts are low or can be mitigated, consider increasing the tipping fee to encourage the delivery of those wastes to treatment plants.									X		
5. Monitoring.										X	X

WMD = Waste Management Department

DEH = Department of Environmental Health of the Health Services Agency

Table 6 – 5.3
Special Waste Component Cost Estimate for Implementation Plan*

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Imp Costs	Estimated Private Imp Costs	Public Revenues	Private Revenues	Available Revenue Sources
A. Processing Station for Woody Waste at Edom Hill & Coachella Landfills	WMD County Counsel	WMD Start-up 180 OPA Start-up 105	Staff Costs \$5,000 OPA Staff Costs \$2,900 Supply Cost \$200	Capital \$900,000 – 1,000,000** Operating \$1,900,000***	\$0	Sale of Fuel	WMD Funds
		WMD Annual 30 OPA Annual 5	Annual Staff Costs \$8,600 Annual Staff Costs \$100 Annual Supply Cost \$200 Annual Cost – Loss of Tipping Fees				
B. Encourage the Siting of a Tire Recycling Facility within the Inland Empire Region	WMD/Cities	Start-up 40 Ongoing 40	Staff Costs \$1,100 Annual Staff Costs \$1,100	\$0	\$0	\$0	WMD Funds
C. Encourage/Site Green Waste/Sludge Composting Facilities	(Please see Chapter 5 – – Composting Component)						
D. Referral System for White/Reparable Goods	(Please see Chapter 3 – – Source Reduction)						
E. Encourage the Usage of Mobile Demolition Recycling Facilities.	(See Chapter 7 – – Education and Public Information)						

*All cost estimates are in 1991 dollars.

**Does not include truck costs. All private costs for this program were totaled after talking with vendor advisor

***Includes finance arrangements for lease/purchase of equipment & trucks

Table 6 – 5.3 (Cont.)
Special Waste Component Cost Estimate for Implementation Plan*

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Imp Costs	Estimated Private Imp Costs	Public Revenues	Private Revenues	Available Revenue Sources
F. Encourage the Dedication of Adequate Wastewater Treatment Capacity when Plants are Proposed or Expanding	WMD, & Planning	Start-up 40 Annual 10 per document	Staff Costs \$1,100 Annual Staff Costs \$300 per document	\$0	\$0	\$0	WMD Funds
G. Investigate Alternative Disposal/Reuse Methods for Tires.	WMD/ Cities	Start-up 95	Staff Costs \$2,700	\$0	\$0	\$0	WMD Funds
H. Encourage all Incineration Facilities within the County to utilize appropriate methods to Source Reduce and Recycle their ash and if necessary investigate alternatives to landfilling ash.	WMD	Start-up 95	Staff Costs \$2,700	\$0	\$0	\$0	WMD Funds
I. Encourage the Development of Demolition Materials Recycling Facilities in Riverside County.	WMD/ Cities	Start-up 105	Staff Costs \$2,900	\$225,000 (Equipment)	May Charge for material	May Charge for material	WMD Funds Private Funds
J. Encourage the Development of Alternative Liquid/Sludge Disposal, Treatment and/or Recycling Facilities.	WMD/ Cities	Start-up 95	Staff Costs \$2,700	\$0	\$0	\$0	WMD Funds
K. Encourage the Siting/Usage of Wood Grinding Operations that will Divert Root Balls, Tree Trunks and other Hard – to – Handle pieces of Wood.	WMD/ Cities	Start-up 80	Staff Costs \$2,200	\$350,000 (equipment)	Possibility of a charge for the wood	Possibility of a charge for the wood	WMD Funds
L. Establish Salvage Opportunities at County Solid Waste Facilities	(See Chapter 4 – – Recycling Component)						

*All cost estimates are in 1991 dollars.

**Table 6 - 5.3 (Cont.)
Special Waste Component Cost Estimate for Implementation Plan ***

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Imp Costs	Estimated Private Imp Costs	Public Revenues	Private Revenues	Available Revenue Sources
M. Promote Source Reduction of Special Wastes through Alternative Technology	WMD	Start-up 105	Staff Costs \$2,900	\$0	\$0	\$0	WMD Funds
N. Work with Other Agencies to Encourage all Treatment Plants to Develop Sludge Management Plans.	WMD	Start-up 40 Ongoing 20	Staff Costs \$1,100 Annual Staff Costs \$600				WMD Funds
O. Investigate the Potential for Establishing Septic Tank Maintenance Districts	DEH WMD	WMD Start-up 40 OPA Start-up 160 WMD Annual 40 OPA Annual 80	WMD Staff Costs \$1,100 OPA Staff Costs \$4,500 WMD Annual \$1,100 OPA Annual \$2,200	\$0	\$0	\$0	EHS Funds
P. Research Constituent Materials of Street Sweepings and its' applicability to Reuse Methods	WMD	Start-up 95	Staff Costs \$2,700	\$0	\$0	\$0	WMD Funds
Q. Investigate the Need for Rate Incentives on Recyclable Special Wastes	WMD	Start-up 90	Staff Costs \$2,500	\$0	\$0	\$0	WMD Funds
R. Investigate the Need to Increase the per Ton Charge for Septage and other applicable Liquid Waste to Encourage their Disposal at Wastewater Treatment Facilities.	WMD	Start-up 90	Staff Costs \$2,500	\$0	\$0	\$0	WMD Funds

OPA = Other Public Agency

WMD = Waste Management Department

DEH = Department of Environmental Health of the Health Agency

*All cost estimates are in 1991 dollars.

VII. MONITORING AND EVALUATION

Riverside County will monitor and evaluate the implemented special waste programs in order to determine success in meeting stated diversion objectives. This section describes: the methods to be utilized in monitoring success of the programs in meeting stated objectives; criteria for evaluating program effectiveness; the agencies responsible for program monitoring and evaluation and contingency measures to be implemented if monitoring and evaluation determine a shortfall in meeting stated objectives.

Methods to Quantify and Monitor Success in Achieving Recycling Program Objectives

The objectives for Riverside County's Special Wastes Component are stated on page 6 - 1. The basic premise of these objectives is to either recycle the stated percentage or to maintain current disposal methods.

Program monitoring will quantify the amount of material diverted from the unincorporated area waste stream. In order to obtain information of the composition of the waste stream and the amount of materials diverted, the following two methods shall be utilized:

- Waste generation study updates will be considered in order to determine the overall tonnage and composition of the unincorporated area waste stream.
- A database will be developed to track the diversion of recyclable material in the unincorporated County. Information will be derived from: Haulers offering curbside and commercial/industrial recycling services (reporting is a requirement of County resolution 90-668), Recycling Companies (i.e. processors, end-users) located in the unincorporated area, and commercial and industrial business which recycle their material.

Criteria for Evaluating Program Effectiveness

Each program shall be evaluated in terms of effectiveness in either diverting solid waste or in meeting its specific goal. The criteria to be employed are:

- Are the component diversion objectives being achieved?
- Are the impacted agencies/entities meeting their programmatic responsibilities?
- Are the component programs and the associated tasks being implemented on schedule?
- Are component programs adequately diverting the targeted material from the waste stream?
- Are component programs being implemented and administered in an environmentally sound manner?

Agencies Responsible for Program Monitoring and Evaluation

The Waste Management Department will be responsible for monitoring and evaluating the Special Waste Component programs. The Department of Environmental Health of the Health Services Agency will be responsible for monitoring and evaluating the program for septic tank maintenance districts.

Funding Requirements

The funding requirements for the monitoring and evaluation program are stated mainly in terms of staff hours. It is estimated that 1200 staff hours will be required to develop the database program and system. The Waste Management Department owns the computer hardware necessary to manage the data and intends to create the computer software in-house. Coordination/support of the waste characterization and/or diversion studies will require approximately 200 - 500 staff hours per year. Staff hours necessary for ongoing monitoring activities are estimated at 160 hours annually. Costs for implementing each program are discussed in the implementation plan.

Contingency Measures

Contingency measures are identified in the event that monitoring methods determine a shortfall in attainment of objectives. The contingency measures are:

- Analyze affected programs to determine if shortfalls are a result of deficiencies in the execution of programs.
- Consider the use of financial incentives to participating in recycling programs.
- Consider re-evaluating the diversion goals for objectives.

CHAPTER 7

**Education and Public
Information Component**

CHAPTER 7 -- EDUCATION AND PUBLIC INFORMATION

I. INTRODUCTION

The Education and Public Information component of the SRRE encompasses activities directed toward increasing public awareness of waste management issues and programs. This component will address the specific activities necessary to promote the participation in the diversion programs of the preceding components.

Public education is one of many important components of any program aimed at changing the practices of residents and businesses in response to state law and local ordinances. It is paramount that any education program be ongoing. Consistent education of residents and businesses is necessary in order to achieve the mandated diversion goals of 25% by 1995 and 50% by 2000.

This section will discuss those activities necessary to promote diversion programs discussed in preceding chapters and generalized activities which will assure waste reduction.

II. GOAL AND OBJECTIVES

The goal of the Education and Public Information Component is to provide information to the residents of the unincorporated area of Riverside County on general and specific source reduction, recycling, and composting programs and techniques and other waste management issues.

The objectives of the Education and Public Information Component are to provide information to the residential, commercial, and industrial sectors on source reduction, recycling, composting and other waste management issues. The objectives developed are high due to the County's philosophy toward public education. In order to meet the mandated diversion goals, the general public must receive information from the beginning of the effort and at consistently high levels thereafter.

Objectives were developed using information contained in the Waste Characterization Study (Chapter 2), and reflect realistic and attainable goals. Following is a listing of the objectives developed:

1. Provide information to 75% of the residential population on residential source reduction techniques and the importance of recycling, either through curbside, donation or redemption programs by 1995 and 95% by 2000.
2. Provide information to 75% of the commercial/industrial businesses on the importance of businesses participating in source reduction and recycling by 1995 and 95% by 2000.
3. Provide information to 75% of school children (public, private and pre-school) on the issues of recycling, source reduction, composting and litter control by 1995 and 95% by 2000.
4. Provide information to 75% of the residents on techniques and importance of residential composting by 1995 and 95% by 2000.

III. EDUCATION AND PUBLIC INFORMATION EXISTING CONDITIONS DESCRIPTION

While the Riverside County Waste Management Department is the lead agency for developing public education activities with respect to waste management, the Department of Environmental Health of the Health Services Agency undertakes some educational activities. Whereas the Waste Management Department undertakes activities encompassing all types of waste management activities, the Department

of Environmental Health focuses mainly on recycling. The department has undertaken initial programs in the arena of public education, but will build upon this starting ground to promote effective waste management to its residents.

In an attempt to list all activities which affect Riverside County residents, this section has been divided into three areas - local programs, regional programs and statewide programs. Because Riverside County belongs to the larger regional area of Southern California, many of the residents commute into Orange or Los Angeles Counties and receive information from the newspapers and media stations of the regional area. The following is a discussion of the education activities which affect residents of the unincorporated area of Riverside County. Please see table 7-1 for a listing of these programs.

Local Programs

The local programs consist of landfill tours, presentations to civic groups and schools, newspaper articles, responses to public informational inquiries and the 1990 Recycled Products Fair.

Landfills Tours are routinely given to requesting groups, with elementary schools composing the largest segment. The tours consist of explanations of what the landfill is, the need for landfills, how waste is deposited each day, the reasons for daily cover and the purpose of the equipment. In addition, a pile of routine refuse (household waste) is separated from the working area and a presentation on recycling is given.

The department's recycling division also makes presentations on waste management issues to requesting organizations. Heretofore, calls for these presentations have been received on a sporadic basis.

Information has been provided to many newspaper reporters for articles on recycling. Some of these articles have listed recycling centers within the County area and the recycling division's telephone number as a source for more information. Press releases are also distributed to publicize upcoming activities and special events.

Earth Day 1990 afforded the department its first chance to distribute information to the public. The division participated in the City of Riverside's Earth Day celebration and the University of California, Riverside's Earth Day celebration. Brochures on source reduction, basic recycling (why recycle, the benefits of recycling, what is recyclable and where to take recyclable material) backyard composting techniques and the County's household hazardous waste program were developed and distributed, as well as a display showing all of the County landfill sites, projected dates of closure for these sites, the city and county areas undertaking and considering curbside recycling, and statistics on the amount of energy and natural resources saved through recycling. Through this effort many residents were made aware of County contacts and telephoned for more information. Brochures are kept in supply to mail to residents and give out to school children during tours and presentations.

The department receives an average of 10 calls per week regarding where to take recyclable material, what is recyclable, and information on office recycling. Each call is handled on a case by case basis providing the specific information requested. Future plans call for a system capable of handling a greater volume of calls as program implementation evolves.

In October of 1990, the Purchasing Division of the County's General Services Agency, in conjunction with the Waste Management Department, held a Recycled Products Fair. Manufacturers and vendors of recycled products were featured with presentations given by leaders in the industry on such topics as developing markets, tax credits for producing products containing recycled materials and one very large private company's recycling program.

Summary of Existing Public Education Programs

Table 7 - 1

Existing Program		1990 Population Reached		Comments	
Local Programs		Sponsor			
Landfill Tours		Waste Management Department	250		Usually school children
Recycled Products Fair		GSA/Purchasing and Waste Management Department	1500 - 1700		Held on October 19, 1990
School and Civic Organization Presentations		Waste Management Department	700		Presently on a per requested basis
Informational Calls		Waste Mgmt Department and Dept. of Environmental Health	250 estimated		Based on an average of 10 per week since Earth Day
Newspaper Articles		Local Newspaper, Public Information Officer and Waste Management Dept.			
Curbside Recycling Educational Efforts by Waste Haulers		Local Waste Hauler	None in 1990, 100% in densely populated areas by 1991		
Regional Programs					
Riverside County City Recycling Efforts		Local City and Waste Hauler	Unknown		Includes Riverside County Cities as well as surrounding Counties
Earth Day Activities		Various Agencies	Unknown		Includes all Southern California Activities
Regional Newspaper Articles		Regional Newspaper	Unknown		Regional Papers include Los Angeles, San Bernardino and Orange County
Statewide Programs					
Department of Conservation/ Division of Recycling (DOC/DOR)		DOC/DOR	Unknown		
Commercials on redemption of AB 2020 materials					

The Public Education, Awareness and Litter Control Subcommittee developed an overall plan for publicity. The fair was publicized through public service announcements, both written and pre-recorded, cable access channels, newspaper articles, and direct mail to businesses, government agencies and procurement officers. The Greater Riverside Chamber of Commerce aided by sending brochures to members on their mailing list. Two radio stations were interested in airing interviews on the subject and conducted one one-hour and one 20 minute staff interview on the Recycled Products Fair, recycling and waste management issues in general and how residents can begin source reduction and recycling on their own.

Approximately 1500 - 1700 persons from Southern California attended the fair and browsed through exhibits from 42 vendors. The products exhibited ranged from trucks used in curbside recycling programs to recycled paper, recycled antifreeze, and park benches, pilings and parking wheel stops made of recycled plastic. The Recycling Division of the Waste Management Department was also an exhibitor, handing out information on composting, source reduction, office recycling, household hazardous waste and where recycling centers are located within the County.

The Department of Environmental Health of the Health Services Agency has also developed brochures on recycling and receives sporadic calls regarding the county recycling program and general recycling issues.

The waste haulers in the County also provide information to public regarding the curbside recycling program. Since each hauler operates the program in a different manner, the information distributed is specific to the operation. Although, generally most of these brochures also provide information on the need to recycle and its benefits.

Regional Programs

Locally, the County unincorporated area has benefitted from recycling efforts of individual cities. As of fall 1991, 16 or more of the 24 incorporated cities are offering either full or pilot curbside recycling services. As the residents of the incorporated cities become more aware of recycling issues, so do residents of the unincorporated area. This spill-over effect has a positive impact upon residents of the unincorporated area.

On a more regional basis, the Riverside area has benefitted from the major television stations and newspapers in the Los Angeles area.

Statewide Programs

The Department of Conservation has aired many television advertisements on recycling redemption material, many Earth Day specials were aired on the major television networks and the Los Angeles Times prints many articles on recycling and waste management issues.

Through these public education activities, residents of the County are being educated on the overall issues surrounding the management of our wastes and what each resident can do to be part of the solution.

IV. SELECTION OF PROGRAM ALTERNATIVES

The alternative programs selected for the Education and Public Information component will cover the issues of source reduction, recycling, composting and other waste management issues. The programs will target the residential, commercial, and industrial sectors generating waste in Riverside County.

Using 1990 U.S. Census data, when available, the Department will determine the applicability of publishing information brochures and packets in other languages.

Existing Programs

County Sponsored Fair/Recycled Products Fair

The County will continue to organize and sponsor a fair focused on waste management issues. For the foreseeable future, a Recycled Products Fair will be the focus, however, other issues may require attention through this means.

Landfill Tours

The County will continue to conduct landfill tours to requesting groups.

Presentations

Invitations to speak at schools and organizational meetings will continue to be accepted. The persons covering such engagements, however, will be expanded to include the Riverside County Solid Waste Management Advisory Council/Local AB 939 Task Force.

Planned Programs

Press Releases/Public Service Advertising

Ensure that public service announcements and press releases are processed to publicize new programs, one-day events and major milestones for ongoing events. This will include, but not be limited to, press releases distributed to local and regional newspapers, public service advertising and public service announcements for radio stations. Release of such information will be coordinated with the County Public Information Officer.

Mass Mailings to Unincorporated County Residents

The Waste Management Department will endeavor to develop and distribute, either through bill inserts or direct mail, information to County residents regarding source reduction, composting, recycling and the safe disposal of wastes.

Generalized Publicity Campaigns

The Waste Management Department, with the cooperation of the County Public Information Officer, will conduct countywide publicity campaigns on specific programs, including, but not limited to, curbside recycling, the recycled product awareness campaign and source reduction. These campaigns could entail press releases, public service advertising/purchased advertising space and public service announcements.

Countywide Logo

Develop a logo for the County waste reduction programs which can be used Countywide. The uses for this logo could be for general publicity and flyers distributed by the County, identification of recycling businesses, and/or curbside recycling programs.

Brochures

Develop and print brochures on waste management issues and programs for distribution. This will include, but not be limited to: residential recycling, residential source reduction, business source reduction, waste management issues, business recycling, the importance of procuring recycled goods and litter control. Methods of distribution will include, but not be limited to, handouts at presentations, direct mailings, and for specific requests for additional information. In addition, brochures on specific activities, such as encouraging the utilization of mobile demolition recycling equipment/contractors will be developed and distributed at key public information counters (i.e. Planning and Building and Safety Department).

Speaking Engagements

The Waste Management Department will endeavor to participate in organizational functions including, but not limited to civic, business, industry and homeowners groups by speaking on waste management and recycling issues (brochures will be available to distribute to all participants). A speakers bureau, comprised of County staff and interested members of the Solid Waste Management Advisory Council/Task Force, will be developed to cover these engagements.

Recycling Hotline

Establish a recycling hotline which could provide information to residents on the locations of buy-back centers, the subjects on which the department has informational brochures and generalities on the curbside recycling program. This hotline could be handled through an automated telephone system.

Technical Assistance

The technical assistance program would encompass a wide range of assistance activities to waste generators and/or collectors. This program would assist commercial, industrial and governmental agencies in increasing the amount of waste they recover and/or reuse through recycling. The program will also encourage the use of recyclable, repairable, reusable products and those made with recycled content.

The program would also promote local business participation in the state's Materials Exchange and Reuse Program. The state program is designed to link generators of waste materials to individuals who would use the material. Examples of a waste exchange would be a commercial establishment using materials packaged in 5 gallon pails. Once the material is used, the pails are thrown away. However, there is a farmer in need of 5 gallon pails and is willing to pick-up the material. The state program would introduce these individuals. The County can aid this process by publicizing the existence of the State program. Please reference Chapters 3 and 4 for additional information.

Curriculum Guides

Support the development of Statewide recycling curriculum by the Integrated Waste Management Board and supplement where necessary. Until this curriculum is developed, the Waste Management Department will endeavor to publicize recycling curricula already available and provide assistance where applicable. Support could include, but would not be limited to, distribution of additional information on local activities to teachers within all school districts of the County.

Recognition Program

Develop a recognition program for residents and business participating in source reduction, recycling and/or composting. Publicity regarding acceptance of nominations would be countywide and awards would endeavor to be concurrent with a County-sponsored fair focusing on waste management issues. Award presentations are anticipated to occur annually and winners would be widely publicized.

Video Programs

The Department will pursue the acquisition of video programs focused on specific and general waste management issues. Should the quality of video programs available for purchase prove unsatisfactory, the Department will endeavor to produce its' own video program(s). Along with these video's, a media library(ies) will be set up to house them. Videos would be available on loan to public entities (including schools). The video may also be used to publicize waste management issues through airing on local cable television stations, and as introductions to presentations.

Video Information Center

The Waste Management Department will establish a "video information center" which would consist of a stationary, automatic video machine playing prerecorded messages on source reduction, recycling and other waste management issues. These centers may be established at either a County building maintaining high foot traffic or in conjunction with an informational center on recycling issues.

Newsletters on Waste Management Issues

Develop a newsletter devoted to waste management/environmental issues. The recipients could include, but would not be limited to other county agencies, city agencies, chambers of commerce, industry organizations and interested businesses and citizens. This newsletter could be devoted to waste management issues or could be a combination of other environmental issues of interest to the selected population. The Department will endeavor to publish the newsletter in-house with printing by County printing staff in order to economize.

Regional and Countywide Fairs and Events

The Waste Management Department will pursue the participation in regional and countywide events, such as the National Date Festival and Hemet Fair. This participation will include, but not be limited to, setting up booths from which to distribute information on waste management issues.

Recycled Product Awareness Campaign

Pursue a recycled products awareness campaign which would publicize the use of recycled products by the private sector. This program could, after verification of a purchase of recycled products, issue stickers to businesses using recycled products in daily work to display in the window of the business. A simultaneous campaign would be used to publicize to residents the implementation of this program and urge their patronage of those participating businesses.

Community Education Workshops

Develop community education workshops which would educate residents about integrated waste management issues and programs. These sessions could be offered by either the Waste Management Department or a consultant. Efforts should be made to coordinate with cities on the sessions. The

workshops would focus on specific issues including, but not limited to, curbside recycling, source reduction, composting, recycled products, and entrepreneurship in recycling. These sessions would be offered at various locations throughout the County. All workshops would be free to participating residents and businesses.

Purchase and Distribution of "Novelty Items"

Pursue the purchase of "novelty items". These novelty items could include, but would not be limited to, refrigerator magnets, key chains, stickers for automobiles and/or notebooks. Distribution could take place at fairs attended by the Department, speaking engagements and school presentations. These items could provide a useful purpose for residents while also keeping recycling messages in front of the user.

Environmental Labeling Program

Support statewide legislation for an environmental labeling program at selected grocery stores and supermarkets which would educate consumers on the hazardous content and recyclability of packaging and individual consumer goods.

Master Recycler Composter Program

The Waste Management Department will develop a network of volunteers, educate these persons in current waste management issues (including source reduction, recycling, composting, and household hazardous waste) and provide tools for public presentations and outreach. This program is modeled after the King County (Washington) Master Recycler Composter Program where community volunteers are trained in waste management principles and encouraged to undertake community outreach on their own.

Another important element of this program is the establishment of demonstration sites which will highlight principles of waste management. It is envisioned that the emphasis will be on residential yard waste management and specifically backyard composting.

This program will operate as part of the Residential Yard Waste Program mentioned in Chapter 5 - Composting Component. It is envisioned that this program would cover the entire County and that unincorporated as well as incorporated residents would be encouraged to participate. The Waste Management Department will also investigate the possibility of city, special district agency and private sector cooperation in this program.

V. IMPLEMENTATION PLAN

Table 7 - 3.1 shows an implementation plan for each of the existing programs and Table 7 - 3.2 depicts an implementation plan for each of the planned programs. This plan will serve not only as a prioritization of programs to implement, but also as a guideline for the County, showing a time frame in which all programs will be implemented. This plan lists necessary steps to implement each program, the responsible agency(ies), and the year in which each task will commence and end with appropriate labeling for those programs which are ongoing. Also shown are the estimated public implementation costs of each program, public revenues generated as a result of the program and the anticipated revenues sources available to fund implementation. The public revenues generated as a result of the program are represented on a break even basis. Revenues will not be collected beyond the point of simply covering costs of the program. The estimated private implementation costs have been deleted from the table as there are no foreseeable costs for private entities associated with any of the County-sponsored public education programs.

Table 7 – 2.1
Education and Public Information Component
Existing Program Implementation Plan

Existing Program	Responsible Agency	Frequency of Program
Landfill Tours	Waste Management Department	Periodic, subject to requesting group Often elementary schools
Presentations	Waste Management Department	Periodic, subject to requesting group Groups include civic, social and other organizations
Recycled Products Fair	GSA/Purchasing Division and Waste Management Department	Annual Fair on Waste Management Issues
Informational Calls/Brochures	Waste Management Department and Department of Environmental Health of the Health Services Agency	Periodic
Curbside Recycling Program Educational Efforts by Waste Haulers	Individual Waste Hauler	Periodic

Table 7 – 2.2
Education and Public Information Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year											
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		
A. Environmental Labeling Program													
1. Support enactment of state legislation for environmental labeling at grocery stores & supermarkets		X -- Ongoing until Enactment											
B. Press Releases/Public Service Advertising		Ongoing Program											
1. Establish and maintain contact with County PIO		X											
2. Develop and distribute all press releases through the County PIO		X											
3. Monitoring			X	X	X	X	X	X	X	X	X		
C. Conduct Mass Mailing to Unincorporated County Residents		Ongoing Program											
1. Determine subject of mailing			X										
2. Develop brochure				X									
3. Determine method of distribution				X									
4. Printing				X									
5. Distribute				X -- Ongoing									
6. Monitoring				X	X	X	X	X	X	X	X		
D. Conduct a General Publicity Campaign		Ongoing Program											
1. Determine Subjects and times to cover			X										
2. Determine mediums to utilize			X										
3. Prepare material/advertisements			X										
4. Coordinate with County PIO to purchase/acquire advertising space				X									
5. Monitoring							X	X	X	X	X		

Table 7 - 2.2 (Cont.)
Education and Public Information Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
E. Countywide logo	WMD & PES										
1. Develop committee			X								
2. Determine criteria upon which to judge logo's			X								
3. Gather possible logo's from all available sources, including, but not limited to, school contests, county contests, college sources and professional services				XX							
4. Judge and determine finalists				X							
5. Determine the body to choose the final logo.				X							
6. Determining body chooses final logo.				X							
F. Brochures	WMD										
1. Determine specific brochures for printing			X								
2. Determine critical info for each brochure			X								
3. Investigate alternatives source for development				X							
4. Choose developing body				X							
5. Develop brochure(s)				XX							
6. Printing				X							
7. Distribution					X -- Ongoing						
8. Monitoring					X	X	X	X	X	X	X
G. Speaking engagements	WMD										
1. Develop outline for presentations				X							
2. Develop speakers bureau				X							
3. Solicit engagements				X							
4. Monitoring					X	X	X	X	X	X	X
H. Recycling Hotline	WMD										
1. Order/purchase automated telephone equipment				X							
2. Determine recorded messages				X							
3. Train personnel on equipment				X							
4. Monitoring					X	X	X	X	X	X	X

**Table 7 – 2.2 (Cont.)
Education and Public Information Component Implementation Plan**

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
I. Curriculum Guides	WMD	Ongoing Program									
1. Support CIWMB curriculum development			X								
2. Gather and Review existing guides			XX								
3. Develop listing of available guides				X							
4. Determine locations for storage of guides				X							
5. Publicize availability of guides to teachers and schools (once CIWMB curriculum is developed, the County will supplement publicity for the guide)				X--Ongoing							
6. Monitoring					X	X	X	X	X	X	X
J. Recognition Program	WMD & PES	Ongoing Program									
1. Determine categories for recognition			X								
2. Determine time of year for presentation			X								
3. Determine judging body			X								
4. Determine methods by which to publicize the program			X								
5. Monitoring				X	X	X	X	X	X	X	X
K. Technical Assistnce	WMD	Ongoing Program									
1. Gather guides from similar programs			X								
2. Develop guide for Riverside County (using as much as possible from existing documents)				XX							
3. Develop outline of presentations				X							
4. Determine persons to conduct technical assistance and train					XX						
5. Contact a few large firms and solicit participation						X					
6. Publicize program through media and presentations						X--Ongoing					
7. Coordinate program with Health Dept. Hazardous Waste Minimization Program						X--Ongoing					
8. Publicize state Materials Exchange & Reuse Program			X	Ongoing							
9. Monitoring					X	X	X	X	X	X	X

Table 7 – 2.2 (Cont.)
Education and Public Information Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
L. Video Programs	WMD										
1. Determine subjects to cover				X							
2. Conduct comprehensive search of existing video programs				XX							
3. Gather video's for viewing & grading				X							
4. Determine need to produce one or more video programs				X							
a. Investigate sources of production				XX							
b. Select producer				X							
c. Produce video				X							
5. Determine facility for storage				X							
6. Publicize availability					X	Ongoing					
7. Monitoring						X	X	X	X	X	X
M. Video Information Center	WMD										
1. Determine appropriate building in which to establish				X							
2. Determine initial subject(s) to cover				X							
3. Purchase/Develop Video's				XX							
4. Purchase Equipment				X							
5. Establish					X						
6. Monitoring						X	X	X	X	X	X
N. Newsletter on Waste Management Issues											
1. Discuss possibility of combining all environmental related matters into one newsletter with other affected agencies	WMD & other applicable Departments			XX							
2. Determine way in which newsletter will be structured and financed				XX							
3. Determine editor(s) and possible article contributors				X							
4. Determine basic format & frequency of issues				X							
5. Determine method of distribution				X							
6. Editor(s) determine operating procedures and time of first issue				X							
7. Monitoring					X	X	X	X	X	X	X

Table 7 – 2.2 (Cont.)
Education and Public Information Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
O. Regional and Countywide Fairs and Events	WMD	Ongoing Program									
1. Research existing fairs			X								
2. Develop listing of fairs along with organizing bodies			X								
3. Determine events to attend			X								
4. Contact lead agencies and express desire to participate			X								
5. Develop display			XX								
6. Develop graphics			X								
7. Monitoring					X	X	X	X	X	X	X
P. Recycled Product Awareness Campaign	WMD	Ongoing Program									
1. Designate lead organizing body			X								
2. Determine rules for recognition of efforts			X								
3. Design logo for this program			X								
4. Print logo			X								
5. Publicize program			X								
6. Press Event/celebration for first distribution			X								
7. Monitoring					X	X	X	X	X	X	X
Q. Community Education Workshops	WMD	Ongoing Program									
1. Develop topics for workshops				X							
2. Determine area(s) in which to conduct workshops			X								
3. Develop a rough schedule of when to conduct				X							
4. Develop content outline for specific workshops				X							
5. Determine speakers and develop graphics if necessary				X							
6. Develop handout materials if appropriate				X							
7. Conduct 1st session					X						
8. Monitoring					X	X	X	X	X	X	X

Table 7 – 2.2 (Cont.)
Education and Public Information Component Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
R. Purchase of 'novelty items'	WMD	Ongoing Program									
1. Gather infor/ordering info					X						
2. Determine amount available					X						
3. Determine types to purchase					X						
4. Obtain price quotes					X						
5. Purchase items					X						
6. Monitoring						X	X	X	X	X	X
S. Master Recycler Composter Program											
(See Chapter 2 -- Source Reduction Component for the Implementation Plan for this Program)											

Table 7 – 2.3
Education & Public Information Component Cost Estimate
for Implementation Plan

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Impl. Costs	Public Revenues	Private Revenues	Available Revenue Sources
A. Environmental Labeling Program	WMD	Start-up 24	Start-up Staff Costs 600	\$0	n/a	\$0	WMD Funds
B. Press Releases/Public Service Advertising	WMD & PIO	Start-up 8	Start-up Staff Costs \$224	\$0	n/a	\$0	WMD Funds
C. Conduct Mass Mailing to Unincorporated County Residents	WMD	Start-up 50 Annual 50	Start-up Staff Costs \$1,400 Supplies \$44,000 Annual Staff Costs \$1,400 Annual Operations \$44,000	\$0	n/a	\$0	WMD Funds
D. Conduct a General Publicity Campaign	PIO & WMD	WMD Start-up 38 OPA** Start-up 12 WMD Annual 76 OPA Annual 24	WMD Staff Costs \$1,064 OPA Staff Costs \$336 Supplies \$500 WMD Annual \$2,128 OPA Annual \$672 Annual Operating \$2,000	\$0	n/a	\$0	WMD Funds

*All costs are shown in 1991 dollars

Table 7 – 2.3 (Cont.)
Education & Public Information Component Cost Estimate
for Implementation Plan

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Impl. Costs	Public Revenues	Private Revenues	Available Revenue Sources
E. Countywide logo	WMD & Public Education Subcommittee	Start-up 80	Start-up Staff Costs \$2,240	\$0	n/a	\$0	WMD Funds
F. Brochures	WMD	Start-up 100	Start-up Staff Costs \$2,800 Supplies \$1,500	\$0	n/a	\$0	WMD Funds
		Annual 100	Annual Staff Costs \$2,800 Annual Operating \$1,500				
G. Speaking engagements	WMD	Start-up 70	Start-up Staff Costs \$1,960 Supplies \$3,350	\$0	n/a	\$0	WMD Funds
		Annual 60	Annual Staff Costs \$1,680 Annual Operating \$800				
H. Recycling Hotline	WMD	Start-up 40	Start-up Staff Costs \$1,120 Supplies \$10,000 Annual Operating \$1,000	\$0	n/a	\$0	WMD Funds

Table 7 – 2.3 (Cont.)
Education & Public Information Component Cost Estimate
for Implementation Plan

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Impl. Costs	Public Revenues	Private Revenues	Available Revenue Sources
I. Curriculum Guides	WMD	Start-up 64	Start-up Staff Costs \$1,792 Supplies \$200 Annual Staff Costs \$2,800 Annual Operating \$200	\$0	n/a	\$0	WMD Funds
J. Recognition Program	WMD & Public Education Subcommittee	Start-up 40 Annual 40	Start-up Staff Costs \$1,120 Supplies \$500 Annual Staff Costs \$1,120 Annual Operating \$500	\$0	n/a	\$0	WMD Funds
K. Technical Assistance	WMD	Start-up 160 Annual 400	Start-up Staff Costs \$4,480 Supplies \$500 Annual Staff Costs \$11,200 Annual Operating \$2,000	\$0	n/a	\$0	WMD Funds

Table 7 – 2.3 (Cont.)
Education & Public Information Component Cost Estimate
for Implementation Plan

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Impl. Costs	Public Revenues	Private Revenues	Available Revenue Sources
L. Video Programs (includes two options -- one to purchase existing video's and another to create original video's)	WMD & other affected agencies	Start-up	<u>Acquisition</u> Start-up Staff Costs	\$0	n/a	\$0	WMD Funds
		88	\$2,464 Supplies				
		Annual	Annual Staff Costs				
		50	\$1,400 Annual Operating				
			<u>Production</u> Staff Costs				
		One-Time	\$8,960 Supplies				
		320	\$60,000				
M. Video Informational Center		Start-up	Start-up Staff Costs	\$0	n/a	\$0	WMD Funds
		80	\$2,240 Supplies				
		Annual	Annual Staff Costs				
		24	\$672 Annual Operating				

Table 7 – 2.3 (Cont.)
Education & Public Information Component Cost Estimate
for Implementation Plan

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Impl. Costs	Public Revenues	Private Revenues	Available Revenue Sources
N. Newsletter on Waste Management Issues	WMD & other Depts. responsible for environmental issues	Start – up 150	Start – up Staff Costs \$4,200 Supplies \$22,000	\$0	n/a	\$0	WMD Funds
		Annual 150	Annual Staff Costs \$4,200 Annual Operating \$22,000				
O. Regional and Coutywide Fairs and Events	WMD & other affected agencies	Start – up 120	Start – up Staff Costs \$3,360 Supplies \$1,500	\$0	n/a	\$0	WMD Funds
		Annual 80	Annual Staff Costs \$2,240 Annual \$800				
P. Recycled Product Awareness Campaign	WMD	Start – up 40	Start – up Staff Costs \$1,000 Supplies \$500	\$0	\$500 (Could charge businesses an amount equal to cost of printing sticker)	\$0	Waste Mgmt Dept Funds & could charge for the sticker
		Annual 120	Annual Staff Costs \$3,000 Annual \$1,000				

Table 7 – 2.3 (Cont.)
Education & Public Information Component Cost Estimate
for Implementation Plan

Alternative Program	Responsible Agency	Estimated Staff Hours	Estimated Public Impl. Costs	Estimated Private Impl. Costs	Public Revenues	Private Revenues	Available Revenue Sources
Q. Community Education Workshops (Annual costs are per workshop)	WMD	Start-up 120	Start-up Staff Costs \$3,000 Supplies \$500	\$0	n/a	\$0	WMD Funds
		Annual 88	Annual Staff Costs \$2,200 Annual \$300				
R. Purchase of "novelty items"	WMD	Start-up 60	Start-up Staff Costs \$1,500 Supplies \$3,500	\$0	n/a	\$0	WMD Funds
		Annual 20	Annual Staff Costs \$500 Annual \$3,500				
S. Master Recycler Composter Program	(See Chapter 2 – Source Reduction Component for the Cost Implementation Plan for this program)						

(See Chapter 2 – Source Reduction Component for the Cost Implementation Plan for this program)

WMD = Waste Management Department

PIO = Public Information Officer

OPA = Other Public Agencies

VI. MONITORING AND EVALUATION PLAN

Riverside County will monitor and evaluate the implemented public education programs in order to determine success in meeting stated objectives in providing information to the public. This section will describe: the methods to be utilized in monitoring success of the programs in meeting stated objectives; criteria for evaluating program effectiveness; the agencies responsible for program monitoring and evaluation and contingency measures to be implemented if monitoring and evaluation determine a shortfall in meeting stated objectives. The monitoring program for the public education component is specific to the public education programs and separate from the database described in Chapter 2 which will be used to monitor success in meeting waste diversion goals.

Methods to Quantify and Monitor Success in Achieving Education and Public Information Program Objectives

The objectives for Riverside County's Education and Public Information Component are stated on page 7 - 1. The basic premise of these objectives is to provide information to the various generators of waste in the County at a proportion of 75% by 1995 and 95% by 2000.

Program monitoring will quantify the number of persons/businesses reached by various programs in relation to the overall number of persons/businesses located in the County. In order to obtain accurate population counts, State Department of Finance population estimates will be used to ascertain the residential population, while State Board of Equalization numbers will be used to identify the number of commercial/industrial businesses.

In order to assess the amount of persons/businesses reached through various programs, the following approaches will be implemented:

- Initial contact forms will be used to identify requests for presentations. These forms will identify the organization, business address, contact person, telephone number, presentation topic requested, number of persons expected to attend, location of presentation, time date and speaker.
- Circulation rates quantifying the readership/viewership of each medium utilized for media campaigns will be acquired not less than quarterly. This information will be utilized for projecting the number of individuals reached through media campaigns.
- Bi-annual summary reports will be prepared for Departmental management on public education activities completed, number of persons/businesses each program provided information to, and the percentage of overall residents and businesses reached.
- Telephone surveys of residents could be conducted to assess the success of providing information to that population. This could be handled by a college research class which would design questions (with Waste Management Department input), conduct actual telephone surveys and apply statistical analysis to the results. This method will be evaluated for implementation by the Waste Management Department

Criteria for Evaluating Program Effectiveness

Each program will be evaluated in terms of effectiveness in presenting the selected message. The methods to be employed are:

- Are the component educational objectives being achieved?
- Are the impacted agencies/entities meeting their programmatic responsibilities?
- Is the program and its associated tasks being implemented on schedule?
- Based upon presentation evaluation forms, provided to each contact person arranging for speakers, is the audience receiving the intended message?
- Are all potential mediums for communication being utilized?
- Is the program being implemented and administered in an environmentally sound manner?

Agencies Responsible for Program Monitoring and Evaluation

The Waste Management Department will be responsible for monitoring and evaluating the Education and Public Information Component programs.

Funding Requirements

The funding requirements for the monitoring and evaluation program consist mainly of staff hours. It is estimated that approximately 160 hours per year will be required to assess circulation rates, calculate population reached from each medium utilized, coordinate telephone surveys and prepare reports. Employee salaries are funded from the Department Enterprise Fund which receives its revenues from tipping fees.

Contingency Measures

Contingency measures are identified in the event that monitoring methods determine a shortfall in attainment of public education objectives. The contingency measures are:

- Review and revise, as necessary, the public education techniques utilized.
- Increase and expand activities (i.e. publicity campaigns, direct mailings) in the waste generator category identified as having a shortfall.
- Evaluate the benefits of hiring professional public relations personnel for the development of public information materials and strategies.
- Revise and expand task schedules in implementation of specific programs if implementation is not occurring according to schedule.

CHAPTER 8

Disposal Facility Capacity Component

CHAPTER 8 -- SOLID WASTE FACILITY CAPACITY COMPONENT

I. INTRODUCTION

The Facility Capacity Component, as defined by the Integrated Waste Management Act of 1989 (AB 939), is required to include a projection of the amount of disposal capacity that will be needed to accommodate the solid waste generated within the unincorporated area of Riverside County for a fifteen-year period.

Accordingly, this component first identifies the existing disposal facilities in Riverside County, the available capacity of these facilities, and the amount of waste disposed of at these facilities. The component then identifies the solid waste disposal capacity needs of the County over the next fifteen (15) years, commencing in 1991. Finally, this component includes a discussion of planned facilities or expansions, planned closures, and the planned exportation of waste.

II. EXISTING PERMITTED SOLID WASTE DISPOSAL FACILITIES

Identification of Existing Disposal Facilities

Riverside County has thirteen (13) active sanitary landfills. Each of these landfills, which are all located within the unincorporated area of the County, are classified as Class III landfills. These landfills are identified as follows: 1) Anza; 2) Badlands; 3) Blythe; 4) Coachella; 5) Desert Center; 6) Double Butte; 7) Edom Hill; 8) El Sobrante; 9) Highgrove; 10) Lamb Canyon; 11) Mead Valley; 12) Mecca II; and, 13) Oasis.

Identification of Owner/Operator of Existing Disposal Facilities

Eight (8) of the thirteen (13) active landfills are both County-owned and County-operated facilities. Specifically, the Riverside County Waste Management Department is responsible for the operation of these landfills.

While four (4) of the remaining five (5) active landfills, Blythe, Coachella, Desert Center, and Edom Hill, are County-operated, the sites are leased from the U.S. Bureau of Land Management (BLM). The El Sobrante Landfill, on the other hand, is both owned and operated by Western Waste Industries, Inc. The scales and gate, however, are managed by the County's Waste Management Department.

Quantity and Type of Solid Waste Disposed

The solid waste that is disposed of at these landfills is generated in the unincorporated areas of the County, as well as, in the 24 cities within the County's jurisdiction. At this time, the County of Riverside and its Cities do not export any solid waste to other County jurisdictions.

Riverside County accepted a total of 1,596,869 tons of solid waste at its thirteen active landfills in 1991. The total quantity of waste accepted in 1991 at each individual landfill is shown as follows:

<u>Landfill</u>	<u>Tonnage of Disposed Waste (1991)</u>
Anza	3,899 Tons
Badlands	98,889 Tons
Blythe	16,206 Tons
Coachella	196,242 Tons
Desert Center	2,542 Tons
Double Butte	69,669 Tons
Edom Hill	231,459 Tons
El Sobrante	297,904 Tons
Highgrove	289,898 Tons
Lamb Canyon	158,078 Tons
Mead Valley	166,608 Tons
Mecca II	15,699 Tons
Oasis	6,320 Tons
TOTAL	1,596,869 Tons

As Class III sanitary landfills, these landfills accept primarily non-hazardous residential and commercial/industrial municipal solid waste. The disposed solid waste is composed of a mixture of: newspaper, cardboard, different grades of paper, aluminum and tin cans, glass, plastics, yard and wood wastes, along with agricultural crop residues, manure, food wastes, textiles, leather, household hazardous waste, inert solids, liquids, diapers, tires and rubber, white goods, and remainder solids. A more descriptive characterization of Riverside County's waste stream is contained within the Riverside County Waste Generation Study, found in Appendix A, with an analysis of this study provided in Chapter 2, "Waste Generation Study Analysis."

Permitted Site Acreage and Capacity

The permitted site acreage and the permitted capacity, in tons per day and tons per year, of each of the County's landfills is provided in Table 8-1, EXISTING PERMITTED SOLID WASTE DISPOSAL FACILITIES. It should be noted that all but three of the landfills, Edom Hill, Desert Center, and Badlands, are undergoing permit revisions as of writing of this document. The information provided in Table 8-1 reflects the requested revised permit. For example, "B" indicates the permitted acreage for landfilling instead of the total acreage of a landfill.

In addition, the compaction or conversion factor varies between landfills, as noted in Table 8-1, due to the different compaction machinery that is utilized at each of the landfills.

Table 8-1 : Existing Permitted Solid Waste Disposal Facilities

FACILITIES	A	B	C	D	E		F
	(1,000 tons)	(Acres)	(tpd)	(1,000 tons)	(1,000 cy)	(1,000 tons)	(Years)
Anza (1,2)	183	34	40	12	456	228	10±
Badlands (2)	930	141	1,400	430	12,604	7,563	16±
Blythe (1)	817	96	62	22	3,642	1,821	42±
Coachella	2,429	250	2,000	718	15,102	9,061	22±
Desert Center (1)	32	160	9	3	352	176	30±
Double Butte (2)	1,781	93	600	184	220	132	2±
Edom Hill	3,631	640	1,200	431	14,448	8,669	29±
El Sobrante (2)	1,598	90	2,000	614	7,982	4,789	11±
Highgrove	2,342	91	2,700	969	4,837	2,902	7±
Lamb Canyon	1,378	100	1,900	682	8,910	5,346	15±
Mead Valley (2)	1,134	89	1,100	338	2,443	1,466	7±
Mecca II (1,2)	86	53	50	15	603	301	27±
Oasis (1,2)	138	32	41	13	593	297	22±

Total Remaining Capacity in Cubic Yards : 72.2 Million Cubic Yards
 Total Remaining Capacity in Tons : 42.8 Million Tons
 Average Remaining Capacity in Cubic Yards : 5.6 Million Cubic Yards
 Average Remaining Capacity in Tons : 3.3 Million Tons
 Average Remaining Capacity in Years : 18.5± Years (As of 1/1/91)

LEGEND:

- A = Total Tonnage of Disposed Solid Waste (As of 12/31/91)
- B = Permitted Landfilling Acreage
- C = Permitted Daily Peak Capacity (Tons Per Day, tpd)
- D = Permitted Annual Peak Capacity (Tons Per Year, tpy)
- E = Remaining Capacity in Cubic Yards (cy) and in tons of Solid Waste (As of 12/31/91)
- F = Remaining Capacity in Years (As of 1/1/91)

NOTES: B, C, and D based on requested revised permit, unless otherwise noted.

F based on growth studies by linear regression of the landfills noted in the RDSI's

Landfills with current permits are shown in shade.

Conversion Factors:

- (1) Compaction density of these landfills is based on 1000 pounds per cubic yard. (Note: All other landfills are based on 1200 pounds per cubic yard.)
- (2) Operation of these landfills is based on an average of 307 days per year. (Note: All other landfills are based on an average of 359 days per year.)

Current Disposal Fees (1992)

Eight (8) of the thirteen (13) active landfills, Badlands, Coachella, Double Butte, Edom Hill, El Sobrante, Highgrove, Lamb Canyon, and Mead Valley, are "scaled" landfills and charge tipping fees. The current 1991 tipping fees of these landfills are as follows:

<u>Fee</u>	<u>Type</u>
\$31.50/ton	Routine Refuse
\$40.00/ton	Hard-to-Handle Waste
\$81.00/ton	Tires (13 or more)
\$15.00/ton	Clean Fill (Sand, Gravel)
\$10.00	Vans, Pickups, 2-Wheel Trailers Weighing Under 3.25 Tons
Free	Cars, Station Wagons

The other five (5) landfills, Anza, Blythe, Desert Center, Mecca II, and Oasis, do not have scales. Assessed land use fees are collected in lieu of tipping fees. These assessed land use fees, assessed to each property in the area, vary from \$23.00 to \$55.00 per ton and are based on the waste generation factor of each land use type. It is expected that these assessed land use fees will be raised, commencing July 1, 1992.

Remaining Facility Capacity

The remaining capacity of each of the County's landfills, in terms of cubic yards and years, is shown in Table 8-1, EXISTING PERMITTED SOLID WASTE DISPOSAL FACILITIES. The remaining capacity is based on the growth studies by linear regression in the Report of Disposal Site Information (RDSI), which is filed with the operating permit for each of the County's landfills.

III. FACILITY NEEDS PROJECTION

The solid waste disposal facility needs projection is based on an equation that determines whether there will be adequate landfill capacity to accommodate the disposal portion of the projected solid waste over the next fifteen (15) years, commencing in 1991.

The equation utilized to predict the additional capacity (AC) needs of Riverside County for each year (n) of the fifteen (15) year period is shown as follows:

$$AC_{Year\ n} = [(G + I) - (D + TC + LF + E)]_{Year\ n}$$

Solid Waste Generated (G)

"G" represents the total amount of solid waste projected to be generated in the unincorporated area of Riverside County, according to the Riverside County Waste Generation Study (Appendix A).

Solid Waste Imported (I)

"I" represents the total amount of solid waste projected to be imported to the County landfills for disposal from the incorporated areas within the County, according to the Riverside County Waste Generation Study (Appendix A). As noted previously, there are twenty-four (24) cities within Riverside County's jurisdiction. However, at the time the Waste Generation Study was compiled, the City of Murrieta had not yet incorporated. Consequently, "I" is representative of only twenty-three (23) cities and not twenty-four (24). The amount of solid waste to be imported from the City of Murrieta has been calculated in the waste generation figures for the unincorporated area of the County. In addition, "I" reflects only that portion of the waste stream that will be disposed after diversion; the residuals. In order to reflect reality, cities' waste disposed at County landfills is regarded as imported waste, despite the lack of formalized import/export agreements between cities and the County.

Solid Waste Diverted (D)

"D" represents the total amount of solid waste that will be diverted from the County's landfills in the unincorporated area of the County.

Transformation Facility Reduction (TC)

"TC" represents the total amount of solid waste that will be reduced through available, permitted transformation facilities. At this time, there are permitted transformation facilities within the jurisdiction of the County of Riverside. Therefore, the value of "TC" is zero (0), as indicated in Tables 8-2 & 8-3, which project future capacity needs based on a constant diversion rate (current) and AB 939 rates, respectively. However, it should be noted that Riverside County has executed an agreement with Colmac, Energy Inc., a proposed transformation facility in the Coachella area. This facility is discussed more fully in Chapter 6, "Special Wastes" and is listed under **Planned Disposal Facilities and Expansions** in the next section of this Chapter. Diversion through transformation is anticipated to begin in 1995, in accordance with the SRRE of the County (See Table 8-4).

Permitted Disposal Capacity (LF)

"LF" represents the total amount of permitted landfill capacity available in Riverside County at the beginning of each identified year. The "LF" for 1991 is based on the RDSI for each of the landfills.

Solid Waste Exported (E)

"E" represents the total amount of solid waste that would be exported to disposal facilities outside the jurisdiction of the County of Riverside. At this time, Riverside County does not export its solid waste, nor is this occurrence anticipated. Therefore, the value of "E" is zero (0).

Results of Facilities Needs Projection Equation

Tables 8-2, 8-3, and 8-4 each display the results of utilizing the equation for determining the facility needs of the County over the next 15 years. Whereas Table 8-2 assumes a constant 25.5 percent (%)

**Table 8-2 : Solid Waste Facility Needs Projection for 15 years
Based on Current Diversion Rate (25.5%, from Waste Generation Study)**

Year	Waste Generation		Disposal Capacity			Additional Capacity Needs		
	(G	+ I)	- (D	+ TC	+ LF	+ E)	= AC	
(Tons)								
1991	667,028	1,424,003	170,354	0	44,346,812	0	0	0
1992	687,560	1,467,895	175,597	0	42,426,135	0	0	0
1993	708,092	1,511,787	180,841	0	40,446,277	0	0	0
1994	728,624	1,555,680	186,085	0	38,407,239	0	0	0
1995	749,155	1,599,572	191,328	0	36,309,020	0	0	0
1996	769,687	1,643,464	196,572	0	34,151,621	0	0	0
1997	790,219	1,687,356	201,815	0	31,935,042	0	0	0
1998	810,751	1,731,248	207,059	0	29,659,282	0	0	0
1999	831,282	1,775,140	212,303	0	27,324,342	0	0	0
2000	851,814	1,819,033	217,546	0	24,930,223	0	0	0
2001	872,346	1,862,925	222,790	0	22,476,922	0	0	0
2002	892,878	1,906,817	228,034	0	19,964,441	0	0	0
2003	913,409	1,950,710	233,277	0	17,392,780	0	0	0
2004	933,941	1,994,602	238,521	0	14,761,938	0	0	0
2005	954,473	2,038,494	243,765	0	12,116,916	0	0	0

- Notes:
- 1) The City of Murrieta was not incorporated at the time of the Waste Generation study. The waste generation projection for Murrieta was included in the County's projection.
 - 2) Since the County does not have an available transformation facility, "TC" is equal to "0". Diversion under "TC" is projected in Table 8-4, based on SRRE implementation.
 - 3) I is the total amount of solid waste for disposal at County landfills, "imported" from the incorporated cities of Riverside County excluding Murrieta, although there are no formalized import/export agreements between the cities and the County.
 - 4) D is the diverted waste from the waste stream of the County's unincorporated area.
 - 5) The number "0" for the AC projection represents a qualitative conclusion that no additional capacity will be needed; not the actual value of the parameter.

Table 8-3 : Solid Waste Facility Needs Projection for 15 years
Based on AB 939 Diversion Rates

Year	Waste Generation		Disposal Capacity			Additional Capacity Needs		
	(G	+ I)	- (D	+ TC	+ LF	+ E)	= AC	
				(Tons)				
1991	667,028	1,424,003	170,354	0	44,346,812	0	0	0
1992	687,560	1,467,895	175,597	0	42,426,135	0	0	0
1993	708,092	1,511,787	180,841	0	40,446,277	0	0	0
1994	728,624	1,555,680	186,085	0	38,407,239	0	0	0
1995	749,155	1,599,572	187,289	0	36,309,020	0	0	0
1996	769,687	1,643,464	192,422	0	34,147,582	0	0	0
1997	790,219	1,687,356	197,555	0	31,926,853	0	0	0
1998	810,751	1,731,248	202,688	0	29,646,832	0	0	0
1999	831,282	1,775,140	207,821	0	27,307,521	0	0	0
2000	851,814	1,819,033	425,907	0	24,908,920	0	0	0
2001	872,346	1,862,925	436,173	0	22,663,980	0	0	0
2002	892,878	1,906,817	446,439	0	20,364,882	0	0	0
2003	913,409	1,950,710	456,705	0	18,011,626	0	0	0
2004	933,941	1,994,602	466,971	0	15,604,211	0	0	0
2005	954,473	2,038,494	477,237	0	13,142,639	0	0	0

- Notes:
- 1) The City of Murrieta was not incorporated at the time of the Waste Generation study. The waste generation projection for Murrieta was included in the County's projection.
 - 2) Since the County does not have an available transformation facility, "TC" is equal to "0". Diversion under "TC" is projected in Table 8-4, based on SRRE implementation.
 - 3) I is the total amount of solid waste for disposal at County landfills, "imported" from the incorporated cities of Riverside County excluding Murrieta, although there are no formalized import/export agreements between the cities and the County.
 - 4) D is the diverted waste from the waste stream of the County's unincorporated area.
 - 5) The number "0" for the AC projection represents a qualitative conclusion that no additional capacity will be needed; not the actual value of the parameter.

**Table 8-4 : Solid Waste Facility Needs Projection for 15 years
Based on the Implementation of the SRRE Including Inert Solids**

Year	Waste Generation			Disposal Capacity				Additional Capacity Need					
	(G	+	I)	-	(D	+	TC	+	LF	+	E)	=	AC
(Tons)													
1991	667,028		1,424,003		186,768		0		44,346,812		0		0
1992	687,560		1,467,895		206,268		0		42,442,549		0		0
1993	708,092		1,511,787		240,751		0		40,493,362		0		0
1994	728,624		1,555,680		320,595		0		38,514,234		0		0
1995	749,155		1,599,572		337,344		44,725		36,550,525		0		0
1996	769,687		1,643,464		366,844		48,787		34,583,867		0		0
1997	790,219		1,687,356		395,678		54,747		32,586,347		0		0
1998	810,751		1,731,248		429,684		56,767		30,559,197		0		0
1999	831,282		1,775,140		447,653		59,429		28,503,648		0		0
2000	851,814		1,819,033		458,709		60,898		26,404,308		0		0
2001	872,346		1,862,925		469,766		62,365		24,253,068		0		0
2002	892,878		1,906,817		480,823		63,833		22,049,928		0		0
2003	913,409		1,950,710		491,878		65,301		19,794,888		0		0
2004	933,941		1,994,602		502,935		66,769		17,487,949		0		0
2005	954,473		2,038,494		513,993		68,236		15,129,110		0		0

- Notes:
- 1) The City of Murrieta was not incorporated at the time of the Waste Generation study. The waste generation projection for Murrieta was included in the County's projection.
 - 2) It is expected that transformation can receive diversion credits by 1995. The unincorporated County plans to divert at least 8% of its yard waste and from 65% to 81% of its wood waste to the Colmac Energy Inc. facility and/or other transformation facilities, commencing in 1995.
 - 3) I is the total amount of solid waste for disposal at County landfills "imported" from the incorporated cities of Riverside County excluding Murrieta, although there are currently no formalized import/export agreements between the cities and County.
 - 4) D is the diverted waste from the waste stream of the County's unincorporated area.
 - 5) The number "0" for the AC projection represents a qualitative conclusion that no additional capacity will be needed; not the actual value of the parameter.
 - 6) The diversion rate for each of the 15 years is listed in Table 8-5.

diversion throughout the next 15 years (Riverside County Waste Generation Study), Table 8-3 assumes a diversion of 25 percent (%) of the waste stream by 1995 and 50 percent (%) by the year 2000 (AB 939). Table 8-4 is based on diversion rates as a result of the implementation of the SRRE.

As shown in Table 8-2, the County will have sufficient disposal capacity if no other source reduction or recycling activities, other than those in place at this time, are implemented. According to the Riverside County Waste Generation Study (Appendix A), the County currently diverts 25.5 percent (%) of its waste stream from its landfills.

As shown in Table 8-3, the County will also have sufficient disposal capacity if the AB 939 diversion requirements of 25 percent (%) by 1995 and 50 percent (%) by the year 2000 are met.

As shown in Table 8-5, SOLID WASTE DIVERSION for the unincorporated area of Riverside County, the County is anticipating that, through its planned diversion programs, 51% of its waste stream will be diverted by 1995 and 61% by the year 2000, if construction and demolition waste is included as a credit, and 38% and 51%, if construction and demolition waste is not included as a credit. This shows that by utilizing the projection needs equation as was done, the County has been conservative in its estimation of the amount of diversion of solid waste, in order to ensure that there will be sufficient landfill capacity to meet the County's needs.

IV. SOLID WASTE EXPORTATION AND FUTURE PLANS FOR DISPOSAL FACILITIES

Solid Waste Exportation

The exportation of County-generated solid waste to disposal facilities outside of Riverside County is not anticipated to occur.

Planned Disposal Facilities and Expansions

To achieve the mandated diversion goals of AB 939 and to ensure the remaining capacities of the County's landfills, Riverside County is developing a regional system of waste processing facilities, as discussed in Chapter 4. This regional network of facilities will include composting facilities, transformation facilities, and transfer stations/materials recovery facilities (MRF's), along with the proposed expansions of the Lamb Canyon Landfill and the El Sobrante Landfill. These types of facilities will be operated for the benefit of both the unincorporated and the incorporated areas of the County and will enhance the current landfill system.

Table 8-6, NEW AND EXPANDED FACILITIES, identifies the new disposal facilities and landfill expansions that are planned to be operational in the short-term (1991 - 1995) and the medium-term (1996 - 2000) planning periods. More detailed discussion of the RECYC, Inc., and the Chino-Corona Farms, Inc., facilities can be found in Chapter 5, "Composting Component", and in Chapter 6, "Special Wastes"; Whitefeather Farms in Chapter 5 and the Colmac Energy Inc. facility in Chapter 6.

One of the new facilities identified in Table 8-6 is the Eagle Mountain Landfill. While this private landfill will offer available capacity to Riverside County, it is currently proposed as a regional, Class III, nonhazardous solid waste landfill, primarily serving the solid waste disposal needs of several jurisdictions located within Los Angeles and other neighboring Counties. The landfill, which is

Table 8-5: 15 Year Solid Waste Projections under Conditions Expected to exist after the Implementation of the SRRE – Solid Waste Generated

Unincorporated		Weight (in tons) as of December of each Year															
CIWMB Waste Categories		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Unincorporated Area Population:		343,963	354,887	365,810	376,734	387,658	398,582	409,505	420,429	431,353	442,277	453,200	464,124	475,048	485,972	496,895	507,819
Change:			3.18%	3.08%	2.99%	2.90%	2.82%	2.74%	2.67%	2.60%	2.53%	2.47%	2.41%	2.35%	2.30%	2.25%	2.20%
1. Paper																	
a. Corrugated Containers		57,058	58,870	60,682	62,495	64,307	66,119	67,931	69,743	71,555	73,367	75,179	76,991	78,803	80,615	82,427	84,240
b. Mixed Paper		27,973	28,861	29,750	30,638	31,527	32,415	33,303	34,192	35,080	35,968	36,857	37,745	38,634	39,522	40,410	41,299
c. Newspaper		23,977	24,739	25,500	26,262	27,023	27,785	28,546	29,308	30,069	30,831	31,592	32,354	33,115	33,877	34,638	35,400
d. High Grade Ledger Paper		1,013	1,045	1,077	1,109	1,141	1,174	1,206	1,238	1,270	1,302	1,334	1,366	1,399	1,431	1,463	1,495
e. Other Paper		17,119	17,663	18,206	18,750	19,294	19,837	20,381	20,925	21,468	22,012	22,556	23,099	23,643	24,187	24,730	25,274
2. Plastics																	
a. High-Density Polyethylene (HDPE)		5,482	5,656	5,830	6,004	6,178	6,352	6,526	6,700	6,874	7,049	7,223	7,397	7,571	7,745	7,919	8,093
b. Polyethylene Terephthalate (PET)		597	616	635	654	673	692	711	730	749	768	786	805	824	843	862	881
c. Film Plastics		2,595	2,677	2,760	2,842	2,925	3,007	3,089	3,172	3,254	3,337	3,419	3,502	3,584	3,666	3,749	3,831
d. Other Plastics		9,006	9,292	9,578	9,864	10,150	10,436	10,722	11,008	11,294	11,580	11,866	12,152	12,438	12,724	13,010	13,296
3. Glass																	
a. Refillable Glass Beverage Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. California Redemption Value Glass		2,944	3,037	3,130	3,224	3,317	3,411	3,504	3,598	3,691	3,785	3,878	3,972	4,065	4,159	4,252	4,346
c. Other Recyclable Glass		6,258	6,457	6,656	6,854	7,053	7,252	7,451	7,649	7,848	8,047	8,246	8,444	8,643	8,842	9,041	9,239
d. Other Non-Recyclable Glass		372	384	396	408	420	431	443	455	467	479	491	502	514	526	538	550
4. Metals																	
a. Aluminum Cans		1,294	1,335	1,376	1,417	1,458	1,499	1,540	1,581	1,622	1,663	1,705	1,746	1,787	1,828	1,869	1,910
b. Bi-Metal Containers		122	126	130	133	137	141	145	149	153	157	160	164	168	172	176	180
c. Ferrous Metals and Tin Cans		23,695	24,447	25,200	25,952	26,705	27,457	28,210	28,962	29,715	30,467	31,220	31,972	32,725	33,477	34,230	34,982
d. Non-Ferrous Metals Incl. Aluminum		2,153	2,222	2,290	2,358	2,427	2,495	2,564	2,632	2,700	2,769	2,837	2,906	2,974	3,042	3,111	3,179
e. White Goods		3,308	3,413	3,518	3,623	3,728	3,834	3,939	4,044	4,149	4,254	4,359	4,464	4,569	4,674	4,779	4,884
5. Yard Waste, Incl. Leaves, Grass		95,381	98,410	101,439	104,468	107,498	110,527	113,556	116,585	119,614	122,643	125,672	128,702	131,731	134,760	137,789	140,818
6. Other Organics																	
a. Food Waste		21,193	21,866	22,539	23,212	23,885	24,558	25,231	25,904	26,577	27,250	27,923	28,596	29,270	29,943	30,616	31,289
b. Tires and Rubber Products		5,484	5,658	5,832	6,007	6,181	6,355	6,529	6,703	6,877	7,052	7,226	7,400	7,574	7,748	7,922	8,097
c. Wood Wastes		47,640	49,153	50,666	52,179	53,692	55,205	56,718	58,231	59,744	61,257	62,770	64,283	65,796	67,309	68,822	70,335
d. Agricultural Wastes		472	487	502	517	532	547	562	577	592	607	622	637	652	667	682	697
e. Manure		1,772	1,777	1,832	1,887	1,941	1,996	2,051	2,105	2,160	2,215	2,269	2,324	2,379	2,434	2,488	2,543
f. Textiles and Leather		7,131	7,357	7,584	7,810	8,037	8,263	8,490	8,716	8,943	9,169	9,396	9,622	9,848	10,075	10,301	10,528
7. Other Wastes																	
a. Inert Solids, Incl. Rock, Concrete		188,785	194,780	200,776	206,771	212,767	218,762	224,758	230,753	236,749	242,744	248,740	254,735	260,731	266,726	272,722	278,717
b. Household Hazardous Wastes		2,926	3,019	3,112	3,205	3,298	3,391	3,484	3,577	3,670	3,763	3,856	3,949	4,042	4,135	4,228	4,320
8. Special Wastes																	
a. Ash		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. Sewage Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Industrial Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Asbestos		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Auto Shredder Waste		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Auto Bodies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g. Other Special Wastes		85,361	88,072	90,783	93,494	96,205	98,916	101,627	104,338	107,049	109,760	112,470	115,181	117,892	120,603	123,314	126,025
9. Sheetrock		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. Disposable Diapers		5,436	5,608	5,781	5,954	6,126	6,299	6,472	6,644	6,817	6,989	7,162	7,335	7,507	7,680	7,853	8,025
Totals		646,497	667,028	687,560	708,092	728,624	749,155	769,687	790,219	810,751	831,282	851,814	872,346	892,878	913,409	933,941	954,473

Table 8-5: 15 Year Solid Waste Projections under Conditions Expected to exist after the Implementation of the SRRE - Solid Waste Disposed

Unincorporated CIWMB Waste Categories		Weight (in tons) as of December of each Year																	
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		
1. Paper																			
a. Corrugated Containers		45,997	45,330	42,478	39,372	35,754	33,721	31,927	29,989	27,906	28,540	29,245	29,950	30,654	31,359	32,064	32,769		
b. Mixed Paper		26,081	26,841	27,072	27,268	27,176	23,987	21,980	18,122	15,260	14,064	14,411	14,758	15,106	15,453	15,800	16,148		
c. Newspaper		23,390	19,791	16,575	14,444	12,431	11,670	10,562	10,551	10,524	10,482	10,741	11,000	11,259	11,518	11,777	12,036		
d. High Grade Ledger Paper		1,013	1,034	1,034	976	932	933	940	941	946	949	973	996	1,020	1,043	1,067	1,090		
e. Other Paper		17,119	17,663	18,024	18,375	18,715	19,143	19,566	19,878	20,180	20,625	21,135	21,644	22,154	22,663	23,172	23,682		
2. Plastics																			
a. High – Density Polyethylene (HDPE)		5,462	5,463	5,451	5,374	4,757	4,129	3,263	2,345	2,200	1,974	2,022	2,071	2,120	2,169	2,217	2,266		
b. Polyethylene Terephthalate (PET)		558	542	476	471	444	429	355	350	352	353	362	370	379	388	397	405		
c. Film Plastics		2,595	2,677	2,732	2,785	2,834	2,902	2,966	3,013	3,059	3,127	3,204	3,281	3,358	3,435	3,513	3,590		
d. Other Plastics		8,996	9,255	9,425	9,568	9,642	9,549	9,435	9,357	8,922	8,882	9,101	9,321	9,540	9,759	9,979	10,198		
3. Glass																			
a. Refillable Glass Beverage Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
b. California Redemption Value Glass		2,269	2,187	1,972	1,773	1,791	1,774	1,682	1,763	1,772	1,817	1,862	1,906	1,951	1,996	2,041	2,086		
c. Other Recyclable Glass		6,218	5,230	4,459	3,907	3,738	3,626	3,427	3,442	3,453	3,380	3,463	3,547	3,630	3,714	3,797	3,881		
d. Other Non – Recyclable Glass		372	384	396	408	420	431	443	455	467	479	491	502	514	526	538	550		
4. Metals																			
a. Aluminum Cans		592	547	482	468	437	420	354	332	324	316	324	332	339	347	355	363		
b. Bi – Metal Containers		122	126	130	133	137	141	145	149	153	157	160	164	168	172	176	180		
c. Ferrous Metals and Tin Cans		23,695	23,958	24,192	23,876	20,830	20,044	18,054	16,798	16,343	15,843	16,234	16,626	17,017	17,408	17,800	18,191		
d. Non – Ferrous Metals Incl. Aluminum		2,153	2,177	2,198	2,170	1,893	1,822	1,641	1,527	1,485	1,440	1,475	1,511	1,546	1,582	1,618	1,653		
e. White Goods		3,308	3,410	3,501	3,569	1,413	1,246	1,221	1,213	1,162	1,136	1,164	1,192	1,220	1,248	1,276	1,304		
5. Yard Waste, Incl. Leaves, Grass		95,381	91,521	90,281	81,485	33,109	33,711	28,673	29,146	23,624	23,915	24,506	25,097	25,687	26,278	26,869	27,460		
6. Other Organics																			
a. Food Waste		18,665	19,242	19,834	20,427	21,019	21,611	22,203	22,796	23,388	23,980	24,573	25,165	25,757	26,349	26,942	27,534		
b. Tires and Rubber Products		5,135	5,319	5,360	4,661	4,160	3,832	3,343	2,963	2,827	2,828	2,898	2,967	3,037	3,107	3,177	3,247		
c. Wood Wastes		46,920	48,170	49,146	50,092	51,115	17,666	14,747	9,899	9,260	8,086	8,286	8,485	8,685	8,885	9,084	9,284		
d. Agricultural Wastes		472	487	502	517	532	547	562	577	592	607	622	637	652	667	682	697		
e. Manure		1,722	1,777	1,832	1,887	1,941	1,996	2,051	2,105	2,160	2,215	2,269	2,324	2,379	2,434	2,488	2,543		
f. Textiles and Leather		7,029	7,284	7,432	7,498	7,482	7,685	7,811	7,845	7,959	8,060	8,259	8,458	8,657	8,856	9,055	9,254		
7. Other Wastes																			
a. Inert Solids, Incl. Rock, Concrete		45,349	44,799	44,171	43,422	42,553	39,377	35,961	34,920	37,880	38,839	39,798	40,758	41,717	42,676	43,635	44,595		
b. Household Hazardous Wastes		2,976	3,019	3,112	3,205	3,298	3,391	3,484	3,577	3,670	3,763	3,856	3,949	4,042	4,135	4,228	4,320		
8. Special Wastes																			
a. Ash		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
b. Sewage Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
c. Industrial Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
d. Asbestos		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
e. Auto Shredder Waste		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
f. Auto Bodies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
g. Other Special Wastes		85,361	87,191	89,875	92,559	93,319	95,948	98,578	94,947	95,273	95,491	97,849	100,208	102,566	104,925	107,283	109,642		
9. Sheetrock		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10. Disposable Diapers		5,436	5,608	5,723	5,835	5,943	6,079	6,213	6,312	6,408	6,549	6,711	6,873	7,034	7,196	7,358	7,520		
Totals		484,336	481,035	477,865	466,523	407,816	367,807	351,589	337,313	327,550	327,894	335,993	344,092	352,190	360,289	368,388	376,486		

Table 8-5: 15 Year Solid Waste Projections under Conditions Expected to exist after the Implementation of the SRRB - Solid Waste Diverted

CIWMB Waste Categories	Weight (in tons) as of December of each Year															
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Paper																
a. Corrugated Containers	11,061	13,540	18,205	23,123	28,552	32,398	36,003	39,753	43,649	44,827	45,934	47,042	48,149	49,256	50,363	51,470
b. Mixed Paper	1,892	2,020	2,677	3,370	4,351	8,428	11,323	16,070	19,820	21,905	22,446	22,987	23,528	24,069	24,610	25,151
c. Newspaper	587	4,948	8,925	11,818	14,593	16,115	17,984	18,757	19,545	20,348	20,851	21,353	21,856	22,359	22,861	23,364
d. High Grade Ledger Paper	0	10	43	133	209	241	265	297	324	353	362	370	379	388	396	405
e. Other Paper	0	0	182	375	579	694	815	1,046	1,288	1,387	1,421	1,455	1,490	1,524	1,558	1,592
2. Plastics																
a. High – Density Polyethylene (HDPE)	20	192	379	630	1,421	2,223	3,263	4,355	4,675	5,075	5,200	5,326	5,451	5,576	5,702	5,827
b. Polyethylene Terephthalate (PET)	39	74	159	183	229	263	355	379	397	414	425	435	445	455	466	476
c. Film Plastics	0	0	28	57	91	105	124	159	195	210	215	221	226	231	236	241
d. Other Plastics	10	37	153	296	507	887	1,287	1,651	2,372	2,698	2,765	2,831	2,898	2,965	3,031	3,098
3. Glass																
a. Refillable Glass Beverage Containers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. California Redemption Value Glass	675	850	1,158	1,451	1,526	1,637	1,822	1,835	1,920	1,968	2,017	2,065	2,114	2,163	2,211	2,260
c. Other Recyclable Glass	40	1,227	2,196	2,947	3,315	3,626	4,023	4,207	4,395	4,667	4,783	4,898	5,013	5,128	5,244	5,359
d. Other Non – Recyclable Glass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Metals																
a. Aluminum Cans	702	788	894	949	1,021	1,079	1,186	1,249	1,298	1,347	1,381	1,414	1,447	1,481	1,514	1,547
b. Bi–Metal Containers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Ferrous Metals and Tin Cans	0	489	1,008	2,076	5,875	7,413	10,156	12,164	13,372	14,624	14,986	15,347	15,708	16,069	16,430	16,792
d. Non – Ferrous Metals Incl. Aluminum	0	44	92	189	534	674	923	1,105	1,215	1,329	1,362	1,395	1,427	1,460	1,493	1,526
e. White Goods	0	3	18	54	2315	2,588	2,718	2,831	2,987	3,118	3,195	3,272	3,349	3,426	3,503	3,580
5. Yard Waste, Incl. Leaves, Grass	0	6,889	11,158	22,983	74,388	76,816	84,883	87,439	95,990	98,728	101,166	103,605	106,043	108,482	110,920	113,359
6. Other Organics																
a. Food Waste	2,528	2,624	2,705	2,785	2,866	2,947	3,028	3,109	3,189	3,270	3,351	3,432	3,512	3,593	3,674	3,755
b. Tires and Rubber Products	349	339	472	1,345	2,021	2,523	3,186	3,740	4,051	4,224	4,328	4,433	4,537	4,641	4,745	4,850
c. Wood Wastes	720	983	1,520	2,087	2,577	37,539	41,971	48,332	50,484	53,171	54,484	55,797	57,111	58,424	59,737	61,050
d. Agricultural Wastes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Manure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Textiles and Leather	102	74	152	312	555	578	679	872	984	1,109	1,137	1,164	1,192	1,219	1,246	1,274
7. Other Wastes																
a. Inert Solids, Incl. Rock, Concrete	143,436	149,981	156,605	163,349	170,213	179,385	188,796	193,833	198,869	203,905	208,941	213,977	219,014	224,050	229,086	234,122
b. Household Hazardous Wastes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Special Wastes																
a. Ash	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. Sewage Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Industrial Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Asbestos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Auto Shredder Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Auto Bodies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g. Other Special Wastes	0	881	908	935	2,886	2,967	3,049	9,390	11,775	14,269	14,621	14,974	15,326	15,678	16,031	16,383
9. Sheetrock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. Disposable Diapers	0	0	58	119	184	220	259	332	409	440	451	462	473	484	495	506
Totals	162,161	185,994	209,695	241,569	320,807	381,348	418,099	452,906	483,201	503,388	515,821	528,254	540,687	553,120	565,554	577,987
Total % Diverted	25%	28%	30%	34%	44%	51%	54%	57%	60%	61%	61%	61%	61%	61%	61%	61%
Total % Diverted w/out Inert Solids	4%	8%	11%	16%	29%	38%	42%	46%	50%	51%	51%	51%	51%	51%	51%	51%

Table 8-6: NEW AND EXPANDED FACILITIES

NAME OF FACILITY (Type of Facility)	SHORT-TERM OR MEDIUM-TERM	NEW OR EXPANDED FACILITY
1. CHINO-CORONA FARMS, INC. (Composting)	SHORT-TERM	NEW
2. RECYC INC. (Composting)	SHORT-TERM	NEW
3. WHITEFEATHER FARMS (Composting)	SHORT-TERM	NEW
4. COLMAC (Transformation Facility)	SHORT-TERM	NEW
5. COACHELLA MRF's (2) (Transfer Station / MRF)	SHORT-MEDIUM TERM MEDIUM-TERM	NEW NEW
6. CORONA MRF (Transfer Station / MRF)	MEDIUM-TERM	NEW
7. LAMB CANYON MRF (MRF)	SHORT-MEDIUM TERM	NEW
8. PERRIS MRF (Transfer Station / MRF)	SHORT-TERM	NEW
9. MORENO VALLEY MRF (Transfer Station / MRF)	SHORT-TERM	NEW
10. MURRIETA MRF (Transfer Station / MRF)	MEDIUM-TERM	NEW
11. NORTH RIVERSIDE COUNTY MRF (Transfer Station / MRF)	SHORT-TERM	NEW
12. EL SOBRANTE LANDFILL (Landfill)	MEDIUM-TERM	EXPANDED
13. LAMB CANYON LANDFILL (Landfill)	MEDIUM-TERM	EXPANDED
14. EAGLE MOUNTAIN LANDFILL (Landfill)	SHORT-MEDIUM TERM	NEW

The short-term planning period represents the years 1991 through 1995.

The medium-term planning period represents the years 1996 through 2000.

Table 8-7: SOLID WASTE FACILITY CLOSURES

LANDFILLS	CLOSURE DURING SHORT TERM/LONG TERM	WASTE DISPOSAL (Outcome Alternative)	ANTICIPATED EFFECT
DOUBLE BUTTE	Short-term	Replacement/ Diversion	Moderate
HIGHGROVE	Medium-term	Replacement/ Diversion	Moderate
MEAD VALLEY	Medium-term	Diversion	Moderate
ANZA	Medium-term	Diversion	Minor

1. The short-term planning period represents the years 1991 through 1995.
The medium-term planning period represents the years 1996 through 2000.
2. The Double Butte Landfill will be replaced by a transfer station/materials recovery facility (MRF). The facility will have a sufficient capacity to accommodate the Double Butte waste stream. After processing, remaining waste materials will be taken to the Lamb Canyon Landfill. The effect upon the solid waste disposal needs of the Double Butte Regional Service Area will be moderate.
3. The Highgrove Landfill will be replaced by a transfer station/MRF which will have a sufficient capacity to accommodate the Highgrove waste stream. After processing, waste residual will be taken to the Badlands Landfill. The effect upon the solid waste disposal needs of the Highgrove Regional Service Area will be minimal.
4. It is anticipated that the Mead Valley waste stream will be partially diverted to the Moreno Valley MRF, beginning in 1993, and, after processing, the waste residual may be transferred back to Mead Valley or to Badlands to be landfilled. After Mead Valley closure, its waste stream may be processed by one or more MRF's located in neighboring wastesheds, and the waste residual will be mainly landfilled at Lamb Canyon. The effect upon the solid waste disposal needs of the Mead Valley Regional Service Area will be moderate.
5. Upon closure of the Anza Landfill, its waste stream will be diverted to the Lamb Canyon Landfill. The effect upon the existing solid waste disposal area will be minimal.

currently going through the permitting stage, will be a 730,000,000 ton facility, processing 20,000 tons per day (tpd). Its life is projected at more than 99 years to a maximum of approximately 120 years. Riverside County has reserved disposal capacity of 2,000 tpd after the year 2000, if the facility gets permitted. Since Riverside County does not need this landfill to meet its short-term or medium-term waste disposal needs, the capacity of the Eagle Mountain Landfill has not been utilized in any of the facilities needs projections, nor has the importation of waste to this facility been attributed to the County's landfill system.

The County has also negotiated a preliminary agreement with Western Waste Industries to expand the El Sobrante Landfill to the northeast of the current fill area. The proposed expansion is projected to extend the landfill's capacity approximately 60 million tons, with 25 million tons of this being reserved for the County and the balance reserved for Western Waste customers from nearby out-of-County cities. This expansion, which is planned to be permitted for 10,000 tpd, will extend the life of the landfill an estimated 35 years.

Disposal Facility Closures

Table 8-7, SOLID WASTE FACILITY CLOSURES, identifies the Double Butte Landfill for closure in the short-term (1991 - 1995) planning period, while the Anza, Highgrove, and Mead Valley Landfills are targeted for closure in the medium-term planning period (1996 - 2000). Due to the planned transfer stations and materials recycling facilities, the anticipated effect of each of these closures on the solid waste disposal needs of the County will be minor to moderate.

CHAPTER 9

Funding Component

CHAPTER 9 - FUNDING COMPONENT

INTRODUCTION

The ability to fund the measures set forth in this precursory element to the future Integrated Waste Management Plan for Riverside County is crucial in meeting the mandates of AB 939. Implementation of the programs contained within both the Source Reduction and Recycling and the Household Hazardous Waste Elements will be phased in through the end of this decade (Please reference the Household Hazardous Waste Element for a discussion of the funding for those programs). Likewise, the funding for implementation will be procured on an as needed basis to bring programs online in a timely manner to meet both the year 1995 and 2000 diversion goals.

This component is presented in two parts. Part I addresses the ways and means of funding the various component programs, in the order in which they appear, which are strictly in response to the County meeting its obligation under AB 939 for the unincorporated areas only. Part II introduces a funding plan for implementing a regional diversion program(s) whereby the pursuit of compliance of the subject State mandates will involve the County as well as some or all of its municipalities.

PART I

Component Funding Requirements

Source Reduction Component Funding

Source reduction is the area in which the average County resident can have the largest impact on the amount of the waste stream, and the amount of waste stream reduction relative to cost of program implementation can be the highest.

The largest element of the Source Reduction component is the implementation of a backyard composting program. Staff costs will be funded by the Waste Management Department, the County General Services Administration, the County Planning Department, and other County department budgets. Other start-up costs for the backyard composting program include publicity flyers, and composting bins. Demonstration sites that are part of a related Source Reduction Program would also contribute to the backyard composting program. These costs could be funded either through public or private sector funds, or through a combination of the two. The County may choose to subsidize the purchase of the composting bins to encourage participation in the program. The County will consider application to technical assistance programs from the State and any applicable grants for financial assistance. Because the program will be ongoing and will require continued publicity campaigns and possibly distribution of composting bins, funds will be required from the Waste Management Department on an annual basis.

Recycling Component Funding

The primary element in the County's Recycling Component will be the use of materials recovery facilities which will recover recyclable materials from the County's either totally or partially mixed/separated waste stream. Even though processing of waste in this manner may be both capital and

labor intensive, processing facilities will be required to sort through collected recyclables in order to prepare them for market and meet the State mandates. Since these facilities are proposed to be regional, the costs for them will be discussed in Part II.

The cost of implementation of the County's Recycling component includes staff costs and other public implementation costs which are primarily for the establishment of County sponsored drop-off centers in rural areas of the County. Initial estimates indicate that the Anza and Desert Center regions will each require a drop-off center. Staff costs will be paid out of the Enterprise Fund of the Waste Management Department. Costs associated with the establishment of the drop-off centers will be covered by County Waste Management funds, with potential contingency sources from MRF operator(s), or the issuance of bonds.

Composting Component Funding

The primary element in the County's Composting Component is a system of dedicated yard waste composting facilities, which will accept "clean green" waste. This is green and woody waste which has not been mixed with other types of solid waste. The cost advantages to "clean green" composting facilities are the reduced cost associated with handling the clean green waste as opposed to handling mixed municipal waste and the improved quality of the compost product. These composting facilities may be sited separately, or along with a materials recovery facility. The County is also considering the use of mixed waste composting facilities, which in combination with recycling technologies would dramatically reduce the amount of material sent to a landfill from a facility. Since these facilities are proposed to be regional, the costs for them will be discussed in Part II.

Special Waste Component Funding

The handling of special wastes, including but not limited to tires, sewage sludge, incinerator ash, construction and demolition debris and white goods (e.g. household appliances) is an area in which the County has an opportunity to encourage the private sector to manage the waste stream in ways which are most environmentally sound and economically efficient. These include the encouragement of tire recycling and reuse, the encouragement of construction and demolition debris recycling, and the encouragement of disposal of applicable liquid wastes at wastewater treatment facilities along with the dedication of capacity sufficient to handle the sewage and other applicable liquid waste output of the County. The costs associated with this Component are primarily staff costs which will be funded from the Waste Management Department disposal fee revenues and any available state and federal grant proceeds. Recycling facilities for special wastes may be required and would have capital requirements, but it is anticipated that the private sector would own and operate these facilities.

Public Education and Information Component Funding

The cost of implementation of the Public Education and Information Component includes staff costs and costs of supplies for programs to educate the public. These costs will be funded from Waste Management Department revenues. Programs selected for implementation include a technical assistance program, development and distribution of brochures, a speakers bureau and media campaigns.

Estimated Annual Implementation Costs for the Short-Term Planning Period

Table 9 - 1 depicts the estimated public costs of the Source Reduction and Recycling Element for the short-term planning period (1990-1995). It includes the estimated implementation and operational costs. Staff costs are not included in these estimates, but, can be found, along with the estimated staff hours required for implementation after Table 9 - 1.

Table 9 - 1 Summary of Estimated Short-Term PUBLIC Implementation Costs				
Component	1992	1993	1994	1995
Source Reduction ¹	400	150,200	202,000	99,400
Recycling ²	500	500	283,500	88,500
Composting	1,300	1,500	1,500	1,600
Special Wastes	200	200	200	200
Education and Public Information	0	146,200	80,300	81,600
Total	\$2,400	\$298,600	\$567,500	\$271,300
Cost per Ton ³	\$0.001	\$0.16	\$0.30	\$0.15

Estimated Staff Hours

The implementation of the programs identified in each of the components will require staff time from the Waste Management Department and other County agencies, as identified, in the Elements. It is estimated that approximately 31,250 total staff hours will be required throughout the short-term planning period (1990 - 1995) for the Waste Management Department and 6,300 total staff hours for other County agencies which will be funded through their typical mechanisms. The Waste Management Department Staff costs equate to \$875,000 dollars if full-time staff are utilized. It should be noted, however, that the Waste Management Department may cover its required staff hours through full-time staff, part-time staff, volunteers and/or consultants. Each program will be evaluated at the time of implementation to determine which staff option would be most appropriate and cost effective.

¹The estimated costs for the Source Reduction Component include those for the Backyard Composting program which could be funded either entirely by the public sector, entirely by the private sector or through a combination of both.

²Estimated costs include a drop-off center projected for the Anza area. This facility could be either publicly or privately operated.

³Cost per ton equals the total cost for each year divided by the actual 1990 tonnage, 1,861,500.

Revenue Sources

The Waste Management Department receives all of its revenues from landfill operations. All landfills within the County are operated either directly by or through contract with the County. At present there are no active or permitted landfills within any of its municipalities. Riverside County owns/leases and operates twelve landfills and has control over a thirteenth landfill through a long-term service agreement with Western Waste Industries, Inc. The County's solid waste system operates as an Enterprise Fund of the County, funded by tipping fees at seven of the County owned landfills, tipping fees at the El Sobrante Landfill (owned and operated by Western Waste Industries); and land use assessment fees for small, remote landfills. The tipping fees, which must cover operations at the landfills and administration by the Department, are approved by the Riverside County Board of Supervisors.

Funding of the public costs for the unincorporated area programs will come from the Waste Management Department Enterprise Fund. Table 9 - 1 shows the amount the recycling portion of the tipping fee would need to be to cover solely the implementation and annual operating costs of the component programs. This portion is calculated based upon the total 1990 tonnage because it is impossible to accurately determine the total tonnage for the upcoming years. Where feasible, grants will be sought to cover implementation and operating costs.

Estimated Private Implementation Costs and Revenue Sources

Some of the programs selected by the County will implemented by the private sector. Table 9 - 2 shows a listing of these programs and their approximate costs.

Table 9 - 2					
Summary of Estimated Short-Term PRIVATE Implementation Costs					
Program	1991	1992	1993	1994	1995
White Goods Collection during Trashbusters	0	600	600	600	600
Drop-off Center	0	0	0	106,000	94,000
Curbside Collection of Green Waste	0	0	19,886,000	4,950,000	4,950,000
Christmas Tree Collection Program	0	1,600	1,600	1,600	1,600
Staging Area for Yard/ Woody Waste at Landfills	950,000	1,900,000	1,900,000	1,900,000	1,900,000

Table 9 - 2 Summary of Estimated Short-Term PRIVATE Implementation Costs					
Demolition Materials Recycling Facilities	0	0	0	225,000	0
Wood Grinding Facilities	0	0	0	350,000	0
Total Private Cost	\$950,000	\$1,902,200	\$21,788,200	\$7,532,600	\$6,945,600

Note: Public sector costs are reflected in Table 9-1.

The anticipated revenue sources for these programs are: white goods collection - revenue from sale of materials, drop-off center - revenue from sale of materials, curbside collection - refuse collection bills, christmas tree collection - refuse collection bills, biomass Fuel Plant - revenues received from sale of end product as energy; demolition materials recycling facilities - rates charged for accepting the material; wood grinding facilities - rates charged for accepting the material.

Contingency Funding Sources

Contingency funding measures for the public sector have been identified in case the preferred funding methods become unavailable. Since the Waste Management Department operates through an Enterprise fund, which is the preferred funding method, other County General Funds would probably not be available to the Department. The most probable contingency measures would be the use of bond proceeds which will likely be sought to fund the Countywide system of waste management facilities as discussed in Part II.

Part II

The County, incorporated Cities and Regional Council of Governments are evaluating the creation of a Countywide solid waste management system which could integrate a variety of recycling and waste disposal facilities, including recyclables drop-off centers, yard waste composting facilities, materials recovery facilities (which may include yard waste or MSW composting capability) and/or landfills. Any system would likely be built around service areas, which would include a defined (but perhaps adjustable) wasteshed, with one or more municipalities, one or more recycling facilities, one or more composting facilities and perhaps the region's landfills. Such an integrated system would allow the entire County, including the unincorporated area and incorporated cities, to meet the goals under AB 939.

Component System Funding

Facilities proposed to be included within the System have also been chosen for implementation by the County in the Recycling and Composting Components. The following discusses the facilities chosen for implementation and means for funding implementation.

Recycling Component Funding

The primary element in the County's Recycling Component will be the use of materials recovery facilities which will recover recyclable materials from the County's either totally or partially mixed/separated waste stream. Even though processing of waste in this manner may be both capital and labor intensive, processing facilities will be required to sort through collected recyclables in order to prepare them for market and meet the State mandates.

Financing of materials recovery facilities could come from a variety of sources, including the issuance of bonds (either by a private company, the County Waste Management Enterprise Fund, a regional council of governments (JPA) or combinations thereof) traditional construction financing (obtained by a private company), or from the private company itself.

The County may consider an active role in the financing of these facilities if the financing costs, which make up a major component of the overall tipping fee charged to users of the facilities including the landfills, are lower. The County will also attempt to maximize the use of state sponsored enterprise, recycling development and other financial and development incentive zones as mechanisms for reducing the overall costs of the Recycling component. The County will pursue all applicable State or Federal grants and will participate in appropriate technical assistance programs.

The annual operating costs at materials recovery facilities will be funded through tipping fees levied at each facility. The County will most likely take an active role in private sector procurement and/or contract negotiation to ensure that these costs are kept to the lowest level possible.

Composting Component Funding

The primary element in the County's Composting Component is a system of dedicated yard waste composting facilities, which will accept "clean green" waste. This is green and woody waste which has not been mixed with other types of solid waste. The cost advantages to "clean green" composting facilities are the reduced costs associated with handling the clean green waste as opposed to handling mixed municipal waste and the improved quality of the compost product. These composting facilities may be sited separately, or along with the materials recovery facilities. The County is also considering the use of mixed waste composting facilities, which in combination with recycling technologies would dramatically reduce the amount of material sent to a landfill from a facility.

Two composting facilities, one state permitted and one currently not, exist within the County. Additional composting facilities may be developed entirely by the private sector without reliance upon the County for assistance in the financing of the facility. In these cases, the developer will provide funding for the facility out of its own general funds or will finance it through some other means. They would be repaid through tipping fees and/or through revenues from the marketing and sale of compost. The County, together with its regional governments, may work with owners of private facilities to establish tip fees at green waste composting sites which will create an incentive for landscapers and homeowners to separate their green waste from the more general waste stream, thus decreasing processing costs and to a large extent contamination (such as broken glass).

The cost of implementing the County's Composting Component will include staff costs, supply and equipment costs and costs for building dedicated composting facilities. Staff and supply costs (both considered minor) will be paid from the Enterprise Fund of the Waste Management Department. The type of funding used for composting facilities will depend upon the relationship, if any, between the County and the project developer. If the project does not rely upon the County for assistance in financing, it may be funded by the developer, either with cash or with traditional construction financing. If the County is involved with the financing, funding may come from a variety of sources, including the issuance of bonds (either by a private company, the County, or the County and a private company in partnership), traditional construction financing (obtained by a private company), or from the private company itself. Tipping fees would be used to reimburse the bonds.

Estimated Funding Requirements to Develop Facilities

Table 9 - 3 shows the estimated funding requirements for the short-term planning period (1990 - 1995) to develop system facilities. In estimating these costs the following assumptions were utilized:

Estimated costs for each MRF are based upon a hypothetical 1,000 tpd facility which was identified in the Riverside County System Cost Study to cost approximately \$25,300,000 with \$6,950,000 annual operating costs. This includes land costs which were estimated by the Waste Management Department.

Funding of capital requirements would be the year before the facility is operational.

For purposes of this component, only one publicly developed MRF (private operator selected by competitive RFP process) will be operational by 1995. Four additional MRF's will require capital outlays in 1995 in order to be operational in 1996. Three MRF's, which are being privately developed and financed, are currently proceeding within the County, two of which are assumed to be operational in 1994. The three MRF's are estimated to cost in excess of \$60 million. In order to remain consistent, operating costs were estimated based upon the hypothetical 1,000 tpd MRF discussed above. Since these facilities could join the proposed waste management system, operating costs are shown on Table 9 - 3.

The public costs shown for composting are for separate yard/wood waste staging/composting areas at the MRF's. The capital costs were estimated at \$2,240,000 and operating at \$370,000 and are for facilities that will also compost at the MRF location. These estimates were derived from the Draft Riverside County System Cost Study, April 1991 and are associated with a 1,000 tpd MRF.

The estimated operating costs for each composting facility were derived from the Riverside County System Cost Study based upon a 650 tpd yard waste facility. The model size approximates the yard waste capacities at the two existing composting facilities in the County. The operating costs may differ according to their individual circumstances (i.e. the inclusion of sludge in the compost process, etc). Operating costs are estimated at \$2,801,000 per facility at full program maturity.

At the time this Element was finalized, the County, Cities and Regional Councils of Governments were still working through the details of the proposed waste management system. For purposes of this Component the MRF's were assumed to be publicly developed, however, it is a possibility that some or all of the capital costs may be covered by private vendors. The total number of MRF's and composting facilities which will be required have yet to be identified. The costs shown below may use either public, private or a combination of both for financing.

Table 9 - 3 Summary of Estimated System Costs⁴				
Component	1992	1993	1994	1995
Recycling				
Public MRF's - Capital	0	0	25,300,000	101,200,000
Public MRF's - Operating	0	0	0	6,950,000
Private MRF's - Operating	0	0	13,900,000	13,900,000
<u>Subtotal</u>	0	0	\$39,200,000	\$122,050,000
Composting				
Public Capital	0	0	2,240,000	8,960,000
Public Operating	0	0	0	370,000
Private Operating	1,500,000	3,000,000	4,500,000	5,600,000
<u>Subtotal</u>	\$1,500,000	\$3,000,000	\$6,740,000	\$14,930,000
Total Cost⁵	\$1,500,000	\$3,000,000	\$45,940,000	\$136,980,000

Revenue Sources

Implementation of the Source Reduction and Recycling Elements in Riverside County will require a coordinated effort among the County and the municipalities within the County. Costs funded by the public sector will come from different levels of government within the County. The preferred financing mechanism for these facilities is through the sale of bonds. However, the County and municipalities will also seek support from technical assistance programs from the State where appropriate, and will attempt to maximize the use of enterprise and recycling development zones to minimize the costs associated with implementation of the various identified programs.

⁴These costs, categorized as public, could be covered through the public, private or a combination of public/private funding sources. Public facilities are proposed to be operated by a private vendor selected by a competitive RFP process.

⁵Estimated costs do not include debt service or landfill tipping fees.

The County believes that some or all of the recycling and composting facilities may be privately owned. Privately owned facilities may be financed through a variety of means, including system-sponsored financing, vendor provided debt financing and by expanding equity contributions. Several different structures exist which would allow the system to sponsor financing for privately owned facilities and to obtain financing for system owned projects. Bonds could be secured by a pledge of the system revenues, by a pledge of system revenues within a given area, or by the revenues of a particular facility. The broader the pledge of revenues, the more secure any bond issue will be and the lower rate of interest which will be required on any bonds. The issuer or sponsor of the financing may also vary depending on the objectives of the County and the other participating members of any system.

Since this system is still in the planning stages, exact methods for covering the costs have yet to be determined. The exact methods used to cover capital costs will be determined by the County, Cities and Regional Associations of Governments. It is anticipated that operational and capital (amortized by debt service) costs will be covered through tipping fees at each facility. Prior to implementing the system, agreements will be executed by each participating agency. Participating agencies and/or their representatives will all be involved in the procurement of vendors and facilities and will have decision making power concerning the subsequent fees required to operate the facilities. It is envisioned that the costs of implementing and maintaining this type of system will be shared between the County and participating Cities in an amount that approximates the proportion of the waste/material each jurisdiction is contributing to the system.

Contingency Measures

The preferred method of funding the Countywide waste management system will be through the use of bonds for capital costs using the tipping fees at each facility to cover debt service and operational costs.

Contingency measures to fund this system include private financing, and loans such as those from the California Pollution Control Financing Authority. One step in developing the system will be the guarantee of waste by the Cities and County to the facilities. It is proposed that contracts will be executed between the Councils of Governments, Cities and/or County in order to join the system. These contracts would spell out the number of Cities/amount of waste needed in order to proceed with development of the system and a time frame for achieving it.

In addition to these measures, the Department will consider the feasibility of obtaining some revenue from two private regional landfill projects being proposed within the County, wherein a revenue stream of unknown magnitude could be realized from the out-of-County waste imports.

CHAPTER 10

Integration Component

CHAPTER 10 -- INTEGRATION COMPONENT

I. INTRODUCTION

The Integration Component demonstrates how the Source Reduction, Recycling, Composting and Special Waste Component diversions combine to meet the mandated reductions of 25% and 50% of the waste stream.

This component includes a summary of the diversions to be achieved, by each individual component and as a whole, and the short-term (up to 1995) integrated time lines for the Source Reduction, Recycling, Composting and Special Waste Components.

II. SOLID WASTE MANAGEMENT PRACTICES

Riverside County is integrating the hierarchy of solid waste management practices with the SRRE by implementing an aggressive source reduction program to target all waste generators. The wastes which are not source reduced will then be captured through diversion programs by recycling or composting. Finally, those wastes which are not source reduced, recycled or composted will be landfilled in permitted disposal sites in Riverside County.

III. INTEGRATION OF COMPONENTS

The Source Reduction, Recycling, Composting and Special Waste Components combine to achieve a 45% diversion by 1995 and a 61% diversion by 2000 including inert solids diversions. There have been indications that the State may disallow inert solids diversions, therefore Table 1.1 shows the estimated diversions without inert solids diversions. Table 1 shows the individual component diversions and the combined diversions for the short-term and medium-term planning periods.

Table 1 Summary of Total Diversions with Inert Solids		
Component	Short-Term (1995)	Medium-Term (2000)
Source Reduction	1%	2%
Recycling	9%	14%
Composting	9%	10%
Special Wastes	24%	34%
Total	44%	61%

Table 1.1 Summary of Total Diversions without Inert Solids		
Component	Short-Term (1995)	Medium-Term (2000)
Source Reduction	2%	3%
Recycling	13%	20%
Composting	13%	15%
Special Wastes	1%	20%
Total	29%	51%

The Components of the SRRE have been integrated through a couple of methods. The evaluation process was both quantitative and qualitative. The quantitative process evaluated each program individually, while the qualitative process took into account factors such as other programs. Programs which cross component subject areas, such as the Technical Assistance Program, appears in each appropriate component, with implementation and cost table and appearing in the component to which it is the most relevant. The implementation tables have also been integrated. Examples of this integration include scheduling educational programs to begin early in the short-term planning period in order to support the collection programs.

Implementation Schedules

Table 10 - 2 is an integrated time line for the Source Reduction, Recycling, Composting and Special Wastes Components for the short-term planning period (up to 1995). The time lines show the program scheduled for implementation, necessary tasks to be completed for implementation and the agency responsible for implementation.

Priorities between components were determined by using the following criteria:

- Maximization of waste diversion
- Ease of implementation
- Consistency with local conditions

Table 10 – 2
Integrated Implementation Plan

Source Reduction Component

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
A. State Waste Exchange Directory	CIWMB	Ongoing Program-----					WMD Funds
1. Contact state about program	WMD		X				
2. Put together state promotional literature for local distribution			X				
3. Promote program with local bus. and indust.			X				
4. Design local monitoring plan				X			
5. Monitoring					X	X	
B. Source Reduction Education Program	(See Chapter 7 -- Education and Public Information Component for the Implementation plan for this program)						
C. County Purchasing Program	Purchasing	Ongoing Program-----					GSA Funds Planning Dept Funds, CC
1. Encourage Cnty. depts. to purchase recycled content products where feasible	WMD	X					
2. Evaluate current purchasing system			X				
3. Design waste diverting purchasing program based on evaluation of system			X	X			
4. Design monitoring program			X	X			
5. Present purchasing program to BOS as parts of it are ready for consideration				X			
6. Inform County Depts./vendors of purchasing program				X			
7. Monitoring					X	X	
D. Drought Resistance Plants	Planning	Ongoing Program-----					Planning Dept Funds, CC Funds, WMD Funds, GSA Funds
1. Amend County Ordinance 348 to require drought resistant plants in specified uses	CC						
2. Inform County developers/landscape architects regarding amended ordinance	WMD		X				
3. Design monitoring system	Printing		X				
4. Monitor program and quantify diversions (if possible)				X			
E. State/Federal Laws Regarding Packaging	WMD	Ongoing Program-----					WMD Funds
1. Monitor state and federal legislation regarding waste management issues		X					
2. Analyze bills related to packaging issues		X					
3. Compose resolution in support of particular bills		X					
4. Present resolutions to the BOS for consideration		X					
5. As resolutions are formally supported, send copies of County action to cities and urge similar action		X					
6. Monitoring			X				
F. State/Federal Laws for a Advance Disposal Fee	WMD	Ongoing Program-----					WMD Funds
1. Monitor state and federal legislation regarding waste management issues		X					
2. Analyze bills related to pre-disposal fee issues		X					
3. Compose resolution in support of particular bills		X					
4. Present resolutions to the BOS for consideration		X					
5. As legislation is formally supported, send copies of County action to cities and urge similar action		X					
6. Monitoring			X				
G. Environmental Labeling Program	(See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)						
H. Source Reduction Curriculum for Grades K-12	(See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)						

Table 10 – 2 (Cont.)
Integrated Implementation Plan

Source Reduction Component (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
I. Paper Efficiency Program	Purchasing	Ongoing Program-----					GSA Funds, WMD Funds, County Dept.
1. Design program to increase efficiency in the use of paper within County Depts.	WMD		XX				
2. Present program to BOS as parts of it are ready for consideration	County Depts.			X			
3. If BOS approves program, inform County Depts.				X			
4. Phase in implementation of program				X			
5. Monitoring					X	X	
J. Public Recognition Program	(See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)						
K. Referral Sys. for White/Repairable Goods	WMD	Ongoing Program-----					WMD Funds
1. Update list of thrift/repair shops	Printing		X				
2. Print list			X				
3. Promote the list throughout the County			X				
4. Design monitoring system			X				
5. Monitoring				X	X	X	
L. Residential Yard Waste Management Program	WMD	Ongoing Program-----					WMD Funds, LEA Funds
1. Investigate equipment requirements & costs associated with backyard composting & not bagging grass clippings	RCSWMAC/LTF LEA		X				
2. Determine parameters of program	AO		X				
3. Determine region(s) in the unincorporated area for implementing initial pilot programs	Printing		X				
4. Design public education/information for initial pilot programs			X				
5. Present pilot backyard composting/not bagging grass clipping programs to RCSWMAC/LTF for approval			X				
6. Present pilot programs to BOS for consideration and approval			X				
7. Promote pilot programs in chosen area(s)				X			
8. Implement pilot programs				X			
9. Monitor pilot programs				XX			
10. Evaluate and design public education program				X			
11. Expand program					X		
12. Monitoring						X	
M. White Goods Collection During Trashbuster Cleanups	DEH	Ongoing Program-----					DEH Funds, WMD Funds
1. Investigate options for collecting white goods during Trashbuster cleanups	GRHC		X				
2. Determine which option(s) to require	WMD		X				
3. Design amendment to County Ordinance 657	Goodwill		X	X			
4. Present amended ordinance to Garbage Refuse Hauler Committee for consideration				X			
5. Present amended Ord. 657 to BOS for consideration				X			
6. Monitoring					X	X	
N. Technical Assistance to Business and Gov't Agencies	(See Chapter 7 -- Education and Public Information Component for the implementation plan for this program)						

Table 10 – 2 (Cont.)
Integrated Implementation Plan

Source Reduction Component

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
O. Reporting System	WMD	Ongoing Program-----					WMD Funds, County Dept. Budgets
1. Review existing County ordinances	County Agency		X				
2. Design monitoring/reporting form			X				
3. Design reporting system that will interface with existing ordinances or provide basis for new ordinance			X				
4. If amending existing ordinance, meet with agencies responsible for administering it				X			
5. Present ordinance to BOS				X			
6. Administer reporting ordinance				X			
7. Monitor diversions/practices					X	X	
P. Incentives/Disincentives to Land Use Development	Planning	Ongoing Program-----					Building & Safety Funds, Planning Funds, WMD Funds
1. Survey existing land use ordinances & building codes to determine their impact on source reduction	Building & Safety RCSWMAC/LTF			X			
2. Review land use ordinance and building code modifications from other jurisdictions	WMD			X	X		
3. Determine committee structure/membership for development of modifications					X		
4. Set up committee					X		
5. Design, if necessary, changes/amendments to existing ordinances/codes					XXX		
6. Present proposed changes/amendments to the Planning Commission and RCSWMAC/LTF					X		
7. Present changes/amendments to BOS for consideration						X	
8. If BOS approves changes/amendments, promote & begin implementation						X	
9. Monitoring							
Q. Master Recycler Composter Program	WMD						WMD Funds, LEA Funds, City/Agency Funds, Private Funds, Investigate other Sources (e.g. grants, etc.)
1. Determine parameters of program	LEA				X		
2. Compile/design MRC program training manual/classes	Cities/Agencies				XX		
3. Compile public information materials	AO				X		
4. Investigate city/agency interest in program participation	Printing				X		
5. Investigate locations for demonstration sites					X		
6. Acquire any necessary approvals (BOS, City, Agency, etc.) and negotiate agreements for locations of demonstration sites					X		
7. Begin work on demonstration sites and acquire necessary program supplies/materials					X		
8. Recruit volunteers for MRC program & begin training						X	
9. Begin MRC outreach to the public						X	
10. Monitor program						X	
11. Expand program						X-	
12. Monitoring							
R. Refuse Collection Rate Structure	(See Chapter 4 -- Recycling Component for the implementation plan for this program)						

Recycling Component

A. Material Recovery Facilities*	WMD &					WMD Funds, Public Funds, Lead agency &/or private funds
1. Network with incorporated cities to develop a Countywide coordinated approach	Cities	X				
2. Determine areas and time schedules for MRF development			X			
3. Develop each facility according to schedule			X – Ongoing until completion			
4. Monitoring			X at least annual monitoring of each facility			

Table 10 – 2 (Cont.)
Integrated Implementation Plan

Recycling Component (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
B. State/federal Policy on Products Containing Recycled Content	WMD & A.O.						WMD Funds
1. Support formulation of such legislation through letters of support to State & Federal Government representatives			X				
2. As legislation is introduced, analyze for adequacy and either support through Board of Supervisors resolution or suggest alternative language			Specific as to the date of intro. for legislation				
3. As legislation is formally supported, send copies of County action to Cities and urge similar actions			Specific as to the date of intro. for legislation				
4. Monitoring				X	X	X	
C. Private Enterprise Usage of Recyclable Products in the Products in the Manufacturing Process	EDA & WMD	Ongoing Program-----					EDA Funds, WMD Funds, Market Dev. Zones
1. Determine existing opportunities			X				
2. Determine capabilities to increase current assistance, including, but not limited to the application for a Market Development Zone through the CIWMB			XX				
3. Work with EDA to attract industries				X			
4. Monitoring				X	X	X	
D. County Purchase of Products Containing Recycled Content	GSA/P.D. & WMD	Ongoing Program-----					GSA
1. Develop informational brochures on the advantages of products containing recycled content			X				
2. Distribute information to purchasing agents, at purchasing liason meetings & management, at Management Council Meetings.				X			
3. As individual County Departments request specific products, Purchasing will encourage the purchase of recycled products				X -- Ongoing			
4. On an as needed basis, one-on-one meetings will be encouraged to discuss individual departmental resistance to the use of recycled products				X -- Ongoing			
5. Monitoring					X	X	
E. Technical Assistance Program	WMD/DEH						DEH Funds, WMD Funds
1. Work with the haulers in an effort to develop uniform methods for calculating participation rates.				XXX			
2. Work with the haulers in an effort to develop uniform conversion factors for multi-family waste collection.				XXX			
3. Monitor effectiveness of uniform methods developed.					X	X	
Also reference Chapter 7 – Education and Public Information Component for other pertinent portions of this program.							
F. Anti-scavenging Ordinance	DEH & WMD						DEH Funds
1. Gather and review existing ordinances from other jurisdictions				X			
2. Develop a draft ordinance				X			
3. Coordinate development of draft ordinance with County Counsel				X			
4. Submit draft ordinance for review to the Waste Collection Advisory Committee and Task Force				X	X		
5. Board of Supervisors Adoption					X		

*Material Recovery Facilities will be operational in either 1994, 1999 or somewhere in between those years. The decision as to when to develop each facility has not been made. For more information on Material Recovery Facilities, please see page 4 – 6.

**Table 10 - 2 (Cont.)
Integrated Implementation Plan**

Recycling Component (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
G. Expansion of County Office Recycling	GSA/P.D. & WMD	Ongoing Program-----					GSA &/or revenue from sale of material
1. Determine additional items to include in County program	WMD			X			
2. At the end of the upcoming contract, negotiate for inclusion of additional items and pick-up of materials at satellite offices with current contractor				X			
3. If current contractor will not include additional items and offices, an RFP requiring consideration of these services will be distributed.				XX			
4. Review RFP's and Select Vendor				X			
5. Execute Agreements				X			
6. Maintain and Monitor Agreement					X Ongoing		
7. Monitoring						X	
H. Salvage Opportunities	WMD						WMD Funds
1. Determine appropriate salvage method for each landfill				X			
2. Determine schedule to implement at each landfill.				X			
3. Develop Request for Proposal (RFP's) for services.				X			
4. Distribute RFP's according to implementation schedule for each landfill				X			
5. Review Proposals				X			
6. Select a vendor.				X			
7. Negotiate contract.				X	X		
8. Board of Supervisors approval.					X		
9. Monitoring						X	
I. Building Code Modifications	P.D., P.C. & WMD						Planning Dept. Funds
1. Provide comments to State in their development of model building code ordinance	WMD			X			
2. Review state model ordinance to determine if revisions will be necessary in order to adopt for Riverside County				X			
3. If necessary, make revisions				X			
4. Coordinate approval of modifications with the Planning Commission and LTF				X			
5. Board of Supervisors Consideration				X			
6. Monitor Ordinance Requirements					X	X	
J. Drop-off Centers	WMD						WMD Funds
1. Determine exact locations (i.e. Anza, Desert Center, etc.)				X			
2. Determine ownership/opertion (public, private or both)				X			
3. If needed, release RFP and/or work with private sector					XX		
4. Establish Center(s)					X		
5. Monitoring						X	
K. Zoning Ordinance Modifications	P.D., P.C. & WMD						Planning Dept. Funds
1. Support passage of State legislation (begin local review only if State legislation is not implemented)	WMD	X					
2. Review current zoning ordinances to determine deficiencies				X			
3. Gather and review zoning ordinance modifications from other jurisdictions				X	X		
4. Determine committee structure/membership for development of modifications					X		
5. Set up committee					X		
6. Determine specific modifications needed for Riverside County					XX		
7. Develop modifications					XX		
8. Coordinate approval of modifications with the Planning Commission & LTF						X	
9. Board of Supervisors Consideration						X	
10. Monitoring							

**Table 10 - 2 (Cont.)
Integrated Implementation Plan**

Recycling Component (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
L. Billing Systems to Encourage Recycling	DEH & WMD						DEH Funds
1. Research existing similar programs						X	
2. Develop a committee of County, waste hauler and citizen representatives						X	
3. Review options available (i.e. Variable can rate, Two-tier Tipping Fee)						XX	
4. Develop each option as a proposal						XX	
5. Evaluate each proposal in light of current conditions in Riverside County & in terms of applicability and ease of implementation						X	
6. Develop a recommended action							
7. Present recommended action to both the Waste Collection Advisory Committee & the LTF, & if approved carry forward for Board of Supervisors consideration							
8. Monitoring							

Composting Component

A. Composting Facilities First Consider Riverside County Feedstock	WMD Planning	Ongoing Program - - - - -					WMD Funds, Planning Dept. Funds
1. Meet with facility principals		X					
2. Begin planning process with expectation of condition of approval		X					
3. Notify agencies/jurisdictions responsible for feedstock supplies regarding regarding condition of app.		X					
4. Monitoring			X	X	X	X	
B. Material Recovery Facility (MRF) Yard/Wood Waste Staging/Composting Area	WMD Planning	Ongoing Program - - - - -					WMD Funds, Planning Dept. Funds, Private Funds, Recycling Market Development Zones
1. Meet with MRF principals	RCSWMA/CTF	X					
2. Determine if composting is to take place at site		X					
3. Begin planning process with expectation of condition of approval		X					
4. Submit MRF proposal to Riverside County Solid Waste Mgt. Advisory Council/ Local Task Force		X					
5. Construct MRF facility		X - - - X					
6. Monitoring				X	X	X	
C. Biomass-Fuel Plant to Divert 30% of Its Woody Waste/ Compostable Material that is diverted at County Landfills to a Credit Worthy Operation	CC WMD Printing	Ongoing Program - - - - -					WMD Funds, CC Funds, Private Funds
1. Negotiate agreement between County and Plant to require 30% of wood waste of woody waste/compostable material to be transported to a credit worthy operation	AO	X					
2. Execute agreement		X					
3. Complete tasks 3-5 of program entitled: "Processing Station for Woody Waste at Edom Hill and Coachella Landfills" in Chapter 6.			X - - - X				
4. 30% diversion required between 1-1-95 & 12-31-99 (Please see Appendix ___ for a discussion concerning plans concerning this program after 1999).						X -	
5. Monitoring (annual)							
D. Purchase of Compost by County Departments	CC	Ongoing Program - - - - -					WMD Funds, County Dept. Budgets, DEH Funds, GSA Funds
1. BOS mandate dept. use of compost/much where appropriate (phase in)	County Depts.		X				
2. Meet with applicable County depts.	WMD		X				
3. Establish compost uses & specifications for Cnty Depts	DEH		X				
4. RFP development and issuance	Purchasing			X			
5. Negotiate agreements between Cnty. depts. & Composting facilities				X			
6. Execute agreements					X		
7. Monitoring					X	X	

Table 10 – 2 (Cont.)
Integrated Implementation Plan

Composting Component (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
E. Christmas Tree Recycling	WMD	Ongoing Program -----					WMD Funds, City Budgets, Private Funds
1. Evaluate pilot program	Cities	X					
2. Redesign program based on pilot program	Printing	X					
3. Meet with dept. personnel and cities to coordinate the program	AO	X					
4. Investigate whether area compost Facilities can utilize the material		X					
5. Agreement with a vendor to grind the trees		X					
6. Set up grinding site		X					
7. Meet with private haulers		X					
8. Contact tree lots		X					
9. Design and implement public education campaign		X					
10. Print and distribute flyers		X					
11. Implement the program		X					
12. End of annual program			X				
F. Encouragement of Entities to Use Compost	WMD	Ongoing Program -----					WMD Funds
1. Determine Agencies/Entities that include landscape duties as part of their function	RCSWMAC/		X				
2. Compose and transmit letter to all targeted agencies/entities	LTF		X				
3. Design and implement public educ. campaign			X				
4. Monitoring				X	X	X	
G. Curbside Separation and Pick Up of Yard Waste	DEH	Ongoing Program -----					WMD Funds, DEH Funds, Private Funds
1. Survey existing and planned composting facilities to evaluate the quantity and quality of yard waste to be diverted	WMD GRHC		X				
2. Evaluate the impact of curbside separation & pick up of yard waste on diversion	RCSWMAC/		X				
3. Design amendment to Ordinance 657	LTF			X			
4. Present amended Ordinance 657 to the Garbage Refuse Hauler Committee and the Riverside County Solid Waste Mgt. Advisory Council/Local Task Force				X			
5. Present amended Ord. 657 to BOS				X			
6. Monitoring					X	X	
H. Composting Facilities	WMD	Ongoing Program -----					WMD Funds, LEA Funds, DEH and Planning Dept. Funds, Cities/Dist. Funds, Private Funds, Recycling Market Development Zones
1. Identify potential quantity & quality of compost material & (data base study) users/ uses of compost & determine necessary makeup of compost material (nutrients to promote sales). Network with incorporated cities for Countywide coordinated approach.	LEA DEH Planning		X				
2. Determine composting approaches/technologies that can produce the desired quality compost	CC Cities/Districts		X				
3. Survey state regulations regarding compost sludge management to determine if they impact finding in the above tasks.	Printing AO		X				
4. Evaluate potential locations of yard waste composting programs including equipment & operational requirements			X				
5. Investigate the establishment of composting facilities on or near County landfills			X				
6. Determine accurate cost estimates & projections of potential revenues for cost comparison			X				
7. Prepare RFP/contract for acquisition of vendors to implement program			X				
8. Select firm				X			
9. Design and implement a public education program to enhance market development and facilitate collections				X			
10. Submit programs to the Riverside County Solid Waste Mngmnt. Advisory Council/ Local Task for consideration					X		
11. Implement programs where environmental and economic feasibility can be assured					X		
12. Maintain present markets and develop additional outlets					X	---	
13. Monitoring						X--	

Table 10 – 2 (Cont.)
Integrated Implementation Plan

Composting Component (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
I. Investigate the Use of Compost as Cover Material at County Landfills	CIWMB LEA						WMD Funds, LEA Funds
1. Survey jurisdictions in CA that may be using compost as cover material	WMD			X			
2. Evaluate County compost system regarding present & future capacity, inventory & market conditions	CC			X			
3. Evaluate the need to pursue the use of compost as cover material at County landfills				X			
4. If determined to proceed, submit proposal request to the CIWMB and LEA for consideration				X			
5. If CIWMB approves request, establish a demonstration project					X -- X		
6. At the end of demonstration project, CIWMB & LEA evaluate the suitability of the demonstration cover material					X		
7. If material deemed "suitable cover", file an Amended Report of Disposal Site Information & an application to revise the Solid Waste Facilities Permit						X	
8. Upon receiving approval, contact local compst. facilities regarding the use of finished compost as cover material						X	
9. Negotiate agreements with compost facilities						XX	
10. BOS consideration of agreements						X	
11. Monitoring (annual)							
J. Investigate the Use of Mulch as Cover Material at County Landfills	CIWMB LEA						WMD Funds, LEA Funds
1. Survey jurisdictions in CA that may be using mulch as cover material	WMD			X			
2. Determine the quantities of yard waste disposed and diverted in the County	CC			X			
3. Evaluate the need to pursue the use of mulch as cover material at County landfills				X			
4. If determined to proceed, submit proposal request to the CIWMB and LEA for consideration				X			
5. If CIWMB approves request, establish a demonstration project					X -- X		
6. At the end of demonstration project, CIWMB & LEA evaluate the suitability of the demonstration cover material					X		
7. If material deemed "suitable cover", file an Amended Report of Disposal Site Information & an application to revise the Solid Waste Facilities Permit						X	
8. Upon receiving approval, determine potential sources of mulch, needs in terms mulch, needs in terms of machinery, sites, etc.						X	
9. Negotiate agreements with vendors for mulch, equipment, etc.						XX	
10. BOS consideration of agreements						X	
11. Monitoring (annual)							
K. Phased in Ban of Yard Waste at County Landfills	WMD						WMD Funds, Cities' Funds
1. Survey existing composting facilities to evaluate the quantities of yard waste diverted	Cities					X	
2. Survey County landfills to evaluate the quantities of yard waste disposed	AO					X	
3. Survey existing diversion programs to evaluate how the County and cities are progressing toward the state goals	RCSWMA/LTF					X	
4. Determine if a ban on yard waste at the County landfills is necessary to ensure that the County & Cities achieve the State goals						X	
5. If a ban is needed, determine landfill priority for implementing it & the corresponding schedule						X	
6. Meet with cities and impacted companies regarding the ban and its implications						X	
7. Design public information campaign						X	
8. Submit ban of yard waste to the Riverside County Solid Waste Mgt. Advisory Council/LTF for consideration						X	
9. Board of Supervisors consider the ban of yard waste at County landfills						X	
10. If BOS approves the ban, implement it, phase in over time, and monitor the program							

**Table 10 – 2 (Cont.)
Integrated Implementation Plan**

Special Wastes Component

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
A. Processing Station for Woody Wastes at Edom Hill and Coachella Landfill	WMD CC						WMD Funds
1. Negotiate agreement between County & Operator to sublease sites at area landfills to process wood waste for transport to plant.		X					
2. Execute Agreement		X					
3. Make any modifications to landfill administration/operations that result from diversion of wood waste to the designated processing site.		X	X				
4. Promote the program and its procedures to businesses/individuals that would normally bring the appropriate woody waste material to the landfill for disposal			X				
5. Begin processing woody waste material at the designated landfill sites for shipment to Plant.			X				
6. Monitor Program			X	X	X	X	
B. Encourage the siting of a tire recycling facility within Riverside County or the region.	WMD/ Cities						WMD Funds
1. Hold meetings with proposers of specific projects to gain information and evaluate the proposals.		Ongoing Program-----					
2. Support viable recycling alternatives to the landfilling of tires.		Ongoing Program-----					
3. Monitoring			X	X	X	X	
C. Encourage/site Green Waste/Sewage Sludge Composting Facilities	(See Chapter 5 -- Composting Component)						
D. Referral System for White/Reparable Goods	(See Chapter 3 -- Source Reduction Component)						
E. Encourage Usage of Mobile Demolition Recycling facilities	(See Chapter 7 -- Education and Public Information)						
F. Encourage the Dedication of Adequate Wastewater Treatment Capacity when Plants are Proposed or Expanding	WMD, & Planning						WMD Funds
1. The Waste Management Department will work with the Planning Dept. to be added to the list of reviewing agencies for environmental documents for expansions to or new wastewater treatment plants.			X				
2. The Waste Management Department will work with the Planning Dept. to develop procedures for including wastewater treatment plants to the County "Fast Track" system			X				
3. Review environmental documents, as they as submitted, for adequacy in dedicating capacity for septic tank and chemical toilet waste generated both within & outside of the service area.				X -- Ongoing			
4. Implement procedures for including wastewater treatment plants to the County "Fast Track" system.				X			
5. Monitoring					X	X	
G. Investigate Alternative Disposal/Reuse Methods for Tires	WMD/Cities						WMD Funds
1. Identify existing facilities/technologies capable of processing tires for reuse.				X			
2. Research the methods employed and the feasibility of using the existing facilities				X			
3. If feasible, implement programs to direct waste tires to viable recycling alternatives				X			
4. Monitoring					X	X	

Table 10 – 2 (Cont.)
Integrated Implementation Plan

Special Wastes Component

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
H. Encourage all Incineration Facilities within the County to utilize appropriate methods to source reduce and recycle their ash, and if necessary, investigate alternatives to landfilling incinerator ash.	WMD						WMD Funds
1. Identify existing facilities/technologies capable of processing ash for reuse.				X			
2. Research the methods employed and the feasibility of using existing facilities/technologies.				X			
3. Encourage the usage of viable reuse alternatives.					X		
4. Monitoring.						X	
I. Encourage the Development of Demolition Materials Recycling Facilities in Riverside County.	WMD/ Cities						WMD Funds, Private Funds
1. Evaluate the need for demolition materials recycling facilities within the various landfill/MRF service areas of the County.				X			
2. Evaluate demolition materials generation in those service areas.				X			
3. In areas with sufficient generation of demolition materials, and a need for recycling facilities, the Department will consider establishing these facilities.				X			
4. Establish/Encourage Development					X		
5. Monitoring						X	
J. Encourage the Development of Alternative Liquid/Sludge Disposal, Treatment and/or Recycling Facilities.	WMD/ Cities						WMD Funds
1. Research alternative disposal methods for liquids and sludge				X			
2. Evaluate environmental and technical feasibility of alternatives				X			
3. Meet with proposers of specific projects and support environmentally feasible projects.					X Ongoing		
4. Monitoring						X	
K. Encourage the siting/usage of wood grinding operations that will divert root balls, tree trunks and other hand-to-handle pieces of wood	WMD/ Cities						WMD Funds
1. Evaluate the need for wood grinding sites at each landfill/MRF.				X			
2. Evaluate the private sector involvement in wood grinding in each landfill/MRF service area.				X			
3. Develop a listing of sites requiring wood grinding.				X			
4. Develop an implementation schedule.				X			
5. Implementation.					X		
6. Monitoring.						X	
L. Establish salvage opportunities at County solid waste facilities	(See Chapter 4 -- Recycling Component)						
M. Promote Source Reduction of Special Wastes	WMD						WMD Funds
1. Research source reduction methods and technologies for special wastes				X			
2. Evaluate the feasibility of each method.				XX			
3. Develop a report, to be sent to various industries handling special wastes in the County, on the available source reduction methods.					X		
4. Monitoring.						X	

**Table 10 - 2 (Cont.)
Integrated Implementation Plan**

Special Wastes Component (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
N. Work with Other Agencies to Encourage all Treatment Plants to Develop Sludge Management Plans.	WMD						WMD Funds
1. Through written correspondence, notify the Regional Water Quality Control Board of the Waste Management Department's support for the development of sludge management plans.				X			
2. Through written correspondence, notify treatment plant operators of the Waste Management Department's support for the development of sludge management plans				X			
3. The Department will offer all feasible technical assistance in preparing these plans				X	-- Ongoing		
4. Monitoring					X	X	
O. Investigate the Potential for Establishing Septic Tank Maintenance Districts.	DEH & WMD						DEH Funds
1. Research existing similar programs.					X		
2. Develop a committee, composed of residents, liquid waste haulers, and municipal wastewater treatment plant operators to work through the specifics of this program					X		
3. Working with the committee, develop procedures for establishing septic tank maintenance districts.					X	X	
4. Implement.						X	
5. Monitoring.							
P. Research Constituent Materials of street sweepings and its' applicability to reuse methods.	WMD						WMD Funds
1. Research the constituent materials in street sweepings						X	
2. Research the applicability of street sweeping material to reuse methods						X	
3. Encourage the usage of environmentally feasible reuse methods for street sweepings						X	
4. Monitoring							

Education and Public Information Component

A. Environmental Labeling Program	WMD	X Ongoing until Enactment					WMD Funds
1. Support enactment of state legislation for environmental labeling at grocery stores & supermarkets							
B. Press Releases/Public Service Advertising	WMD & PIO	Ongoing Program					WMD Funds
1. Establish and maintain contact with County PIO		X					
2. Develop and distribute all press releases through the County PIO		X					
3. Monitoring			X	X	X	X	
C. Conduct Mass Mailing to Unincorporated County Residents	WMD	Ongoing Program					WMD Funds
1. Determine subject of mailing			X				
2. Develop brochure				X			
3. Determine method of distribution				X			
4. Printing				X			
5. Distribute				X -- Ongoing			
6. Monitoring				X	X	X	

**Table 10 – 2 (Cont.)
Integrated Implementation Plan**

Education and Public Information (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
D. Conduct a General Publicity Campaign	PIO & WMD		Ongoing Program				WMD Funds
1. Determine Subjects and times to cover			X				
2. Determine mediums to utilize			X				
3. Prepare material/advertisements			X				
4. Coordinate with County PIO to purchase/acquire advertising space				X			
5. Monitoring					X	X	
E. Countywide logo	WMD & PES						WMD Funds
1. Develop committee			X				
2. Determine criteria upon which to judge logo's			X				
3. Gather possible logo's from all available sources, including, but not limited, school contests, county contests, college sources and professional services				XX			
4. Judge and determine finalists				X			
5. Determine the body to choose the final logo.				X			
6. Determining body chooses final logo.				X			
F. Brochures	WMD						WMD Funds
1. Determine specific brochures for printing			X				
2. Determine critical info for each brochure			X				
3. Investigate alternatives source for development				X			
4. Choose developing body				X			
5. Develop brochure(s)				XX			
6. Printing				X			
7. Distribution					X	Ongoing	
8. Monitoring						X	
G. Speaking engagements	WMD		Ongoing Program				WMD Funds
1. Develop outline for presentations				X			
2. Develop speakers bureau				X			
3. Solicit engagements				X			
4. Monitoring					X	X	
H. Recycling Hotline	WMD						WMD Funds
1. Order/purchase automated telephone equipment				X			
2. Determine recorded messages				X			
3. Train personnel on equipment				X			
4. Monitoring					X	X	
I. Curriculum Guides	WMD		Ongoing Program				WMD Funds
1. Support CIWMB curriculum development				X			
2. Gather and Review existing guides				XX			
3. Develop listing of available guides				X			
4. Determine locations for storage of guides				X			
5. Publicize availability of guides to teachers and schools (once CIWMB curriculum is developed, the County will supplement publicity for the guide)				X -- Ongoing			
6. Monitoring					X	X	

Table 10 - 2 (Cont.)
Integrated Implementation Plan

Education and Public Information (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
J. Recognition Program	WMD & PES						WMD Funds
1. Determine categories for recognition				X			
2. Determine time of year for presentation				X			
3. Determine judging body				X			
4. Determine methods by which to publicize the program				X			
5. Monitoring				X	X	X	
K. Technical Assistance	WMD						WMD Funds
1. Gather guides from similar programs				X			
2. Develop guide for Riverside County (using as much as possible from existing documents)				XX			
3. Develop outline of presentations				X			
4. Determine persons to conduct technical assistance and train					XX		
5. Contact a few large firms and solicit participation						X	
6. Publicize program through media and presentations						X Ongoing	
7. Coordinate program with Health Dept. Hazardous Waste Minimization Program						X Ongoing	
8. Publicize state Materials Exchange & Reuse Program				X	Ongoing		
9. Monitoring						X	
L. Video Programs	WMD						WMD Funds
1. Determine subjects to cover				X			
2. Conduct comprehensive search of existing video programs				XX			
3. Gather video's for viewing & grading				X			
4. Determine need to produce one or more video programs				X			
a. Investigate sources of production				XX			
b. Select producer				X			
c. Produce video				X	X		
5. Determine facility for storage					X		
6. Publicize availability					X	Ongoing	
7. Monitoring						X	
M. Video Information Center	WMD						WMD Funds
1. Determine appropriate building in which to establish				X			
2. Determine initial subject(s) to cover				X			
3. Purchase/Develop Video's				XX			
4. Purchase Equipment				X			
5. Establish					X		
6. Monitoring						X	
N. Newsletter on Waste Management Issues							WMD Funds
1. Discuss possibility of combining all environmental related matters into one newsletter with other affected agencies	WMD & other			XX			
2. Determine way in which newsletter will be structured financed	applicable			XX			
3. Determine editor(s) and possible article contributors	Departments			X			
4. Determine basic format & frequency of issues				X			
5. Determine method of distribution				X			
6. Editor(s) determine operating procedures and time of first issue				X			
7. Monitoring					X	X	

Table 10 – 2 (Cont.)
Integrated Implementation Plan

Education and Public Information (Cont.)

Alternative Program	Responsible Agency/Person	Year					Revenue Sources
		1991	1992	1993	1994	1995	
O. Regional and Countywide Fairs and Events	WMD			Ongoing Program			WMD Funds
1. Research existing fairs				X			
2. Develop listing of fairs along with organizing bodies				X			
3. Determine events to attend				X			
4. Contact lead agencies and express desire to participate				X			
5. Develop display				XX			
6. Develop graphics				X			
7. Monitoring					X	X	
P. Recycled Product Awareness Campaign	WMD			Ongoing Program			WMD & could charge for the sticker
1. Designate lead organizing body				X			
2. Determine rules for recognition of efforts				X			
3. Design logo for this program				X			
4. Print logo				X			
5. Publicize program				X			
6. Press Event/celebration for first distribution				X			
7. Monitoring					X	X	
Q. Community Education Workshops	WMD			Ongoing Program			WMD Funds
1. Develop topics for workshops				X			
2. Determine area(s) in which to conduct workshops				X			
3. Develop a rough schedule of when to conduct					X		
4. Develop content outline for specific workshops					X		
5. Determine speakers and develop graphics if necessary					X		
6. Develop handout materials if appropriate					X		
7. Conduct 1st session					X		
8. Monitoring						X	
R. Purchase of "novelty items"	WMD			Ongoing Program			WMD Funds
1. Gather info/ordering info					X		
2. Determine amount available					X		
3. Determine types to purchase					X		
4. Obtain price quotes					X		
5. Purchase items					X		
6. Monitoring						X	
S. Master Recycler Composter Program	(See Chapter 2 -- Source Reduction Component for the Implementation plan for this program)						

Legend to Abbreviations:

WMD = Waste Management Department

A.O. = Administrative Office

PD = Planning Department

GSA/PD = Purchasing Division of the General Services Agency

DEH = Department of Environmental Health of the Health Services Agency

PC = Planning Commission

Building & Safety = Riverside County Building and Safety Department

CIWMB = California Integrated Waste Management Board

CC = County Counsel

County Depts./Agency = Riverside County Departments/Agencies

PIO = Public Information Officer

Goodwill: Goodwill Industries

GRHC: Garbage & Rubbish Haulers Committee

LEA: Local Enforcement Agency of Riverside County

Printing: Printing Services, General Services Agency

Purchasing: Purchasing, General Services Agency

RCSWMAC/LTF: Riverside County Solid Waste Management Advisory Council/

AB 939 Local Task Force

Cities: Incorporated Cities of Riverside County

Districts: Special Districts, Water Districts, etc.

PES = Public Education Subcommittee of the LTF

EDA = Economic Development Agency

HHWE

Household Hazardous Waste Element

HOUSEHOLD HAZARDOUS WASTE ELEMENT

I. INTRODUCTION

The Household Hazardous Waste Element (HHWE), mandated by Assembly Bill 2707 (Chapter 1406, statutes of 1990), will describe the methods by which the County will divert household hazardous waste (HHW) from County landfills. These materials, which are commonly found in households, include motor oil, car batteries, paints, solvents, pesticides, and cleansing agents. Due to the nature of these materials, if improperly disposed of in landfills, storm drains or poured directly into soil, they could endanger groundwater supplies, surface water and public health. This element will serve as a plan to divert these materials from improper disposal.

This Element describes: alternative programs considered by the County of Riverside; those diversion programs chosen for implementation; an implementation plan for each diversion program; a monitoring and evaluation plan for diversion programs; a public education program; and a description of funding requirements for all HHW diversion programs.

This Element is applicable only to the County unincorporated area; incorporated cities are responsible for their own planning. However, facilities are proposed to be open to all residents of the County, incorporated and unincorporated.

II. GOAL AND OBJECTIVES

Goal

The Goal of the Household Hazardous Waste Element is to promote proper disposal of household hazardous waste, the utilization of non-hazardous substitutes to HHW and eliminate, to the extent possible, HHW entering County landfills.

The objectives developed for the Household Hazardous Waste Element cover programs to collect, properly dispose of or recycle HHW materials, and facilities that would facilitate collection and disposal. They state the amount and time frame in which the County plans to reduce household hazardous wastes within the unincorporated area.

Objectives

1. By the year 2000 eliminate, to the extent possible, HHW from illegally entering County landfills from the unincorporated area residents.
2. Provide information on the household hazardous waste collection program, safe disposal and alternatives to household hazardous waste to 75 % of the general public within the unincorporated areas of the County by 1995 and 100% by 2000.
3. Continue and increase, to the extent feasible, the recycling of all applicable HHW.
4. Promote the safe handling and disposal of HHW in order to eliminate, to the extent possible, illegal disposal and dumping.

III. EXISTING CONDITIONS DESCRIPTION

In January of 1987, the Riverside County Board of Supervisors authorized a \$0.10 per ton addition to the tipping fee at County landfills for the operation of a household hazardous waste program. In fiscal year 1988/89 the Board increased this amount to \$0.25 per ton and in 1989/90 to \$0.35 per ton in order to provide the estimated additional funding necessary to expand the program. In fiscal year 1991/92 funding was raised to \$0.50 per ton. This funding is managed within the Waste Management Department's enterprise fund to provide accountability and efficiency in operation. The County Health Services Agency administers the program.

The Riverside County Health Services Agency, Department of Environmental Health, Hazardous Materials Management Branch began operating a mobile household hazardous waste program in February of 1990. The program utilizes a mobile container (approximately 40 cubic yards) which serves as a storage bin, to collect and temporarily store the wastes before transporting to an approved storage facility or a site of disposal or recycling. It travels to various sites within the County, remaining at one site for an average of 3 weeks, and accepting wastes three days per week. One day per location has traditionally been a Saturday. The program strives to provide this service each year to the five supervisorial districts in the County (even though the collection points vary, all City and County residents are encouraged to participate).

The program has been publicized by the use of sign space donated by the Riverside Transit Authority, County schools sending flyers home with the children, local Parent/Teacher Associations (PTA), utility bill inserts and press releases submitted to local newspapers. Please see Table 1 for a listing of existing programs and Table 2 for a description of the types and quantities of material received through collection programs.

Mobile Collection Program

The Hazardous Materials Branch (HMB) held its first three mobile household hazardous waste roundups in 1990. The first was in the community of Pedley, located in the western end of Riverside County. It was open four days per week from February 13 until March 29, 1990. During this period of time 572 persons visited the site to drop off their HHW. The second roundup was held near the City of Hemet, located in the west central portion of the County. It was open from April 7 until April 26, 1990, drawing 538 participants throughout the month. The third roundup was held in the Coachella valley in October. This event coincided with the County's Trashbuster event in the area. Trashbusters is an annual cleanup event for unincorporated areas of the County. Often Cities also coincide their own cleanups with this event. This event drew the least number of participants, 172.

Through March of 1991, the HMB held two more events: a mobile program in the Temecula/Murrieta area (the southwestern portion of the County), and a one-day event, coinciding with Trashbusters in the City of Banning. Data from these events are not yet available.

Load Checking

In addition to the mobile household hazardous waste program, the County also operates a load checking program. The program was implemented in February of 1991 at the Coachella Valley landfills of Edom Hill, Coachella, Mecca and Oasis and the Palo Verde Valley landfill of Blythe. The County intends

Table 1
Summary of Existing Household Hazardous
Waste Collection Programs

Existing Program		Sponsor	1990 Diversion from County Landfills*		Comments
Mobile Household Hazardous Waste Collection Program	Riverside County Health Services Agency, Department of Environmental Health, Hazardous Materials Branch	Gallons 7,195 Pounds 18,359 Containers 247**	Program began in February of 1990		
Load Checking Program	Riverside County Health Services Agency, Department of Environmental Health, Hazardous Materials Branch and the Waste Management Department	(diversion was not during calendar year 1990)	Program began in February of 1991. As of July 1, 1991, it was operating at the Blythe, Coachella, Edom Hill, Mecca and Oasis Landfills. It will be expanded to all landfills as they are due for repermitting under the Regional Water Quality Control Board.		
One – Day Events	Riverside County Health Services Agency, Department of Environmental Health, Hazardous Materials Branch	(diversion was not during calendar year 1990)	One – day events are similar to the mobile program and have been held in the Cities of Moreno Valley, Riverside and Beaumont.		
Curbside Collection of Used Motor Oil	Operated by the private waste haulers and regulated by the Riverside County Health Services Agency Department of Environmental Health	Program will begin July 1, 1992 per County Ordinance 657, Resolution 90 – 668	Will be operated by private disposal companies and regulated by the County Health Services Agency, Environmental Health Division		

* For a complete listing of all materials collected from these programs, please see Table 2.

** Source: Riverside County Hazardous Materials Branch of the Health Services Agency.

Table 2

Quantities Collected from Mobile Collection Program for Calendar Year 1990* For Entire County

Material	Gallons	Pounds	Containers	Management Method
Used Oil	4,300	n/a	n/a	Recycle
Latex Paint	700	n/a	n/a	Recycle
Oil Base Paint	2,150	n/a	n/a	Blended Fuel
Solvents, Thinners...	n/a	9,600	n/a	Land Disposal**
Gasoline & Oil mix	45	n/a	n/a	Blended Fuel
Aerosols	n/a	1,255	n/a	Inceneration
Pesticides	n/a	3,285	n/a	Land Disposal, Inceneration
Corrosives	n/a	3,100	n/a	Land Disposal
Oxidizers	n/a	600	n/a	Land Disposal, Inceneration
Car Batteries	n/a	n/a	247	Recycle
Mercury	n/a	17	n/a	Recycle
Misc.	n/a	502	n/a	
Total	7,195	18,359	247	

Collections for Calendar Year 1990 Unincorporated Area Only*

Material	Gallons	Pounds	Containers	Management Method
Used Oil	652	n/a	n/a	Recycle
Latex Paint	106	n/a	n/a	Recycle
Oil Base Paint	325	n/a	n/a	Blended Fuel
Solvents, Thinners...	n/a	1,454	n/a	Land Disposal
Gasoline & Oil mix	8	n/a	n/a	Blended Fuel
Aerosols	n/a	190	n/a	Inceneration
Pesticides	n/a	498	n/a	Land Disposal, Inceneration
Corrosives	n/a	469	n/a	Land Disposal
Oxidizers	n/a	91	n/a	Land Disposal, Inceneration
Car Batteries	n/a	n/a	4	Recycle
Mercury	n/a	2	n/a	Recycle
Misc.	n/a	76	n/a	
Total	1,091	2,780	4	

*Amounts are based upon the lbs. per person received throughout 1990 and 190 participants from the unincorporated area.

** Land Disposal of HHW is at Class I Landfills (Hazardous Waste Disposal Sites)

to implement the program at the remaining landfills as they are routinely repermited under the Regional Water Quality Control Board.

The load checking program utilizes Hazardous Materials Specialists to conduct periodic visual checks of truck loads as they are entering and dumping at the landfill. Load checks are performed on commercial and non-commercial loads of solid waste on a daily basis at the five designated landfills. Loads to be checked are segregated from the face of the landfill. If hazardous wastes are found, every effort will be made to identify the generator of the material. If a generator is identified, the company/individual will be notified of the problem and required to recover and properly dispose of the material. For small quantities of hazardous waste (less than 5 gallons) and those which can not be linked to a generator, the landfill will assume the status of generator, and properly dispose of the material. Noncompliance by identified generators could result in felony charges being brought against the individual(s) and/or company.

Curbside Collection of Waste Oil

In December of 1990, the Riverside County Board of Supervisors passed Resolution 90-668, which requires all haulers in the densely populated portions of the unincorporated County area begin offering curbside recycling services to 100% of their unincorporated area residential accounts by January 1, 1992. This resolution also requires the addition of used motor oil to the curbside collection program by July 1, 1992. In order to facilitate and encourage the implementation of this new program, the Riverside County Board of Supervisors authorized the Waste Management Department to provide \$400 per curbside collection vehicle to County waste haulers to assist them in equipping their vehicles with containment or other types of storage tanks. The waste haulers must use the vehicles in either the unincorporated area program, or in an ongoing incorporated area program. This action also directed the Waste Management Department to apply for a used oil collection demonstration program grant from the State Integrated Waste Management Board. Senate Bill 1200 (Chapter 1657, Statutes of 1990) directs the State Board to develop this one-time grant project for used oil collection programs.

In 1991 Assembly Bill 2076 (Chapter 817, Statutes of 1991) was passed by the State. This bill will enact the California Oil Recycling Enhancement Act and require a deposit of \$0.04 per quart/\$0.16 per gallon on lubricating oil. Monies paid to the State will be used to finance used oil recycling programs and collection centers throughout the State. Grants which would be made available due to this law will be sought by the County.

Estimate of Household Hazardous Wastes Illegally Disposed

According to the Waste Characterization Study completed for the unincorporated area of Riverside County, approximately 3,000 tons of HHW are illegally disposed of in landfills each year. For the entire County, this figure rises to 10,600 tons of HHW illegally disposed of in landfills.

IV. EVALUATION OF ALTERNATIVE PROGRAMS

In order to expand the HHW collection service, and provide for all residents of the unincorporated area, Riverside County developed and considered many diversion programs. These programs include collection events, facilities to simplify the collection, storage and disposal of HHW and public education programs. Following are the programs considered by Riverside County. These programs represent

possibilities for implementation, not chosen diversion alternatives. Those programs chosen for implementation are discussed in Section V of the element.

Alternative Programs

Collection Programs

Periodic Community-wide, or neighborhood household hazardous waste collection

One-day events have been held in the cities of Moreno Valley, Riverside, and Beaumont.

Permanent drop-off sites at all new and existing solid waste management facilities, and at all new or existing off-site, multi-user, hazardous waste treatment, storage and solid waste disposal facilities.

Permanent Collection Facilities at all Landfills

Material Recovery Facility (MRF) Capability to Accept Mobile Program

Private MRF Collection of HHW

Public-Sponsored MRF Collection of all HHW

Central Collection Facility

Local activities, actions or efforts to encourage the formation of privately or publicly operated fee-for-service, door-to-door, or curbside household hazardous waste collection programs

Curbside HHW Pick-up

Load Checking

The County has implemented a load checking program at the five desert landfills of Blythe, Coachella, Edom Hill, Mecca and Oasis. Expansion is expected as the remaining landfills repermit under the Regional Water Quality Control Board.

Recycling Programs

The County currently recycles all applicable material collected through the mobile program and will continue this practice with new collection programs.

Public Education and Information Programs

HHW Recycling and Reuse

Media Educational Program

Utilization of Available Promotional Sources

Encourage the Use of Alternatives to HHW

Promotional Packets for City Utilization

Evaluation

After compiling the listing of all possible programs for implementation, each program was considered in light of 10 criteria. The purpose for evaluation of the alternative programs was to look at each alternative program in light of various aspects. Each alternative program was assigned a grade from 1 - 5 based upon an anticipation of its' degree of satisfactorily meeting the criteria (See Appendix B for the list of criteria, grading definitions and grading sheet).

V. ALTERNATIVE PROGRAM SELECTION

The grading exercise of the previous section facilitated a prioritization of programs to pursue for implementation. A qualitative analysis of each program contributed to the final prioritization of component alternatives. The programs are divided into two (2) tiers. The first tier will be pursued for implementation with the second tier following only if monitoring of the front line programs determine the need to augment with additional programs.

The following pages contain a description of each existing program and alternative program proposed for implementation. These existing and planned programs will together constitute the County's HHW collection and education program. The description of these programs include a justification for selection for implementation, proposed methods for handling and disposal, end-uses (i.e. recycling or disposal) for the materials to be collected, and a description of required additional or expanded facilities.

EXISTING PROGRAM

Load Checking

DESCRIPTION

The load checking program is designed to randomly check loads entering the landfill for hazardous wastes. Selected loads are dumped near, but not at, the working face of the landfill and checked for hazardous wastes. If hazardous wastes are found, they will be pulled from the load by trained personnel and disposed of properly. If hazardous wastes are found in quantities of more than five gallons, the generator is notified and required to recover and properly dispose of the material. The program has been implemented at the Blythe, Coachella, Edom Hill, Mecca and Oasis landfills.

JUSTIFICATION FOR SELECTION

Existing program mandated by the Regional Water Quality Control Board.

IDENTIFICATION OF END USES

End uses in the regional area have been identified for the following materials: water base paint, waste oil, car batteries and mercury. Please see Appendix F for a listing of these end-users.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and California Occupational Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

This program required the acquisition of land/sea containers for each landfill for the storage of hazardous wastes removed from the landfill. These containers serve as the facility.

EXISTING PROGRAM

Mobile Household Hazardous Waste Collection

DESCRIPTION

This program operates throughout Riverside County collecting HHW, at no direct charge to County residents. It travels to different sites within the County, staying at one site for three weeks and operating for twenty hours per week. The program strives to reach each of the five supervisorial districts at least once per year and is intended only for residents of the Cities and unincorporated areas of Riverside County. Based upon the locations used by the mobile program since the onset, it is reasonable to expect that it will reach each of the following areas once per fiscal year, and that at least a one-day event will coincide with each County Trashbusters events: Coachella Valley, Temecula/Murrieta, Pedley/Riverside and Hemet.

JUSTIFICATION FOR SELECTION

This is an existing program designed to provide flexibility in the collection of household hazardous wastes. It has been selected for continuation because it is already operating, is a flexible program and is effective in servicing a large area.

IDENTIFICATION OF END USES

End uses in the regional area have been identified for the following materials: water base paint, waste oil, car batteries and mercury. For a listing of these end-users please see Appendix F.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and the California Occupational Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

This program required the acquisition of a drop box container for storage of the collected wastes. These containers, which are modified to provide secondary containment systems among other items, serve as the facility.

EXISTING PROGRAM

One-Day Collection Events

DESCRIPTION

This is an existing program designed as a means for collecting HHW from residents of sparsely populated areas. The program operates similarly to the mobile program, however, is only open to collect wastes for one day (this is normally a Saturday). This method is effective in servicing outlying areas of the County.

JUSTIFICATION FOR SELECTION

This is an existing program, which was implemented due to its flexibility in traveling to various areas of the County, and effectiveness in reaching the sparsely populated areas of the County.

IDENTIFICATION OF END USES

End uses in the regional area have been identified for the following materials: water base paint, waste oil, car batteries and mercury. Please see Appendix F for a listing of the end-users.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and the California Occupational Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

This program required the acquisition of a drop box container for household hazardous wastes collected. These containers, which were modified to provide secondary containment systems, serve as the facility.

EXISTING PROGRAM

Curbside Collection of Used Motor Oil

DESCRIPTION

This program, mandated by County Resolution 90-668, requires haulers in the unincorporated area to offer curbside collection of recyclables. Used motor oil is to be added to the program by July 1, 1992. This program will provide a convenient means for County residents to dispose of used motor oil.

JUSTIFICATION FOR SELECTION

This is an mandated expansion of an existing program. The expansion is mandated per County Resolution 90-668.

IDENTIFICATION OF END USES

End uses in the regional area have been identified for the waste oil. Please see Appendix F for a listing of the end-users.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and the California Occupational Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

This program requires the acquisition of specially designed containers to hold waste oil picked up from residents. Oil can be stored at a haulers' maintenance yard in existing oil containers. Residents will be required to utilize gallon containers. Container specifications have yet to be determined.

PROGRAM

Utilization of Available Promotional Sources

DESCRIPTION

Utilize all available private and public promotional sources. These sources include, but are not limited to, cable television stations, mass transit poster boards on the outside of the vehicles, and utility bill inserts.

JUSTIFICATION FOR SELECTION

This program was selected for implementation due to its effectiveness in providing information to the public regarding upcoming events, flexibility, lack of need for new or expanded facilities and the visibility the programs would receive.

IDENTIFICATION OF END USES

Identification of end-uses is not applicable to this program.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Media Educational Program

DESCRIPTION

A media educational program for the HHW collection events would entail the usage of public service advertising (for both newspapers and radio stations), press releases to local newspapers, television stations, and radio stations, and if necessary the purchase of advertising space. This program also assumes the usage of video's for presentations and showing on cable television stations.

JUSTIFICATION FOR SELECTION

This educational program was selected for implementation due to its effectiveness in providing information to the public on upcoming HHW events and the importance of properly disposing of HHW, flexibility, little to no hazards created and little to no institutional barriers.

IDENTIFICATION OF END USES

Identification of end-uses are not applicable to this program.

METHODS OF HANDLING MATERIALS

Material handling methods are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Encourage the Use of Alternatives to HHW

DESCRIPTION

Encourage residents to use alternative products to HHW. This encouragement will be publicized through brochures the Health Services Agency has acquired from the State Department of Toxic Substances Control, public service advertising and promotional campaigns.

JUSTIFICATION FOR SELECTION

This program was selected for implementation based upon its consistency with local policies, lack of need for new or expanded facilities, flexibility and little to no hazard created. In addition this program, in the long term, will have a positive effect upon the generation of HHW, as residents will be educated on safe alternatives.

IDENTIFICATION OF END USES

Identification of end-uses is not applicable to this program.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Promotional Packets for City Utilization

DESCRIPTION

Utilize promotional packets for Cities to aid in advertisement of upcoming HHW programs. These packets would contain reproducible flyers on the upcoming collection event, press releases, posters, brochures and a checklist of outlets and groups to contact to publicize the program.

JUSTIFICATION FOR SELECTION

This program was selected for implementation based upon its consistency with local policies, lack of need for new or expanded facilities, flexibility and little to no hazard created. In addition this program will aid the County in publicizing upcoming mobile or one-day collection events. The program will also aid the cities in publicizing the programs to their residents and gain greater volumes of materials diverted.

IDENTIFICATION OF END USES

Identification of end-uses is not applicable to this program.

METHODS OF HANDLING MATERIALS

Methods of handling materials are not applicable to this program.

FACILITY REQUIREMENTS

Facility requirements are not applicable to this program.

PROGRAM

Private MRF Collection of HHW

DESCRIPTION

This program is designed to encourage existing MRF's within the County to accept paint, waste oil, antifreeze and car batteries. The four materials previously mentioned have been deregulated by the State Department of Toxic Substances Control only if they are to be recycled and comprise approximately 75% of HHW collected through County programs. This method would provide a convenient means for collecting HHW from residents. In addition, MRF's will be located closer to population centers than landfills.

JUSTIFICATION FOR SELECTION

This program was selected because of its effectiveness in collecting HHW, the positive consequences on the waste stream and the availability of end-uses for the materials.

IDENTIFICATION OF END USES

End uses in the regional area have been located for the following materials: water base paint, waste oil, car batteries and antifreeze. Please see Appendix F for a listing of these materials.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and the California Occupational Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

This program requires the addition of an area in which to collect and store HHW. The total area would be small in comparison to the total area of the MRF.

PROGRAM**HHW Recycling and Reuse****DESCRIPTION**

Develop and maintain Household Hazardous Waste recycling and reuse referral program. This program could refer residents to private businesses accepting household hazardous wastes, notify residents of upcoming collection events for those wastes private businesses do not accept, and investigate the feasibility of implementing a waste exchange program for reusable and unopened household hazardous wastes.

JUSTIFICATION FOR SELECTION

This program was selected for implementation based upon its positive consequences upon the waste stream, relatively few institutional barriers to implementation and the relatively few hazards of the program.

IDENTIFICATION OF END USES

The businesses collecting the materials will serve as the end-users.

METHODS OF HANDLING MATERIALS

Proper material handling methods and transportation methods will be conveyed to all residents.

FACILITY REQUIREMENTS

This program does not require the acquisition or modification of any facilities.

PROGRAM

MRF Capability to accept Mobile Program

DESCRIPTION

Develop capability for existing Material Recovery Facility(ies) (MRF's) and/or transfer stations to accept mobile/periodic HHW collection services. This program will be implemented only at the existing private MRF's in Riverside County which do not offer a permanent collection program for all HHW. The use of MRF's as a site for the County Mobile Collection Program would provide a convenient means for residents to participate in the periodic collection events. In addition, these facilities (MRF's) are generally located closer to population centers than landfills.

JUSTIFICATION FOR SELECTION

This program was selected for implementation due to its effectiveness in collecting HHW, its flexibility and positive consequences on the waste stream. Should existing private MRF's not establish a permanent collection center, surrounding residents will need an outlet for their HHW. This program would provide residents with a convenient means by which to properly dispose of HHW.

IDENTIFICATION OF END USES

This program would not directly divert materials, but facilitate the collection through the mobile and one-day collection events.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and the California Occupational Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

Facility requirements at the MRF's will be a separate area, concrete slab and a gate. Regulations as defined by the State Department of Toxic Substances Control will be adhered to.

PROGRAM

Public-Sponsored MRF Collection of all HHW

DESCRIPTION

All County-sponsored MRF's (those for which the County has either distributed an RFP for or which the County owns in whole or in part) would operate a HHW collection program for all types of HHW. This program assumes a permanent collection point does not exist for the area. Should one exist, the MRF may not require the HHW collection center. As Riverside County sponsors MRF's in the County, a requirement of these facilities would be that they accept HHW from residents. This program would offer a full-time convenient means of collecting HHW from residents. MRF's are also generally located closer to population centers than existing and future landfills.

JUSTIFICATION FOR SELECTION

This program was selected for implementation due to its effectiveness in reducing the amount of HHW in the waste stream, the positive consequences upon the waste stream and relative consistency with local policies. This program would be effective in collecting HHW because the MRF's will be built closer to population centers than the existing and future landfills.

IDENTIFICATION OF END USES

End-uses have been identified for waste oil, water base paint, car batteries and antifreeze. Please see Appendix F for this listing.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and the California Occupational Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

This program requires a separate designated area for HHW, attendants to be present whenever the HHW collection center is open, a concrete slab, provisions for primary and secondary containment and satisfaction of all other State Department of Toxic Substances Control requirements.

PROGRAM**Central HHW Collection Facility****DESCRIPTION**

Site a permanent central collection facility in the County which would be capable of combining HHW collected at other county collection facilities, storing the waste up to one year and sending out for transportation to and disposal at HHW disposal facilities. The benefit of this facility is that it would allow the County the opportunity to experience economies of scale in disposing of HHW.

JUSTIFICATION FOR SELECTION

This program was selected for implementation based mainly upon the positive impact upon the waste stream, its consistency with local policies and the qualitative analysis. A central facility will provide the County with a storage site for HHW collected through the mobile, one-day events and MRF collection facilities. The ability to store HHW (up to one year at the central facility) will lower the cost of transportation and provide economies of scale.

IDENTIFICATION OF END USES

End uses in the regional area have been located for the following materials: water base paint, waste oil, car batteries and mercury. Please see Appendix F for a listing of these end-uses.

METHODS OF HANDLING MATERIALS

Material handling methods as regulated by the State Department of Toxic Substances Control, EPA, and the California Occupation Safety and Health Administration will be adhered to strictly.

FACILITY REQUIREMENTS

This program requires the acquisition of a facility/building. Every effort will be made to acquire an existing building and make modifications in order to meet the needs of the Health Services Agency. However, should existing buildings be unavailable or cost-prohibitive for modification, the County will consider constructing its own facility.

Tier 2 Programs

The following are Tier 2 programs, which will be pursued for implementation only if monitoring shows a shortfall in the attainment of diversion goals:

Curbside Pick-up of HHW
Drop-off Sites at all Landfills

Cooperative and/or Multi-Jurisdictional Agreements

Riverside County does not have any formal cooperative or multi-jurisdictional agreements. However, all HHW collection events have been open to any resident of the County. This practice will continue in the future. The Cities and the County are exploring a system of waste management facilities which would include MRF's (see Chapter 4 for more discussion on the Countywide System Concept). Should this system be adopted, contracts will be necessary which may include HHW collection services. The Integrated Waste Management Plan will include the formal agreements for HHW collection services.

Waste Diversion Estimates

Riverside County estimates that the types and categories of waste collected at future HHW events will closely mirror those collected at previous events. All collection programs, with the exception of "Private MRF Collection of HHW", will collect all types of HHW. "Private MRF Collection of HHW" may collect only deregulated wastes; waste oil, antifreeze, water base paint and car batteries. The current recycling efforts for waste oil, antifreeze, water base paint, and car batteries will continue. By 2000 Riverside County will eliminate, to the extent feasible, HHW generated by unincorporated area residents from illegally entering County landfills.

VI. IMPLEMENTATION PLAN

Each of the programs which are designated as Tier 1 programs are listed in this section along with a description of necessary implementation tasks, time lines for completing these tasks, and the agency responsible for implementation of each program. Each Table also depicts the estimated implementation costs of each program for both public and private entities, (strictly estimates), the revenues which could be obtained as a result of the alternative program (if applicable), and the revenue sources available to fund implementation. Revenue may be obtained through the sale of car batteries. It is proposed that this revenue be channeled back into the operating budget to reduce the costs of the program to residents. Please see Tables 3.1 - 3.3 for this information.

The overall HHW program chosen for implementation will allow the County and incorporated cities to effectively offer HHW collection services to their residents. The main components of the collection program include; curbside pick-up of waste oil, working with operators of private MRF's to develop permanent collection centers for at least waste oil, water base paint, antifreeze and car batteries, and developing permanent collection centers at all public-sponsored MRF's for all types of HHW. The final element of the overall program, a permanent central collection facility, will be phased-in. This facility would combine the HHW from the MRF collection centers, store and contract for transportation and disposal services. The central facility would allow the County to take advantage of economies of scale in sending HHW for treatment and/or disposal.

Table 3.1
Household Hazardous Waste Implementation Plan
Existing Programs

Existing Program	Sponsor	Frequency of Program and Comments
Mobile Household Hazardous Waste Collection Program	Riverside County Health Services Agency, Department of Environmental Health, Hazardous Materials Branch	The County endeavors to service each of the Supervisory Districts at least once per year. Program began in February of 1990
Load Checking Program	Riverside County Health Services Agency, Department of Environmental Health, Hazardous Materials Branch and Waste Management Department	Each day landfills are operating. Program began in February of 1991. As of July 1, 1991, it was operating at the Blythe, Coachella, Edom Hill, Mecca and Oasis Landfills. It will be expanded to all landfills as they are routinely re-permitted under the Regional Water Quality Control Board.
One - Day Events	Riverside County Health Services Agency, Department of Environmental Health, Hazardous Materials Branch	Periodically. One - day events are similar to the mobile program and have been held in the Cities of Moreno Valley, Riverside and Beaumont.
Curbside Collection of Used Motor Oil	Operated by the private waste haulers and regulated by the County Health Services Agency, Department of Environmental Health	Pick - up will be once per week. Will be operated by private disposal companies.

Table 3.2
Household Hazardous Waste Element Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
A. Public – Sponsored MRF Collection of all HHW											
1. All RFP's distributed for MRF operation/ownership will specify that all types of HHW will be accepted from residents	WMD, Cities		X								
2. Contractors selected for each MRF will develop permanent HHW facilities at the MRF.		X									
3. Monitoring											
B. Utilization of Available Promotional Sources											
1. Determine available sources	HMB			X							
2. Develop a listing, by area, of sources with contact persons				X							
3. Utilize appropriate sources in each area for collection events				X		Ongoing					
4. Monitoring					X	X	X	X	X	X	X
C. Media Educational Program											
1. Develop database of media outlets in the County with contact persons	HMB										
2. Utilize all appropriate outlets in publicizing upcoming events				X							
3. Develop a library of available video presentations on HHW				X							
4. Encourage the use of appropriate video's on cable T.V. stations						X		Ongoing			
5. Monitoring						X	X	X	X	X	X
D. Encourage the use of Alternatives to HHW											
1. Have brochures, listing the alternatives available to the use of HHW, at all collection events	HMB										
2. Advertise, through various mediums, the benefits of using alternative products to HHW				X							
3. Monitoring						X	X	X	X	X	X
E. Promotional Packets for City Utilization											
1. Develop outline of what packets will include	HMB			X							
2. Develop each section of the packet				X							
3. Assemble packets						X					
4. Distribute to neighboring cities for each collection event						X		Ongoing			
5. Monitoring						X	X	X	X	X	X

Table 3.2 (Cont.)
Household Hazardous Waste Element Implementation Plan

Alternative Program	Responsible Agency/Person	Year									
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
F. Private MRF Collection of HHW	HMB & WMD										
1. Work with the operators of private MRF's to provide for the acceptance of oil, paint, antifreeze and car batteries				X -- Ongoing until compliance							
2. Monitor collection program, if implemented.				X at least annual monitoring if implemented							
G. HHW Recycling/Reuse	HMB	Ongoing Program									
1. Develop and maintain listing of private businesses which accept HHW				X							
2. Publicize the HMB capability to direct residents to appropriate businesses				X -- Ongoing							
3. Monitoring				X	X	X	X	X	X	X	X
H. MRF Capability to Accept Mobile Collection Program Services	HMB & WMD										
1. If private and existing MRF's do not provide a permanent collection point for HHW, develop an example of the required facility additions to MRF's in order to host the Mobile Collection Program.				X							
2. Encourage/assist MRF operators in expanding facilities to include those which would allow set -- up of the Mobile Collection Program											
3. Monitoring											
I. Central HHW Collection Facility	HMB, WMD, GSA, Cities										
1. Determine appropriate time frame for implementation				X							
2. Determine operation of facility (public, private or partnership)				X							
3. Determine appropriate site(s)				XX							
4. If private or partnership, use competitive bidding process to determine vendor					X	X					
5. Selection of site							X				
6. Environmental documentation						XX	X				
7. Construction							XX	X			
8. Equipment Purchase								X			
9. Monitoring									X	X	X
WMD = Waste Management Department											
HMB = Hazardous Materials Branch of the Health Services Agency											
GSA = General Services Agency											

Table 3.3
Household Hazardous Waste Element Cost Estimate
for Implementation Plan *

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs**	Estimated Private Imp. Costs (capital costs)	Public Revenues	Private Revenues	Available Revenue Sources
A. Public-Sponsored MRF Collection of all HHW (All Costs are per Facility & could be either publicly or privately operated)	WMD & HMB	WMD Start-up 100 HMB Start-up 80	Staff Costs \$2,800 Staff Costs \$2,200	\$130,000 - \$180,000 per facility*** (Operating Costs) \$1,100,000		A portion of the fee at MRF's will go toward HHW collection. This fee is currently \$0.50 per ton at landfills.	MRF tipping fees/MRF contractor
B. Utilization of Available Promotional Sources	Hazardous Materials Branch (HMB)	HMB Start-up 50 HMB Annual Staff 40	Staff Costs \$1,400 Annual Staff \$1,100	\$0	\$0	\$0	HMB Dept. funds
C. Media Educational Program	HMB	HMB Start-up 60 HMB Annual 25	Staff Costs \$1,700 Supply Costs \$500 (video purchase) Annual Staff \$700 Annual Supplies \$250	\$0	\$0	\$0	HMB Dept. funds
D. Encourage the use of Alternatives to HHW	HMB	HMB Start-up 20 HMB Annual 20	Staff Costs \$600 Supply Costs \$4,000 (printing) Annual Staff \$600 Annual Supplies \$4,000	\$0	\$0	\$0	HMB Dept. funds

*All costs are shown in 1991 dollars.

**Please see Appendix F for assumptions utilized in costing facilities.

Table 3.3 (Cont.)
Household Hazardous Waste Element Cost Estimate
for Implementation Plan*

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs**	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
E. Promotional Packets for City Utilization	HMB	HMB Start-up 80	Staff Costs \$2,200 Supply Costs \$200 (for printing)	\$0	\$0	\$0	HMB Dept. funds
		HMB Annual 80	Annual Staff \$2,200 Annual Costs \$200				
F. Private MRF Collection of HHW	HMB & Waste Managmnt Dept. (WMD)	WMD Start-up 80	Staff Costs \$2,200	\$90,000 (Costs are per facility and include equipment, storage structures and site work)	\$0	Residents will not be charged for participation. Revenue will be obtained from the sale of car batteries, (currently \$1 – 2 each)	MRF Owners
		HMB Start-up 60	Staff Costs \$1,700				
G. HHW Recycling/Reuse	HMB	HMB Start-up 40	Staff Costs \$1,100	\$0	\$0	\$0	HMB Dept. funds
		HMB Annual 40	Staff Costs \$1,100				
H. MRF Capability to Accept Mobile Collection Program	HMB & WMD	WMD Start-up 80	Staff Costs \$2,200	\$25,000 (construction of separate area.)	\$0	\$0	MRF tipping fees/MRF owner
		HMB Start-up 80	Staff Costs \$2,200				

* All costs are shown in 1991 dollars.

**Please see Appendix F for assumptions utilized in costing facilities

Table 3.3 (Cont.)
Household Hazardous Waste Element Cost Estimate
for Implementation Plan*

Alternative Program	Responsible Agency/Person	Estimated Staff Hours	Estimated Public Imp. Costs**	Estimated Private Imp. Costs	Public Revenues	Private Revenues	Available Revenue Sources
I. Central HHW Collection Facility (All Costs are per Facility & could be either publicly or privately operated)	HMB & WMD	WMD Start-up 100 HMB Start-up 700	Staff Costs \$2,800 Staff Costs \$19,600 One-Time (Capital Costs) \$340,000 - \$380,000*** (Operating Costs) \$1,100,000	(Capital Costs) \$340,000 - \$380,000*** (Operating Costs) \$1,100,000	\$0	\$0	HMB/Private Funds

WMD = Waste Management Department
HMB = Hazardous Materials Branch of the Health Agency

*All costs are shown in 1991 dollars.

**Please see Appendix F for assumptions utilized in costing facilities.

***Source For construction costs in Riverside County System Cost Study, July, 1991. Source for equipment costs is the County of Santa Clara, Department of Planning and Development, Office of Toxics and Solid Waste Management, Countywide Household Hazardous Collection Program, September 28, 1990. Cost estimates do not include land costs or environmental documentation.

IX. MONITORING AND EVALUATION PLAN

In order to quantify the achievement of the stated objectives, it is necessary to design a monitoring and evaluation program. These activities will provide Riverside County with periodic updates on progress toward the stated objectives for the HHWE. Contingency plans are included in the event program monitoring determines that a shortfall of diversion goals will be realized. This data will also be used to quantify the amount of waste diverted.

Methods to Quantify and Monitor Success in Achieving HHW Program Objectives

The objectives for Riverside County's HHW Element are stated on page 1. The basic premise of these objectives is to eliminate, to the extent possible, HHW from illegally entering County landfills, while also providing information on the household hazardous waste collection program, safe disposal and alternatives to household hazardous waste to 75% of the unincorporated general public within the unincorporated County by 1995 and 100% by 2000.

Waste generation information will be utilized to monitor achievement of the stated objectives. Riverside County, is considering updates to the Waste Characterization Study. The characterization portion of the study would determine the success in reducing the amount of household hazardous waste landfilled. In addition, the Hazardous Materials Branch keeps records of the amounts and types of waste received at each collection event.

- The use of data sheets for the collection programs and the load checking program will be continued. These data sheets provide pertinent information on the type and quantity of HHW either delivered to a collection event or pulled from landfills.
- The use of survey forms will continue with all collection events. These forms will determine the jurisdiction of residence for each participant, responses regarding the program, and where the resident found out about the event. It can serve as a suggestion form.
- Yearly summary reports will be prepared by the Hazardous Materials Branch for the Waste Management Department. These reports will contain information regarding activities of the year, costs of each separate program, as well as, the overall program, the total number of participants in each program and a description of public education activities along with the number of residents to which the information was made available.

In order to monitor the education and public information plan of this element, the following methods will be utilized:

- Circulation rates quantifying the readership/viewership of each medium utilized for media campaign will be acquired not less than quarterly. This information will be utilized to project the number of individuals to which the information was available.
- Records will be maintained on the approximate numbers of residents reached through telephone inquiries and presentations.

-Telephone surveys of residents will be considered in order to assess the success of providing information to that population. This could be handled by a college research class which would design questions (with County input), conduct actual surveys and apply statistical analysis to the results. This type of survey is also included in the Public Education Component, Chapter 7, of the Source Reduction and Recycling Element. Questions regarding household hazardous waste will be included in that survey.

Criteria for Evaluating Program Effectiveness

Each HHW diversion and public education program selected for implementation will require monitoring in terms of effectiveness. The criteria to be utilized to monitor each collection program are:

- Are the impacted agencies/entities meeting their programmatic responsibilities?
- Are the component programs and the associated tasks being implemented on schedule?
- Are component programs adequately diverting HHW from residential generators?
- Are component programs being implemented & administered in an environmentally sound manner?
- Is the entire education and public information campaign being implemented on schedule and meeting its' objectives?

Agency Responsible

The Riverside County Hazardous Materials Branch will be responsible for conducting the monitoring evaluating program.

Funding Requirements

The funding requirements for the monitoring and evaluation program are estimated to be approximately \$2,000 per year (in 1991 dollars). This cost will include development and printing of surveys for collection events, any funding for the telephone surveys (which will be conducted in conjunction with the telephone survey mentioned in the public education component) and acquisition of circulation rates. It is estimated that approximately 200 staff hours per year will be required to monitor and evaluate the HHW collection and public education programs. The HHW program is funded from the Waste Management Department Enterprise Fund which receives its revenues from tipping fees.

Contingency Measures

Contingency measures are identified in the event that monitoring determines a shortfall in the attainment of the stated objectives. The contingency measures are:

- Implement a more aggressive public education program
- Increase the frequency of collection events
- Modify the HHW program objectives

X FUNDING

The ability to fund the measures set forth in this precursory element to the future Integrated Waste Management Plan for Riverside County is crucial in meeting the mandates of AB 2707. This component addresses the ways and means of funding the various component programs chosen for implementation. These program are intended to cover only the unincorporated area. Cities are responsible for development and implementation of their own plans. Although, many of the programs contained in this Element, such as education and collection programs, will service all County residents.

Short-Term Funding Requirements

The primary agencies responsible for the implementation of the unincorporated County's Household Hazardous Waste Element are the County Waste Management Department and the Hazardous Materials Branch (HMB) of the County Health Agency. The HMB will have primary responsibility for promotional and educational activities, the recycling and reuse of other types of household hazardous waste, as well as, operating the HHW collection programs. The HMB and Waste Management Department will work with operators of materials recovery facilities to accept household hazardous waste, to handle and store the waste on a temporary basis and then to send it to an approved final disposal location. The County is also contemplating the development of a central receiving facility dedicated for longer term household hazardous waste storage prior to final disposal.

Funds for the HMB efforts will initially come from the County Health Agency, though it is anticipated that it will seek reimbursement of these expenses from Waste Management Department tipping fee revenues. The County currently allocates \$0.50 per ton for household hazardous waste programs. These revenues will continue to fund the County's expenses, including its portion of facility expenses at materials recovery facilities and at the dedicated permanent (up to one year) storage facility. MRF tipping fees are also a possibility for funding part or all of the HHW permanent collection centers. Other potential funding sources include: using bond proceeds to pay for the capital costs associated with the establishment of the collection facilities; requiring, through contract, vendors of materials recovery facilities to include household hazardous waste collection at their facilities; and State provided discretionary and non-discretionary grants. One program in the HHWE is that all Public-sponsored MRF's will include permanent HHW collection facilities. At this time, it is anticipated that these facilities (HHW collection point only) may be publicly operated and that the costs for operation will be paid from tipping fees. Please refer to the implementation schedules for a detailed breakdown of projected costs.

Table 4 depicts the estimated short-term planning period (1990 - 1995) funding requirements for the Household Hazardous Waste Element. The estimated staffing requirements and costs follow Table 4. The assumptions used in estimating costs are:

All costs are shown in 1991 dollars.

Funding for capital requirements would be the year before the facility is operational.

For purposes of this component, only one publicly developed MRF (private operator , selected by competitive RFP process) will be operational by 1995. Four additional MRF's will require capital outlays for a HHW collection center in 1995 and would be operational in 1996.

The cost for developing one permanent collection center at a MRF was estimated at \$155,000 (this is the average cost for the range shown in Table 3.3).

The HMB will operate the HHW collection centers at MRF's.

Funding for these facilities and programs will come from the tipping fees either at the specific facility or at the landfills.

Table 4 Estimated Short-Term Implementation Costs				
Program	1992	1993	1994	1995
Educational Programs	0	4,700	4,450	4,450
County Sponsored MRF Collection of HHW	0	0	155,000	1,720,000
Total Cost	\$0	\$4,700	\$159,450	\$1,724,450
Cost per Ton ¹	\$0.0	\$0.003	\$0.09	\$0.93

Estimated Staff Hours

The implementation of the programs identified in each of the components will require staff time from both the HMB and Waste Management Department. It is estimated that approximately 1,020 total staff hours will be required throughout the short-term planning period (1990 - 1995) for the HMB and 240 total staff hours for the Waste Management Department. This equates to \$35,300 dollars if full-time staff are utilized in the HMB and Waste Management Department. It should be noted, however, that the Waste Management Department and HMB may cover the required staff hours through full-time staff, part-time staff, volunteers and/or consultants. Each program will be evaluated at the time of implementation to determine which staff option would be most appropriate and cost effective.

Countywide Waste Management System

The Countywide waste management system of facilities, discussed earlier in this section, is proposed to include MRF's. Those MRF's which will be privately developed and financed will have the opportunity to join the system and could include a HHW collection facility. Based upon the cost estimates shown in the HHWE and the assumption that two private MRF's will be operational in 1994, it can be estimated that as much as \$2,200,000 in operating costs for these facilities could be incurred in 1994 and 1995.

Contingency Funding

The preferred funding sources for the Household Hazardous Waste Element are tipping fees from landfills and/or MRF's. Where feasible, grants will be sought to augment the preferred funds. Should the preferred source of funding be insufficient, other potential sources include:

¹Cost per ton equals the total cost for each year divided by the actual 1990 tonnage, 1,861,500.

Bonds

The County, Cities and Regional Associations of Governments are currently working together to develop a system of processing facilities. It is anticipated that facilities will be operated by private vendors through contract and that bonds will be sold in order to finance the development of the facilities. Proceeds from these bond sales could also be used to finance the development of the HHW collection centers and some promotional activities.

Private Funding

Private funding could be used for the development of HHW collection facilities. Vendors of MRF's could be required, by contract, to develop and operate the facilities. The costs for facilities would most likely be recovered through the tipping fees charged at the facilities. This funding source would not be used to cover County promotional and educational activities.

In addition to these measures, the Department will consider the feasibility of obtaining some revenue from two private regional landfill projects being proposed within the County, wherein a revenue stream of unknown magnitude could be realized from the out-of-County waste imports.

Glossary

GLOSSARY

The following definitions shall apply to the regulations contained in this Chapter.

Aerobic Composting:

Oxygen is used during the composting process.¹

Anaerobic Composting:

Oxygen excluded from the composting process.²

Agricultural wastes.

"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 through 0291.

Aluminum can or aluminum container.

"Aluminum can" or "aluminum container" means any food or beverage container that is composed of at least 94% aluminum.

Asbestos.

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

Ash.

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

Bi-metal container.

"Bi-metal container" means any metal container composed of at least two different types of metals, such as a steel container with an aluminum top.

Bio-mass fuel plant.

Facility using fuel derived from living or previously living things. These facilities generally burn wood wastes, as a fuel, in the production of energy or steam. These facilities are often characterized by a homogeneous waste stream consisting mainly of wood wastes.³

Best readily available and applicable data or representative data.

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

Bulking Agent.

Material utilized in the composting process to absorb moisture and assist aeration. Examples of bulking agents include wood chips, sawdust, and yard waste.⁴

Buy-back recycling center.

"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.

California Integrated Waste Management Board

Regulatory authority over non-hazardous solid waste and its' disposal. State agency charged with ensuring compliance with Assembly Bill 939 (Chapter 1095, Statutes of 1989).

Capital costs.

"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.

Co-Composting:

Co-composting refers to the simultaneous composting of two or more diverse waste streams. California law defines co-composting as mixing the two streams at approximately 80% municipal solid waste and 20% wastewater treatment plant sludge or septage.⁵

Note: The composting of yardwaste with sludge is often referred to as co-composting. The term co-composting is used throughout the Source Reduction and Recycling Element in accordance with the above definition which specifies the mixing of municipal solid waste and wastewater treatment plant sludge or septage.

Commercial solid wastes.

"Commercial solid wastes" means solid waste originating from stores, business offices, commercial warehouses, hospitals, educational, health care, military, and correctional institutions, non-profit research organizations, and government offices. Commercial solid waste refers to SIC Codes 401 through 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.

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

Composition.

"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 this Chapter.

Compost.

The product resulting from the controlled biological decomposition of organic wastes that are source separated from the municipal solid waste stream or which are separated at a centralized facility. compost includes vegetable, yard, and wood wastes which are not hazardous waste (reference: Section 40116 of the Public Resources Code).

Composting facility.

"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.

"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.

"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 semi-chemical wood pulps, straw or reclaimed paper stock, and folded to form permanent corrugations. Corrugated container refers to SIC Code 2653.

Cost-effective.

"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.

"Disposal" means the management of solid waste through landfilling or transformation at permitted solid waste facilities.

Disposal capacity.

"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.

"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.

"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.

Durability.

"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.

"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.

Municipal Solid Waste Composting:

The process involves the biological decomposition of the putrescible (odor causing) components of the waste stream and produces a stable end-product, which has value as a soil conditioner or organic fertilizer base.⁶

Municipal solid waste or MSW.

"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.

Non-ferrous metals.

"Non-ferrous 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.

Non-recyclable paper.

"Non-recyclable paper" means discarded paper which has no market value because of its physical or chemical or biological characteristics or properties.

Non-renewable resource.

"Non-renewable resource" means a resource which cannot be replenished, such as those resources derived from fossil fuels.

Normally disposed of.

"Normally disposed of" refers to those waste categories and waste types which: 1) have been demonstrated by the Solid Waste Generation Study, conducted pursuant to section 18722 of this Chapter, to be in a solid waste stream 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.

"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.

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

Inert solids or inert waste.

"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.

Intermediate Processing Facility (IPF)

A facility which only accepts source separated recyclable materials (some of which may be collected in commingled containers) for the purposes of further separation and preparation for market and eventual use as feedstock in the manufacture of new products.

Jurisdiction.

"Jurisdiction" means the 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 SRR Element.

Marine wastes.

"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.

"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.(MRF)

"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. The Riverside County Local Task Force, in December of 1991, established the following definition for MRF: A solid waste facility where mixed solid waste is sorted or separated, by hand or by machinery, for the purpose of recovering recyclable materials (some of which may be collected in commingled containers) for market and eventual use as feedstock in the manufacture of new products. Materials recovery facilities may also sort through source separated recyclable material. Material recovery facilities recover at least 15 percent of the solid waste entering the facility. Those which do not are classified as transfer stations.

Medium-term planning period.

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

Mixed paper.

"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.

Municipal Solid Waste Composting:

The process involves the biological decomposition of the putrescible (odor causing) components of the waste stream and produces a stable end-product, which has value as a soil conditioner or organic fertilizer base.⁶

Municipal solid waste or MSW.

"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.

Non-ferrous metals.

"Non-ferrous 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.

Non-recyclable paper.

"Non-recyclable paper" means discarded paper which has no market value because of its physical or chemical or biological characteristics or properties.

Non-renewable resource.

"Non-renewable resource" means a resource which cannot be replenished, such as those resources derived from fossil fuels.

Normally disposed of.

"Normally disposed of" refers to those waste categories and waste types which: 1) have been demonstrated by the Solid Waste Generation Study, conducted pursuant to section 18722 of this Chapter, to be in a solid waste stream 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.

"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.

"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.

"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.

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

Permitted landfill.

"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 permitted under the regulatory scheme of another state.

Permitted solid waste facility.

"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 permitted under the regulatory scheme of another state.

Plan or Countywide Integrated Waste Management Plan.

"Plan" or "Countywide Integrated Waste Management Plan" means the Countywide Integrated Waste Management Plan as defined in section 41750 of the Public Resources Code.

Program.

"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 waste stream to achieve the objectives identified in the Source Reduction, Recycling, Composting, Special Waste, and Household Hazardous Waste components, respectively.

Purchase preference.

"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 non-recycled products and still be deemed the lowest bid.

Rate structure.

"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.

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

Refuse derived fuel.

Solid waste, from which non-combustibles have been removed, and which has been processed into small, relatively uniform pieces. Processing of MSW into RDF increases the fuel efficiency over non-processed waste. This material is then used as feedstock for waste-to-energy plants.⁷

Region.

"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.

Regional water quality control boards

Regulate the use of California's water and establish waste discharge requirements to protect water quality. The three regional boards which serve Riverside County: Santa Ana Region (No. 8), Colorado River Basin Region (No. 7), and the San Diego Region (No. 9).

Rendering.

A process of salvaging fats and oils, animal feed, and other products from animal waste by cooking. Dead animals, fish and other wastes from slaughter houses and butcher shops are commonly used.

Repairability.

"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.

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

Residential unit.

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

Reusability.

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

Re-use.

"Re-use" means the use, in the same form as it was produced, of a material which might otherwise be discarded.

Rubber.

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

Salvage.

"Salvage" means the controlled removal of solid waste materials at a permitted solid waste facility for recycling, re-use, composting, or transformation.

Scavenging Uncontrolled.

The removal of materials at any point in the waste stream.

Seasonal.

"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.

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

Short-term planning period.

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

SIC Code.

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

Sludge.

"Sludge" means residual solids and semi-solids 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.

Sludge/Yard Waste Composting.

The composting of acceptable sewage sludge with the utilization of yard waste as the bulking agent.

Solid Waste Generation Study.

"Solid Waste Generation Study" means the study undertaken by a jurisdiction to characterize its solid waste stream and comply with all the requirements of section 18722 of this Chapter.

Source Reduction and Recycling Element or SRR Element

"Source Reduction and Recycling Element" or "SRR Element" means the source reduction and recycling element required pursuant to Public Resources Code sections 41000 and 41300.

Source separated.

"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.

"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.

Statistically representative.

"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 of this Chapter. 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.

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

Ton.

"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 tone or net ton.

Transformation facility.

"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 no include a composting facility.

Volume.

"Volume" means a three dimensional measurement of the capacity of a region of space of 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.

"Waste categories" means the grouping 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 this Chapter, alternative means of classification.

Waste diversion.

"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.

"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.

Waste type.

"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 this Chapter, except where a component-specific requirement provides alternative means of classification.

White goods.

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

Wood waste.

"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.

Woody wastes

"Woody wastes" as used herein shall mean combustible wood and plant wastes which are not contaminated with treated or painted wood, garbage, metal, glass, plastic, petroleum or petrochemicals, rubber or tires, batteries, putrescible fruits or foods, and are otherwise acceptable by Colmac as fuel at its facility within the permit limitations set forth in Exhibit "C" of the Sublease Agreement between the County of Riverside and Colmac Energy, Inc. dated September 24, 1991.⁸

Yard waste.

"Yard waste" means 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.

Yard Waste Composting:

The composting of material in the municipal solid waste stream that is considered yard waste.

NOTE: Authority cited: Sections 40502 and 41824, Public Resources Code. Reference: Sections 41000, 41300 and 41823, Public Resources Code.

1. Clarence Goloueke, "The Rationale for Composting", The Biocycle Guide to Composting Municipal Wastes, Edited by the Staff of Biocycle, Journal of Waste Recycling, Pg. 2
2. Clarence Goloueke, "The Rationale for Composting", The Biocycle Guide to Composting Municipal Wastes, Edited by the Staff of Biocycle, Journal of Waste Recycling, Pg. 2
3. Hocker, Christopher, "A Versatile Solution for Varied Wastes", Solid Waste & Power, Volume IV, No. 5, October 1990, page 28.
4. Department of Landscape Architecture Graduate Program, California State Polytechnic University, Pomona, Regeneration of Degraded Landscape Utilizing Composted Organic Waste, June 1988, page 17.
5. California Waste Management Board, Achieving Optimal Waste Recycling and Source Reduction: Methods to Reach Your County's Recycling Goal, resource Manual, by R.W. Beck and Associates, May 1989, Pg. 3-21,
6. California Waste Management Board, Achieving Optimal Waste Recycling and Source Reduction: Methods to Reach Your County's Recycling Goal, Resource Manual, by R.W. Beck and Associates, May 1989, Pg. 3-21,
7. Hocker, Christopher, "Waste-to-Energy Development: Who's Doing What and Why?" Solid Waste & Power, Volume V, Number 4, August 1991, page 12.
8. Sublease Agreement between the County of Riverside and Colmac Energy, Inc. dated September 24, 1991, pg 2.

APPENDIX A

Waste Generation Study

WASTE GENERATION STUDY

The material included in this appendix regarding the Waste Generation Study for the unincorporated area of Riverside County is from: Riverside County Waste Generation Study, Preliminary Report, June 14, 1991. The waste generation study was conducted as a joint effort for the County and its incorporated cities. Much of the information that follows will touch on Riverside County cities. It is included in order to help the reader fully understand and appreciate how the Waste Generation Study was completed.

I

RIVERSIDE COUNTY SOLID WASTE CHARACTERIZATION STUDY

SECTION 1: OVERVIEW

1.1 INTRODUCTION

In an effort to reduce the volume of waste entering landfills, the state of California has passed legislation mandating that all cities and counties reduce the amount of waste they are currently generating. The state, through Assembly Bill 939 (AB939), has directed each city and county in California to meet source reduction and recycling goals of 25 percent by January 1, 1995 and 50 percent by January 1, 2000.

The first step in meeting these requirements is accurately documenting by source and by material what is currently being landfilled by each city and county. The County of Riverside retained CH2M HILL and Recovery Sciences, Inc. (RSI) to perform a waste characterization study for its 23 cities and the unincorporated area(s) of the county to document the composition of their wastestreams. RSI, through past experience of more than 25 waste characterization studies, has developed a highly effective sampling protocol for waste characterization. This sampling protocol offers a comprehensive profile of a targeted wastestream, using a minimum number of samples. Details of this sampling protocol have been submitted to the California Integrated Waste Management Board (CIWMB). Comments from the CIWMB have been responded to (see Appendix F).

The waste characterization study was conducted over three sampling periods. The first was from August 27 to September 21, the second period was from October 22 to November 9, and the third period was from December 3 to December 14, 1990.

For Riverside County's Waste Characterization Study two separate studies were performed, one for the Manually Sampled sub-wastestream and the other for the Observationally studied sub-wastestream.

1.2 MANUALLY SAMPLED SUB-WASTESTREAM

The Manually Sampled sub-wastestream study dealt exclusively with waste from residential and commercial/industrial sources handled by commercial waste haulers. This sub-wastestream is also known as the compacted sub-wastestream due to the nature of the material, and the vehicles, which compact the refuse as it is collected. Materials found in this sub-wastestream are varied, and tend to be light in weight.

Sampling occurred over three periods at both the Badlands and Coachella Landfills. Trucks from each city that normally used other county disposal sites were diverted to either Badlands or Coachella Landfill to insure a representative sampling of the entire county and each city. Two random samples were then taken from each truck and were separated into 35 different material categories. The Manually Sampled sub-wastestream, accounts for 62 percent of the County's overall wastestream totaling 1,156,505 tons in FY 1989-1990. A total of 737 samples overall were taken from this sub-wastestream.

1.3 OBSERVATIONALLY STUDIED SUB-WASTESTREAM

The Observationally Studied sub-wastestream, also called the uncompacted sub-wastestream, consists of materials that tend to be bulky and heavy. This material is usually hauled loose in drop boxes or non-conventional refuse collection vehicles including dump trucks and small pick-up trucks. There are also fewer material types in this sub-wastestream. Materials generally include concrete, wood, brush, dirt and construction/demolition debris. These material types make it difficult to manually sample this sub-wastestream so the observational method of sampling is utilized. Another characteristic is the unpredictable nature of the sub-wastestream. The observationally studied trucks are often carrying commercial loads or residential loads that are not permanent accounts, such as loads from construction or demolition projects. The tonnage data of these one time loads are sensitive to seasonality and economic fluctuations.

The Observationally Studied sub-wastestream was conducted during the first and third period. The study consisted of visually monitoring loads as they were dumped on the face of the landfill. Each vehicle's content was recorded, with each material given a percentage value of the overall load. This sub-wastestream represents 38 percent of the county's overall wastestream with 704,990 tons. A total of 254 vehicles were sampled from this sub-wastestream.

1.4 CURRENT WASTE HAULING PROCEDURES IN RIVERSIDE COUNTY

The Riverside County Solid Waste Management System consists of thirteen landfills, twelve operated by the County and one operated by a private third party (By agreement, among other matters, the County works the gate of this thirteenth landfill). Refuse material from throughout the County is brought to these disposal sites by commercial waste haulers, construction companies, private citizens and other sources. The county is divided into seven permit areas, which include cities and unincorporated portions of the county. In order for a commercial waste hauler to operate in any of these zones, they must be permitted by the County's Health Department. Any company that is permitted is then able to haul refuse from any portion of the unincorporated area. Most cities, however, have exclusive franchise agreements with one commercial hauler. Franchise agreements have allowed cities to better regulate trash pickup within their boundaries, but has also lead many cities to rely heavily on its franchisees to monitor its wastestream.

This relationship has resulted in many cities and commercial waste haulers being unprepared to meet the requirements of AB939. Most cities and commercial waste haulers do not keep records such as tonnage figures by sub-wastestreams, i.e., residential, commercial and industrial. Also, in the past, only the overall total amount of waste was recorded at landfills – its origin was not recorded. In fact, most commercial waste haulers mix commercial, residential and industrial trash together in one truck, making it virtually impossible to get accurate tonnage figures by sub-wastestream. This lack of adequate record keeping has resulted in many cities and commercial waste haulers having to give tonnage estimates for the residential, commercial and industrial sub-wastestreams.

As greater attention is paid to the monitoring of each city's, wastestream, adjustments to some base year tonnages may be necessary. It is vital that Riverside County, its member cities, and the California Integrated Waste Management Board realize this, and are prepared to rectify and adjust any base-year inaccuracies as better data becomes available.

1.5 TONNAGES FOR RIVERSIDE COUNTY CITIES

Table 1-1 shows the total tonnages for each city and city population. Tonnage data for each city's overall wastestream were compiled using a variety of sources. Tonnage figures for the Manually Sampled wastestream which amounted to 1,156,505 tons for FY 1989-90 were obtained from commercial waste haulers. Haulers were asked to break down their tonnage figures by residential, commercial and industrial waste. For the majority of haulers, separating residential and commercial waste was easily accomplished. To estimate industrial tonnage figures however, was more difficult. In some cases where haulers were not able to give estimates for the industrial sub-wastestream, assumptions were made as described in the following section.

Tonnage data for the Observationally Studied sub-wastestream were produced from the county's scale system. The data that were available from the scale system, however, only reflected a four month period, and needed to be adjusted in order to get an annual tonnage figure for this sub-wastestream. That tonnage figure calculated to 509,465 tons for FY 1989-90. The data from the scale system indicated that the unincorporated area was being underreported based on population distribution. This was due to haulers stating that they picked up loads from cities rather than the unincorporated areas. To reconcile this, each city's uncompacted sub-wastestream total was then reduced by 10 percent with the difference being credited to the unincorporated area to reconcile for haulers who said they pick up waste from a specific city, but, in reality, the waste came from the unincorporated area. The four-month period used for this data were September, October, November and December of 1990. This time period, unfortunately, was during the winter months and during economic slowdown, when the uncompacted sub-wastestream is smaller.

The Manually Sampled and the Observationally Studied sub-wastestreams, added together, totaled 1,703,511 tons. This figure was 157,984 tons less than the 1,861,495 tons that overall County landfill figures indicated was disposed of during FY 1989-1990. Since tonnage figures for the Manually Sampled wastestream were considered more accurate than those of the uncompacted sub-wastestream, the 157,984 tons were distributed to all Riverside County cities as observationally sampled material. The method of distribution was based on the percentage on each city's Observationally Studied sub-wastestream tonnages after the above-referenced 10% reduction. A summary of the final county-wide tonnages used is presented in Table 1-2.

Table 1-1*
Riverside County Disposed Tonnage Breakdown (by city), 1990

<u>City</u>	<u>Population</u>	<u>%</u>	<u>Annual Tonnages</u>	<u>%</u>
Banning	20,950	1.9	24,764	1.3
Beaumont	9,750	0.9	12,932	0.7
Blythe	8,400	0.8	11,285	0.6
Calimesa†	8,067	0.7	6,281	0.3
Canyon Lake††	6,585	0.6	9,885	0.5
Cathedral City	31,750	2.8	53,018	2.8
Coachella	14,950	1.3	17,328	0.9
Corona**	70,000	6.3	156,298	8.4
Desert Hot Springs	11,200	1.0	13,724	0.7
Hemet**	35,650	3.2	65,307	3.5
Indian Wells	2,700	0.2	17,867	1.0
Indio	36,000	3.2	72,908	3.9
Lake Elsinore	15,950	1.4	28,691	1.5
La Quinta	11,850	1.1	24,712	1.3
Moreno Valley	114,900	10.3	110,353	5.9
Norco	25,350	2.3	39,505	2.1
Palm Desert**	20,650	1.9	96,669	5.2
Palm Springs†††	38,925	3.5	114,353	6.1
Perris	18,900	1.7	46,352	2.5
Rancho Mirage	9,250	0.8	34,189	1.8
Riverside	218,500	19.5	353,787	19.0
San Jacinto	15,300	1.4	22,230	1.2
Temecula**†	27,000	2.4	47,670	2.5
Unincorporated	345,798	31.0	481,387	25.9
TOTAL	1,118,375	100.0	1,861,495	100.0

*Table 1-1 is to be used in conjunction with Tables 2-5 and Appendix C.

****Tonnage Discrepancies**

Tonnage discrepancies were found for these cities. Adjustments will be made in next year's update report. The discrepancies are as follows:

CORONA: The industrial wastestream is 541 tons greater than the tonnage figure listed in Table 2-5. This will increase Corona's 1990 annual tonnage to 156,839.

HEMET: The commercial wastestream is 299 tons greater than the tonnage figure listed in Table 2-5. This will increase Hemet's 1990 annual tonnage to 65,606.

PALM DESERT: The industrial wastestream is 540 tons less than the tonnage figure listed in Table 2-5. This will decrease Palm Desert's 1990 annual tonnage to 96,129.

TEMECULA: The industrial wastestream is 58 tons greater and its commercial wastestream is 227 tons greater than what is listed in Table 2-5. This will increase Temecula's 1990 annual tonnage figure to 47,955.

All population except where noted are based on D.O.F., Jan. 1990

† Source: Riverside County Planning Department, Building Permit Activity Report, June 1990

†† Source: Riverside County Planning Department, Feb. 1991, and the Consultant report for city incorporation by Christensen and Wallace, Inc., Mar. 1990.

††† Source: California State Senate, September, 1987

Table 1-2 Wastestream Disposed Tonnage Distribution Riverside County 1989/1990	
<u>Type of Survey</u>	<u>Tons</u>
Manually Sampled	1,156,505
Observationally Studied*	704,990
Total	1,861,495

*509,465 tons from scale; 157,984 tons from distribution of unaccounted tonnages; 37,541 tons from landfills without scales.

1.6 INDUSTRIAL/COMMERCIAL TONNAGES

As indicated in section 1.4, haulers often could not provide accurate information on tonnages broken out by industrial and commercial sub-wastestreams. To derive these tonnages, estimates were made based on interviews with haulers, hauler survey results, land use data or comparison with other cities. The percentage estimates used for each city are presented in Table 1-3.

Table 1-3
Disposed Tonnage Adjustments and Assumptions
Allocation of Commercial/Industrial Sub-wastestream

<u>City</u>	<u>Commercial</u>	<u>Industrial</u>	<u>Source</u>
Banning	77%	23%	Hauler Survey
Beaumont	70%	30%	Compar. to Similar Cities
Blythe	100%	-	Hauler Survey
Calimesa	80%	20%	Compar. to Similar Cities
Canyon Lake	100%	-	Hauler Survey
Cathedral City	95%	5%	Hauler Conversation
Corona	50%	50%	Hauler Survey
Coachella	70%	30%	Compar. to Similar Cities
Desert Hot Springs	100%	-	Hauler Survey
Hemet	70%	30%	Hauler Survey
Indian Wells	100%	-	Hauler Conversation
Indio	90%	10%	Hauler Survey
Lake Elsinore	100%	-	Hauler Conversation
La Quinta	97%	3%	Hauler Conversation
Moreno Valley	80%	20%	Compar. to Similar Cities
Norco	55%	45%	Hauler Survey
Palm Desert	92%	8%	Hauler Conversation
Palm Springs	80%	20%	Hauler Survey
Perris	70%	30%	Compar. to Similar Cities
Rancho Mirage	100%	-	Hauler Conversation
Riverside	60%	40%	Compar. to Similar Cities
Temecula	80%	20%	Hauler Conversation
Unincorporated	70%	30%	Compar. to Similar Cities

1.7 CITY OF TEMECULA

The City of Temecula is a newly incorporated city and commercial waste haulers who serviced the city did not have separate records for this city. Assumptions therefore had to be made to determine annual tonnage figures for the City of Temecula. In order to arrive at approximate figures, the county's scale data were used, and assumptions were made regarding residential, commercial and industrial portions of the city's wastestream. Once an overall tonnage figure was established for Temecula, the residential sub-wastestream was calculated using the waste generation rate* for each household in the Temecula area, and multiplying it by the number of dwelling units. The remaining tonnage was broken down as to commercial and industrial, after discussing waste types with Inland Disposal, the main commercial hauler in that area.

* This data was from the Price Waterhouse report, which gave generation rates for each permit area in the County. The City of Temecula supplied the number of dwelling units based on the number of cable television subscribers within the city.

1.8 CITY OF BLYTHE ALLOCATION

The tonnage figure for the city of Blythe's uncompacted wastestream was allocated because the landfill it uses at the eastern edge of the county is not equipped with a scale. To calculate Blythe's uncompacted tonnage, it was determined that Blythe most resembles the City of Desert Hot Springs in terms of population and commercial/industrial composition. Desert Hot Springs uncompacted tonnage was then divided by its population to achieve a per capita generation rate. This generation rate was then multiplied by Blythe's population to get an overall uncompacted tonnage of 4,385 tons. This tonnage was then distributed by waste type at the same percentage as Desert Hot Spring's uncompacted wastestream.

1.9 CITY OF CANYON LAKE

The compacted wastestream tonnage figure for the newly incorporated City of Canyon Lake was derived after considering information provided by the hauler, an interview with the consultant that led the city's incorporation effort, and other information related to the area. The residential sub-wastestream tonnage total was calculated using the waste generation rate* for each household in the Canyon Lake area, and multiplying it by the number of dwelling units. The remaining tonnage was distributed based on information provided by the hauler and the above referenced interview.

Percentages for Canyon Lake's residential sub-wastestream were based on actual samples. Canyon Lake's commercial sub-wastestream percentages were based on overall Riverside County commercial wastestream percentages. This was done because Canyon Lake's waste hauler did not provide commercial loads to be sampled during the study.

* This data was from the Price Waterhouse report, which gave generation rates for each permit area in the County. The number of dwelling units came from the consultant report for city incorporation by Christensen and Wallace, Inc., Mar. 1990.

SECTION 2: DESCRIPTION OF SAMPLING STUDY

2.1 OVERVIEW

As mentioned in Section 1, the Riverside County sampling study was divided into two parts: the Manually Sampled sub-wastestream and the Observationally Studied sub-wastestream.

Based upon the tonnage information received from each city's hauler(s), the overall Riverside County wastestream was further broken down into two sub-wastestreams – Residential and Commercial/ Industrial. An additional separation, or stratification, was then done within each sub-wastestream. The Residential sub-wastestream was stratified into Single-family and Multi-family/Apartments. The Commercial/Industrial sector was stratified by truck type front loader, open drop box and closed compactor.

The wastestream was stratified in this way because each stratum represents a distinctly different type of waste. Table 2-1 illustrates the stratification used in the Manually Sampled sub-wastestream.

Table 2-1 Wastestream Stratification Scheme for Riverside County	
<u>Residential</u>	<u>Commercial/Industrial</u>
<ul style="list-style-type: none"> • Single-Family • Multi-Family 	<ul style="list-style-type: none"> • Front-Loaders • Drop Boxes • Closed Compactors

A further description of these truck types is presented in Table 2-2. Also included in Table 2-2 is a description of side/rear loaders which are primarily used to collect residential wastes.

Table 2-2
Riverside County Manually Sampled Sub-Wastestream Truck Types

Front loaders. This stratum includes apartments, offices, convenience stores, small retail operations and businesses and refers to packer trucks that service facilities generating small-to-medium amounts of material. The trucks are equipped with forks which slip into the side rails of 1- to 8-cubic-yard containers. The container is hydraulically lifted over the front of the truck, and its contents are emptied into a central hopper. The material is then hydraulically compacted to maximize the amount of material that the truck can pick up. In Riverside County, some single-family waste is also collected by front-loaders.

Open Drop Box. This stratum includes roll-off trucks carrying open-top containers, which also are moved on and off the truck. Because of the open top, there is no compactor function. Waste generators included in this stratum are commercial outlets, industries, manufacturers, landscaping, and construction companies.

Closed Compactors. This stratum consists of roll-off trucks carrying enclosed compactor containers, which are moved on and off the truck. The closed-body design of this container allows material to be compressed via a hydraulic blade. Waste generators included are hotels, department stores, and high use office buildings.

Side/Rear loaders. This stratum refers to packer trucks designed for residential curbside pick-ups of small amounts of material. On side loaders, often material can be loaded from either side of the vehicle into a holding area of approximately 3 cubic yards. On rear loaders, material is loaded from the rear of the vehicle only. Once the holding area is full, a blade pushes the material into the vehicle's central hopper, where it is hydraulically compacted.

2.2 MANUALLY SAMPLED SUB-WASTESTREAM

The design of the survey for the Manually Sampled sub-wastestream was divided into the following three phases: information collection, field work design, and manual field sampling.

2.2.1 Information Collection

Information for the Riverside County Waste Characterization Study was collected from two questionnaires, distributed to cities and the County in July and November, 1990, and from on-going updates from a variety of sources as the study progressed. Copies of the questionnaires are presented in Appendix G.

2.2.1.1 July Questionnaire

In July, 1990, a waste composition questionnaire was distributed to each city, each hauler, and the Waste Management Department for the unincorporated area. The City questionnaire focused on the amount of waste disposed of by each city, as well as the way in which that waste was disposed (i.e., name of hauler(s), which landfill was used, vehicle types used for collection, etc.) The tonnage figures obtained from this questionnaire were divided into the three AB939 categories - Residential, Commercial and Industrial/Demolition. After this information was compiled, numerous phone calls were made to collect missing information and verify inconsistent data. The hauler survey asked for information regarding the number of routes serviced, tonnage information, and whether the hauler had any recycling programs.

2.2.1.2 November Questionnaire

In November 1990, a second questionnaire was sent out directly to all the haulers requesting a further breakdown of each city's tonnages. The Residential sub-wastestream was separated into two components or strata - Single-family and Multi-family. The Commercial/ Industrial sub-wastestream was divided into three strata by truck type - front loaders, drop boxes and closed compactors.

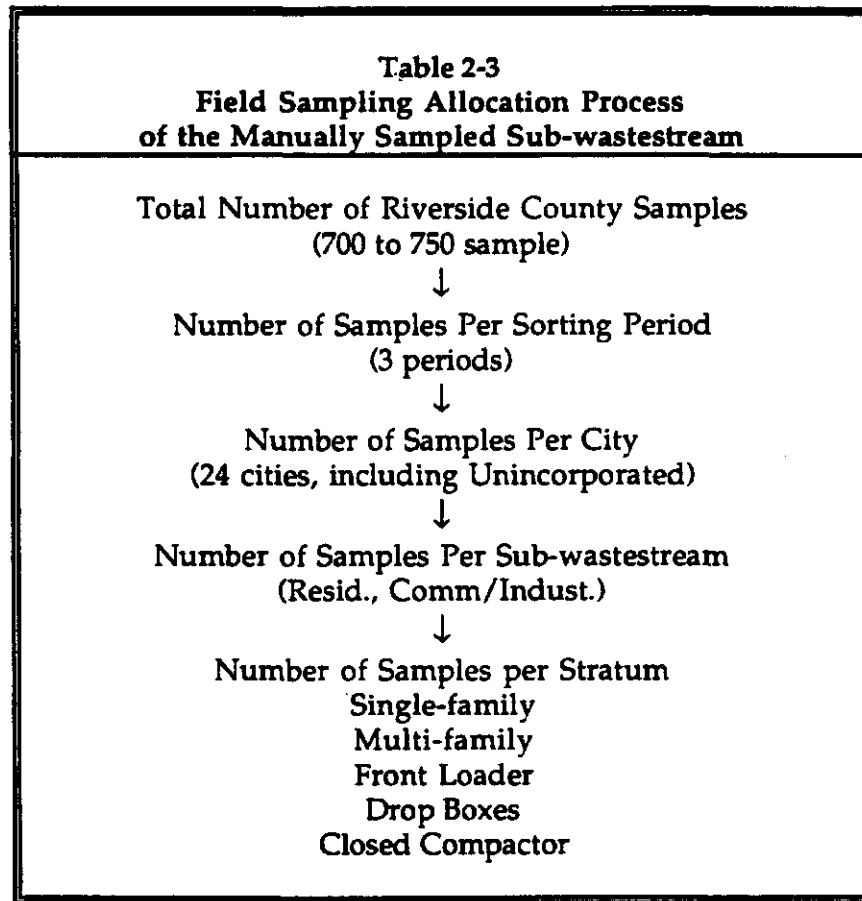
2.2.1.3 Continual Updates

Throughout the study, more accurate and useful data were collected from Riverside County staff, city managers, consultants, and waste haulers.

2.2.2 Field Sampling Design

The second step in the waste characterization process involved designing a field sampling program. The program was designed to be both equitable between participating cities, and accurate at determining the composition of each city's wastestream. Larger cities, which have a diverse commercial/industrial base and generate a substantial portion of the overall Riverside County wastestream (i.e., City of Riverside), require more sampling than a smaller, highly residential city with a less diverse commercial/industrial base (i.e., Palm Desert). However, to accurately characterize each city's wastestream, a minimum number of samples per sorting period was required.

The following sections describe the components of the field sampling design process for the Manually Sampled Sub-wastestream. Table 2-3 is a graphic representation of the process, from how the total number of Riverside County samples were determined, to the allocation of truck types (strata) to each city.



2.2.2.1 Total Number of Riverside County Samples

The total number of samples necessary to accurately sample all 23 cities and the unincorporated areas in Riverside County was determined by an allocation analysis. Included in the analysis were results from a quantitative study conducted in the Ventura Regional Sanitary District (refer to Appendix D and F), concerning confidence limits and sampling resources. The mixture of qualitative and quantitative analysis indicated that Riverside County needed approximately 700 to 750 samples for the Manually Sampled Sub-wastestream.

Number of Samples per Sampling Period Two hundred and fifty-three (253) samples were scheduled to be taken in the first sampling period and two hundred and fifty-seven (257) in the second sampling period (Preliminary Sampling and the 1st Main Sampling period). The third sampling period, depending upon the results of the analysis conducted after the second sampling period, would contain approximately 200 to 250 samples.

As seen in Table 2-4, the actual number of samples taken varied slightly from the original plan. There were three main reasons for these deviations. These were "no-shows," missed loads, and mixed loads. Definitions of these categories will be addressed later in this section.

Table 2-4
Actual Number Of Samples Per Sampling Period

	Number of Trucks	Number of Samples *
Sampling I	127	253
Sampling II	129	257
Sampling III	114	227
Total	<u>370</u>	<u>737</u>

* Two samples taken per truck. Some samples were discarded due to mixed loads.

The allocation of samples for the third period and the size of strata (tonnage), was based on the variability of four key indicator materials within each city's wastestream (cardboard, recyclable glass, aluminum cans and wood waste) and the size of the strata (tonnage). In past waste characterization studies,** these four categories have proven to be representative materials for determining the level of variability still existing in each city's Residential and Commercial/Industrial sub-wastestream. If a city's Residential Sub-wastestream, for example, showed a low variability (very consistent results) between its samples, a low score was recorded on the optimization analysis. This process allowed targeting specific strata requiring more sampling. This process also took into consideration the size of each city's wastestream.

** San Diego City and County

**Ventura Regional Sanitation District

2.2.2.2 Number of Samples Per City

The total number of samples each city received per sampling period was determined by two factors: the minimum number of samples necessary to accurately characterize each city's wastestream and the percentage of waste of the entire Riverside County wastestream each city generates.

A minimum of eight samples per city for the first two sampling periods was selected. As explained earlier, after the second sorting period, an allocation analysis was performed to determine how much variability still existed in each city's sub-wastestreams to determine if additional samples were needed for the third sorting period.

The eight sample minimum was selected to assure smaller cities received enough samples per period for statistical analyses to be performed. Two residential trucks (4

samples) and two commercial/industrial trucks (4 samples) enable sub-wastestream samples to be compared between trucks and not just within the same truck.

During the third sampling period, samples were again allocated according to variability and size of strata. More samples were allocated to cities whose strata showed higher variability (inconsistent results) than was allocated to other cities whose samples showed a low variability (consistent results).

2.2.2.3 Number of Vehicles to Sample per Sub-wastestream

Once the number of samples to be collected per city was established, the samples were allocated to each sub-wastestream - Residential and Commercial/Industrial.

For the smaller cities with eight samples per sorting period, a 50% residential/50% commercial/industrial split was made. For larger cities with more than eight samples, two factors were considered: the overall weights of residential and commercial/industrial sub-wastestreams, and the diversity of the commercial/industrial waste-stream.

Table 2-5 lists each city's compacted wastestream tonnages by AB939 sub-wastestreams. This table provide the basis for the calculation of percentages of the sub-wastestreams. See also Table 1-3 for adjustments and assumptions of tonnage percentages.

Table 2-5
City Disposed Tonnages by AB 939 Sub-Wastestream

<u>City</u>	<u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>
Banning	9,268	5,117	1,565
Beaumont	4,195	2,158	924
Blythe	3,000	3,900	--
Calimesa	2,732	1,580	395
Canyon Lake	6,884	381	--
Cathedral City	11,125	16,732	880
Corona	50,148	27,438	27,531
Coachella	4,405	4,028	1,735
Desert Hot Springs	4,913	2,965	--
Hemet	17,298	13,148	5,763
Indian Wells	2,354	7,937	--
Indio	16,143	18,152	2,017
Lake Elsinore	6,397	8,856	--
La Quinta	4,890	6,119	189
Moreno Valley	54,700	16,240	4,060
Norco	22,552	4,506	3,631
Palm Desert	13,646	35,207	3,601
Palm Springs	23,492	30,007	7,501
Perris	16,800	7,000	3,000
Rancho Mirage	5,710	11,995	--
Riverside	126,619	63,709	42,472
San Jacinto	5,971	4,396	1,884
Temecula	18,770	16,147	4,037
Unincorporated Area	172,649	93,057	39,882
Unincorporated West	159,751	83,062	35,598
Unincorporated East	12,898	9,995	4,284

Diversity of Commercial/Industrial Sub-wastestream. Past studies have shown the residential sub-wastestream is less variable and smaller than the commercial sub-wastestream, and thus requires a smaller sampling effort. Using the above-mentioned allocation method, the sampling effort was focused more towards the commercial and industrial sub-wastestreams.

2.2.2.4 Number of Samples Per Strata

The Residential and Commercial/Industrial sub-wastestreams were broken down, or stratified, further to provide cities more useful program development information. The residential sub-wastestream was divided into single-family home and multi-family/apartment strata. The commercial/industrial sub-wastestream was separated by truck types into front loader, open drop box and closed compactor strata.

Most of the residential samples taken were from single-family homes because most cities had larger disposal tonnages in the single-family stratum. It was important not only to get an accurate picture of the larger portion of the stratum (single-family), but also to characterize the stratum where recycling programs would probably be implemented (i.e., "curbside" pick-up). In addition, many cities had difficulty re-routing trucks for apartment loads. Mixed loads yield poor results.

For many of the same reasons as in the Residential sub-wastestream, a majority of the sampling effort went towards front loaders in the Commercial/Industrial sub-wastestream. More commercial waste tends to be moved by front loaders than any of the other truck types. When targeting industrial sources, drop boxes were sampled. Besides industrial waste, many of the drop boxes sampled contained commercial waste from from schools and hotels, for example.

2.2.3 Manual Field Sampling

2.2.3.1 Sample Collection Procedure

The following is a step-by-step description of the sampling procedure used in the Riverside County Waste Characterization Study.

Program Set-up After determining the number and types of samples for each city, the waste hauler(s) was contacted by telephone. Haulers were asked to select routes from the stratum (strata) asked for. To decrease the chance for geographic biases within the cities, an effort was made to schedule strata loads on different days of the weeks. Many haulers, especially in residential routes, have set schedules (i.e., weekly pick-up). A problem may have occurred if residential trucks were sampled only on Tuesday, for example (for all sorts). This could result in receiving the same route with the same geographic and demographic characteristics. Therefore, different days were chosen to assure that different routes would be sampled. Once a confirmed time and place were decided upon, truck sheets were sent out to the haulers confirming arrival dates and times, waste types, truck numbers, etc. These sheets were sent to the route supervisor (or appropriate contact) and were to be given to each driver who was participating in the study that day.

Collect Truck Sheets/Lay Down the Load Once a scheduled truck arrived at the sampling location, a team member collected the truck sheet and verified the data with the driver. The arrival time of each truck was recorded and the truck was directed to the appropriate dumping spot. The contents were dumped in a rectangular pile normally 3 to 4 feet high and 60 to 80 feet long. Once the load was dumped, the truck was free to leave.

Random Quadrat Sampling Method Two samples per load were then collected using the "random quadrat sampling method". After the contents of chosen trucks were dumped in a rectangular pile, tape measures were laid on two sides of the load forming a grid. The short side of the pile was designated as the x-axis and a long side as the y-axis. The x- and y-coordinates, randomly chosen beforehand from lotus 1-2-3, were called off by a designated team member while two other members marked the location where the two coordinates met. A quadrat (a wooden frame measuring 2' x 2') was placed directly

over the center of the intersection point. Sorters then manually gathered a 2' x 2' x 3' volume of refuse lying directly below each quadrat frame. Objects lying 50% or more within the bounds of the frame were collected. Samples weighed approximately 60-80 pounds and were placed into large wooden boxes used for manual sorting.

Manual Sampling in Thirty-Five Waste Types The manual sampling process for each sample box is outlined below.

1. The selected sample box was placed on a scale prior to manual sorting, and the total gross weight (including box) was recorded by two separate crew members.
2. The box was then placed on a sorting stand and manually sorted into the 35 categories, or as many as were present in that sample. Table 2-6 lists the 35 categories. A description of each category is presented in Appendix E. These categories correspond to AB939 regulations plus, for program development purposes, the plastics categories were expanded to include some non-standard classifications, Textiles/Leather was broken down into two separate categories, and Diapers and Remainder were added as new categories.
3. After sorting was completed, each individual category was weighed and recorded separately by two crew members. Weights were both stated aloud and visually recorded off the scale to decrease the chance for recording error. After the weight was recorded, the contents of the containers were placed back in the original sample box. Once all the categories were weighed, the sample box was re-weighed to check for discrepancies. If large differences were noted, the containers were re-checked for items that may have fallen out or been missed. Many times the first gross weight was 0.5 to 1.0 pound heavier than the second due to smaller, lighter items falling out (or blowing away) as well as evaporation.

Table 2-6
Sorting Types for Waste Components (35)

Cardboard	Other Recyclable Glass	Agricultural Crop Residue
Newspaper	Refill. Glass Beverage	Manure
High Grade Paper	HDPE	Food Waste
Mixed Waste Paper	LDPE	Textiles
Other Paper	PET	Leather
Aluminum Cans	Polypropylene	House Hazard. Waste
Tin cans	Polystyrene	Inert Solids
Ferrous Metals	PVC	Diapers
Non-Fe Alum Scrap	Other Plastics	Tires & Rubber
Bi-metals	Yard Waste-Shrubby	White Goods
CA Redemption Bottle	Yard Waste-Leafy	Remainder
Non-Recyclable Glass	Wood Waste	

Visual Observations After the load had been sampled, a team member, normally the supervisor, would walk around each pile and record approximate percentages each material type made up of the entire load. Street addresses and business names were recorded when feasible. Photographs were also taken of every load. Visual observations provided back-up information in case issues concerning the load arose later.

Sampling Issues As mentioned earlier, "no-shows", "missed loads" and "mixed loads" were the three major problems encountered by the sorting crews.

"No-shows": Several scheduled trucks for one reason or another did not make it to the sampling location. For the most part, these trucks were rescheduled if feasible.

"Missed Loads": Some trucks made it to the sampling location, however failed to stop and deliver their load to where the team was working. Once a truck's waste was dumped in the regular fashion, it was logistically impossible or too dangerous to sample. Missed trucks mostly occurred early on when the characterization process was unfamiliar to many truck drivers and route supervisors.

"Mixed Loads": Overall, mixed loads tended to be the largest problem. Some haulers had a difficult time avoiding multi-family residential units on their commercial front loader routes. If the apartment contamination was localized in one or two areas, the crew would sample around it. If a load was too thoroughly mixed, the load was rejected.

Sampling Periods Three sampling periods – August/September, October/November, and December – were chosen to mirror as closely as possible three separate seasons - Summer, Fall and Winter. Due to the drought and unseasonably hot temperatures, it is uncertain whether the Fall and Winter sorts accurately represented those typical seasons. The Summer sort definitely represented that season (95+ degree days).

The exact dates of the three sorts are as follows:

Preliminary Sampling (Sort I) - August 27 -- September 21.

Main Sampling (Sort II) - October 22 -- November 9

Main Sampling (Sort III) - December 3 -- December 14

The Coachella Landfill and the Badlands Landfill were chosen as the sampling locations. Those sites were best suited to fulfill logistical concerns for haulers (some haulers were asked to divert their trucks from other landfills). Also, the sites offered the best representation of the two regions (the desert region and the non- desert region).

2.3 OBSERVATIONALLY STUDIED SUB-WASTESTREAM

The design of the Observationally Studied sub-wastestream was divided into three phases: field sampling design, field sampling procedure and data analysis.

2.3.1 Field Sampling Design (Phase I)

The first phase in determining the composition of the Observationally Studied sub-wastestream involved consolidating county scale house records into spread sheet form. This sheet formulated an overview of the percentages of Riverside refuse coded materials to cities (See Appendix C).

Some landfills in the Unincorporated area do not have scales. Tonnages for the nonscaled landfills in the County were derived by applying a growth factor of 2.89 percent to the calendar year 1989 totals for these sites. This factor was based on the amount of growth that took place between the 1989 and 1990 calendar years for the scaled sites from County Waste Management Department records.

The uncompacted tonnages for the jurisdictions were taken from the County scale system. Four-month totals for each City were extrapolated for a year period by multiplying them by three (3). The totals for these cities were reduced by 10.0 percent and the accumulation of these reductions was added to the County unincorporated total. This additional allocation to the unincorporated area was requested by the County to compensate for under-recording of the unincorporated tonnage by the scale system (see section 1.5). The only City that did not receive a reduction was Blythe, since it had a small total in the first place.

Refuse in this sub-wastestream is recorded by the County scale system according to type of waste and vehicle type. These vehicle types are summarized in Table 2-7.

Table 2-7
Vehicle Types Delivering Wastes in
the Observationally Sampled Sub-wastestream

Private-Citizen Vehicles. Cars, pick-ups and vans used by private citizens (non commercial) usually carry brush, wood, household waste and small construction/ demolition loads.

Two-Axle Dump Trucks. This category includes those two-axle commercially hauled trucks that have hydraulic dumping mechanisms. These trucks usually haul brush, wood, concrete, asphalt, dirt and construction debris. The type of hauling company varies from small tree trimming companies to major trash haulers.

Three-Axle Dump Trucks. This category includes three-axle commercially-hauled trucks that have hydraulic dumping mechanisms. These trucks usually haul the same waste types as the Two-Axle Dump trucks. They also carry debris such as tires, sludge and large chunks of concrete. The types of hauling companies vary from small to major haulers.

Three-Axle Roll-Off Trucks. This category includes three-axle commercially-hauled trucks that carry a twenty to forty cubic yard DOB (drag-on body or drop-off boxes). These are usually hauled by major hauler companies that service impermanent construction/demolition accounts.

Five-Axle Semi Trucks. This category includes five-axle commercially-hauled trucks that have hydraulic dumping mechanisms. Companies that usually service large demolition accounts and land clearing accounts use five-axle semi trucks.

2.3.2 Observationally Studied Trucks Sampled at Each Landfill

A total of 253 vehicles were sampled in 4 different Riverside county landfills. Of those vehicles, 156 were commercial trucks and 97 private-citizen vehicles. The number of commercial and private citizen vehicles sampled at each landfill is shown in Table 2-8.

**Table 2-8
Observationally Studied Trucks
Sampled at each Landfill**

<u>Landfill</u>	<u>Private Citizen Vehicles</u>	<u>Commercial Vehicles</u>
Highgrove	28	46
El Sobrante	22	38
Coachella	24	54
Mead Valley	23	18
Total	97	156

2.3.3 Field Sampling Procedure (Phase II)

Sampling was conducted at the Coachella Landfill, the Highgrove Landfill, the El Sobrante Landfill and the Mead Valley Landfill which represent different geographical areas of the county. Table 2-9 summarizes the field sampling procedure.

**Table 2-9
Sampling Procedure
for Uncompacted Sub-wastestream**

Step one: Truck selection.

Step two: Truck information collected. As a selected truck arrives, its license plate number, truck type, net weight, waste code, waste origin, and waste content, is recorded.

Step three: The gate person then radio's the truck type and waste information to the person at the dumping face.

Step four: A surveyor at the dumping face records the information and tracks the truck.

Step five: Waste content verification. The surveyor walks around the perimeter of the load while noting the waste's composition, according to percentages. Such information includes whether the load is homogeneous (contents of 100 percent pure consistency) or heterogeneous (contents of mixed consistency).

2.3.4 Breakdown into AB 939 Types (Phase III)

After completion of the sampling design and actual observational field sampling, the data were compiled and analyzed. The initial goal of the third phase was to determine the waste composition of the County's uncompacted sub-wastestream. The final goal was to break the County's uncompacted sub-wastestream into its AB 939 material types by percentages.

The following steps were completed to arrive at the final County percentages found in Section 3 (Sampling Results)

- 1) Determine the waste composition of the Riverside uncompacted sub-wastestream by consolidating County scale records.
- 2) Convert the percentage results of the County scale records using comparable data.

Two studies from the December 1990 issue of Resource Recycling (pages 66-74) involving the characterization of demolition/ construction waste were used as comparable data. The first study was conducted in New Jersey and involved the characterization of demolition waste. The second study was performed in Toronto, Canada and estimated the composition of waste disposed of during home construction. To use these two studies as a source of comparable data, the following assumption had to be made:

Assumption Demolition/Construction materials do not vary significantly between southern California and the east coast/Canada.

It is felt that the results obtained from these two studies approximate the conditions found in Riverside County. Office buildings, roads, homes, etc., all use and generate similar AB939 material types. For example, whether a parking lot or building is made of brick, concrete, asphalt, tile, etc., makes little difference. All of the materials will fall under the Inert Solids category. All new homes, in the east or west coast, have to install water heaters packaged in cardboard, most likely, which will show up as a waste product. Although geographic differences are apparent, it is assumed AB 939 materials are fairly consistent. Each study was weighted 50% in determining the mean percentages used in characterizing the composition of demolition/ construction waste that was allocated to the cities. In addition, data from past waste characterization studies performed in California were used to estimate the composition of mixed refuse.

Finally, miscellaneous hard-to-handle tonnages were recorded directly off the landfill records. This category contains large, bulky items from various sources. No information is available as to the composition, by weight or volume, of these materials within this category. For the above reasons, this entire category was placed into "remainder/composite." The information can be updated when better data are accumulated.

The following table (Table 2-10) shows the percentage distributions obtained from the analysis of the comparable data. The results from this analysis were used in the final phase of characterizing the contents of the Observationally Sampled wastestream.

Table 2-10
Waste Composition of Uncompacted Waste Categories (by %)
Riverside County 1990

<u>Category</u>	<u>Demolition/ Construction</u>	<u>Mixed Refuse</u>	<u>Misc. Hard-to- Handle</u>
Inert Solids	41.5	7.0	—
Wood	31.5	—	—
Cardboard	5.0	—	—
Ferrous Metal	2.0	12.0	—
Non-Ferrous Metal	—	1.0	—
Mixed-waste Paper	—	7.0	—
Other Paper	—	5.0	—
White Goods	—	3.0	—
Remainder	20.0	65.0	100.0
Total	100.0	100.0	100.0

3.2.1.1 Overall By Period

The following discussion is based on the overall County results compiled from the value obtained for actual samples. In Table 3-3, five main material types dominate the overall Riverside County compacted wastestream: Yard Waste (16.5% for leafy and shrubby combined), Cardboard (15.5%), Wood (7.8%), Mixed Waste Paper (6.5%) and Newspaper (7.1%). Those five categories, combined, make up 53.4% of the total wastestream.

Comparisons on a period by period basis indicate some variations among seasons seems to exist in a few of the 35 waste types. Combined county yard waste drops about five percentage points between the first period and the second period. This is due mostly to the desert's seasonal planting/trimming, which starts at the end of summer and lasts through the end of fall. Cardboard, (10.1%, 16.9% and 15.5%) shows consistent variation over the three periods. Of the materials with paper fiber (including Newspaper, High Grade Paper, Mixed Waste Paper and Other Paper), only Cardboard started with a low percentage in the first period, which increased in the second period, then decreased in the third period. The other materials with paper fiber, collectively start at 21.1% in the first period, drop to 16.6% in the second period and then, increase to 23.0% in the third period. A possible conclusion is that within all materials with paper fiber there seems to some direct sensitivity to these three periods. A possible second conclusion is that Cardboard varies over the three periods in an inverse fashion to the other materials with paper fibers.

TABLE 3-3
OVERALL COUNTY WASTESTREAM BY PERIOD (%)

RIVERSIDE COUNTY 1990 OVERALL COUNTY

WASTE CATEGORY	PERIOD1			PERIOD2			PERIOD3			OVERALL		
	MEAN	LOWER	UPPER	MEAN	LOWER	UPPER	MEAN	LOWER	UPPER	MEAN	LOWER	UPPER
		CL	CL		CL	CL		CL	CL		CL	CL
CARDBOARD	10.130	8.873	11.616	16.935	15.301	18.628	12.403	10.976	13.938	15.505	14.058	16.926
NEWSPAPER	6.921	6.036	7.967	6.755	5.785	7.834	9.020	7.786	10.365	7.186	6.570	7.807
HIGHGRADE PAPER	0.868	0.422	1.507	0.438	0.250	0.718	0.479	0.312	0.734	0.575	0.400	0.802
MIXED WASTE PAPER	7.784	6.617	9.068	5.556	4.808	6.562	7.284	6.391	8.298	6.595	6.024	7.225
OTHER PAPER	5.543	4.926	6.286	3.942	3.493	4.450	6.249	5.464	7.025	4.906	4.518	5.309
ALUMINUM CANS	0.231	0.189	0.289	0.178	0.147	0.212	0.258	0.213	0.312	0.205	0.183	0.231
TIN CANS	1.182	0.990	1.417	1.039	0.894	1.204	1.326	1.126	1.573	1.096	0.983	1.207
FERROUS METALS	3.020	2.100	4.147	4.736	3.365	6.443	1.954	1.407	2.550	3.136	2.408	3.893
NON-FERROUS ALUM SCRAP	0.278	0.216	0.357	0.545	0.321	1.049	0.438	0.245	0.772	0.403	0.285	0.598
BI-METAL	0.022	0.004	0.053	0.000	0.000	0.000	0.044	0.001	0.174	0.018	0.003	0.054
CA REDEMPTION BOTTLE	1.631	1.103	2.347	0.666	0.534	0.812	0.920	0.647	1.258	0.962	0.796	1.215
OTHER NON-RECYCL GLASS	0.273	0.186	0.381	0.175	0.114	0.247	0.265	0.073	0.541	0.224	0.158	0.311
OTHER RECYCLABLE GLASS	2.062	1.658	2.582	1.866	1.515	2.243	2.116	1.789	2.502	1.877	1.668	2.135
REFILLABLE GLASS BEV	0.004	0.000	0.016	0.013	0.000	0.050	0.000	0.000	0.000	0.005	0.000	0.017
HDPE	1.762	1.517	2.076	1.443	1.230	1.679	1.803	1.583	2.106	1.622	1.475	1.816
LDPE	1.264	1.108	1.446	0.956	0.801	1.120	0.810	0.701	0.943	0.957	0.879	1.051
PET	0.159	0.125	0.197	0.105	0.083	0.130	0.219	0.166	0.282	0.157	0.131	0.189
POLYPROPYLENE	0.155	0.128	0.185	0.147	0.125	0.176	0.201	0.170	0.239	0.164	0.148	0.181
POLYSTYRENE	0.551	0.442	0.667	0.606	0.492	0.747	0.806	0.656	0.991	0.651	0.549	0.769
PVC	0.631	0.387	0.987	0.449	0.221	0.802	0.257	0.126	0.474	0.489	0.320	0.695
OTHER PLASTICS	1.433	1.147	1.803	2.120	1.577	2.864	2.339	1.751	3.100	1.870	1.563	2.244
YARD WASTE-SHRUBBY	6.846	5.019	9.326	7.519	5.717	9.568	5.220	3.806	7.162	6.341	5.193	7.576
YARD WASTE-LEAFY	14.298	11.789	17.221	9.967	8.000	12.179	10.035	7.599	12.768	10.256	9.013	11.690
WOOD WASTE	7.849	5.448	10.324	7.794	6.025	9.701	7.200	5.266	9.481	7.877	6.388	9.674
AGRICULTURAL CROP RESID	0.169	0.023	0.536	0.634	0.037	1.476	0.004	0.000	0.011	0.267	0.072	0.598
MANURE	0.945	0.411	1.746	0.683	0.327	1.116	0.813	0.411	1.465	0.783	0.506	1.095
FOOD WASTE	6.364	5.209	7.604	5.902	4.991	6.989	7.235	6.101	8.465	6.134	5.498	6.815
TEXTILES	2.460	1.798	3.310	2.055	1.353	2.951	1.586	1.164	2.276	2.261	1.666	3.163
LEATHER	0.164	0.061	0.374	0.017	0.007	0.032	0.040	0.005	0.107	0.073	0.036	0.153
HOUSEHOLD HAZARD WASTE	0.944	0.631	1.368	1.093	0.707	1.613	0.940	0.680	1.277	0.954	0.751	1.190
INERT SOLIDS	3.406	2.292	4.899	2.787	1.726	3.859	2.313	1.394	3.352	3.185	2.322	3.999
DIAPERS	1.655	1.281	2.119	1.799	1.394	2.403	1.980	1.406	2.797	1.728	1.473	2.019
TIRES & RUBBER	1.253	0.484	2.354	1.806	1.099	2.728	1.890	1.000	2.928	1.577	1.115	2.152
WHITE GOODS	0.781	0.428	1.169	0.207	0.059	0.488	0.644	0.178	1.506	0.487	0.302	0.774
REMAINDER	6.961	4.410	9.650	9.068	7.486	10.940	10.908	8.900	13.321	9.473	7.836	11.430

3.2.2 Residential Results

The results of the Residential sub-wastestream are contained in the following three tables: Overall Residential By Period (Table 3-5), County-wide Single-Family (Table 3-6), and County-wide Multi-Family (Table 3-7).

3.2.2.1 Residential by Period

Materials with Paper Fiber (including Cardboard, Newspaper, High Grade Paper, Mixed Waste Paper and Other Paper), made up the largest category in Riverside's Residential Sub-wastestream, accounting for 32.5% of weighted samples taken. Newspaper (11.4%), is the largest percentage of this category, followed by Mixed Waste Paper (8.4%), Cardboard (6.6%), Other Paper (5.6%) and High Grade Paper (0.4%).

Yard Wastes (including Shrubby and Leafy), is the next largest category, accounting for 24.9% of weighted samples taken. Food Waste (7.3%), is the next salient percentage, followed by Wood Waste (3.1%).

When comparing material types per period, some seasonal changes are apparent. Yard Wastes' percentages declined from summer to winter. Combined leafy and shrubby wastes contributed 31.3% of the Residential sub-wastestream in Period #1 (Summer), but only 20.1% in Period #3 (Winter). The fall sampling contained 26.4% Yard Waste.

Newspaper showed the next salient and consistent increases over the three sampling periods. Newspaper increased slightly from 9.5% to 11.6%, and then to 13.0%.

Combined materials with paper fiber showed the lowest fluctuations from Period #1 to Period #2 (29.5% to 30.6%). The greatest percentage jump was from Period #2 to the third period (from 30.6% to 35.6%).

Food Waste (from 5.9% to 7.4% and then to 8.4%), has the next largest indication of sensitivity to the different periods.

Of the above mentioned categories, the percentages of Yard Waste decreased from the first period to the third period, while the remaining percentages tended to increase.

TABLE 3-5
RESIDENTIAL WASTESTREAM BY PERIOD (%)

RIVERSIDE COUNTY 1990 RESIDENTIAL

WASTE CATEGORY	PERIOD1			PERIOD2			PERIOD3			OVERALL		
	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL
CARDBOARD	5.511	4.415	6.744	6.198	5.251	7.272	7.838	6.520	9.349	6.627	5.951	7.380
NEWSPAPER	9.513	8.047	11.256	11.632	9.789	13.736	13.016	10.885	15.242	11.474	10.384	12.640
HIGHGRADE PAPER	0.443	0.090	1.086	0.338	0.090	0.791	0.268	0.153	0.378	0.406	0.220	0.692
MIXED WASTE PAPER	8.340	7.019	10.253	7.814	6.846	8.731	8.492	7.376	9.703	8.484	7.701	9.392
OTHER PAPER	5.771	4.934	6.755	4.682	4.133	5.257	6.049	5.224	6.942	5.600	5.099	6.185
ALUMINUM CANS	0.234	0.185	0.290	0.262	0.208	0.324	0.298	0.234	0.373	0.262	0.225	0.300
TIN CANS	1.341	1.106	1.571	1.559	1.337	1.817	1.883	1.543	2.244	1.562	1.398	1.729
FERROUS METALS	3.578	2.090	5.653	2.086	1.061	3.516	1.951	1.268	2.880	2.404	1.733	3.215
NON-FERROUS ALUM SCRAP	0.241	0.192	0.292	0.400	0.323	0.509	0.317	0.240	0.443	0.324	0.281	0.379
BI-METAL	0.014	0.000	0.054	0.000	0.000	0.000	0.077	0.001	0.358	0.027	0.001	0.095
CA REDEMPTION BOTTLE	1.078	0.794	1.460	0.998	0.768	1.259	1.001	0.671	1.439	1.007	0.842	1.206
OTHER NON-RECYCL GLASS	0.339	0.202	0.563	0.300	0.183	0.451	0.074	0.033	0.137	0.251	0.180	0.338
OTHER RECYCLABLE GLASS	1.985	1.557	2.496	2.885	2.255	3.534	2.566	2.084	3.096	2.484	2.186	2.833
REFILLABLE GLASS BEV	0.007	0.000	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.009
HDPE	1.743	1.534	1.945	1.566	1.370	1.815	2.114	1.827	2.448	1.836	1.679	1.998
LDPE	1.248	1.071	1.427	1.018	0.854	1.218	0.863	0.722	1.039	1.037	0.942	1.134
PET	0.203	0.154	0.264	0.154	0.115	0.194	0.310	0.224	0.424	0.239	0.191	0.302
POLYPROPYLENE	0.180	0.143	0.219	0.225	0.183	0.277	0.287	0.235	0.351	0.239	0.212	0.268
POLYSTYRENE	0.485	0.370	0.640	0.538	0.459	0.625	0.846	0.629	1.123	0.663	0.534	0.853
PVC	0.604	0.323	1.020	0.219	0.136	0.327	0.127	0.088	0.176	0.342	0.225	0.507
OTHER PLASTICS	1.587	1.115	2.126	2.188	1.353	3.430	1.947	1.489	2.545	1.838	1.504	2.334
YARD WASTE-SHRUBBY	9.189	6.120	12.883	10.517	7.529	13.996	5.897	3.824	8.423	8.534	6.781	10.670
YARD WASTE-LEAFY	22.254	17.370	27.020	15.925	12.481	19.916	14.335	10.648	18.617	16.434	14.061	18.909
WOOD WASTE	3.166	1.999	4.733	3.183	1.613	4.884	2.686	1.397	4.897	3.100	2.243	4.243
AGRICULTURAL CROP RESID	0.305	0.015	1.018	0.335	0.003	1.016	0.000	0.000	0.000	0.218	0.017	0.528
MANURE	0.821	0.345	1.401	1.085	0.449	1.989	1.158	0.496	2.176	1.020	0.653	1.514
FOOD WASTE	5.979	4.902	7.146	7.441	6.235	8.998	8.433	7.029	9.834	7.360	6.534	8.227
TEXTILES	2.484	1.612	3.654	2.353	1.704	3.143	1.838	1.390	2.437	2.274	1.835	2.779
LEATHER	0.245	0.068	0.669	0.022	0.007	0.050	0.024	0.000	0.074	0.100	0.036	0.261
HOUSEHOLD HAZARD WASTE	0.822	0.586	1.088	1.340	0.754	2.268	0.897	0.609	1.244	1.011	0.779	1.354
INERT SOLIDS	1.196	0.443	2.441	1.085	0.600	1.831	1.143	0.573	2.032	1.277	0.810	1.867
DIAPERS	2.240	1.626	3.070	3.218	2.350	4.242	3.035	2.073	4.433	2.857	2.385	3.474
TIRES & RUBBER	0.561	0.257	1.000	0.488	0.193	0.939	0.838	0.272	1.931	0.648	0.383	1.040
WHITE GOODS	1.124	0.546	1.790	0.366	0.081	1.086	0.839	0.118	2.461	0.739	0.393	1.292
REMAINDER	5.169	3.199	7.643	7.580	5.947	9.579	8.552	6.918	10.296	7.319	6.153	8.566

3.2.3 Commercial/Industrial Results

The following five tables (Tables 3-8, 3-9, 3-10, 3-11, 3-12) compile the Manually Sampled results for the Commercial and Industrial sub-wastestreams.

3.2.3.1 Commercial by Period

Over the three periods (see Table 3- 8), the three largest categories were consistently Cardboard, Wood Waste and Yard Waste. The overall Commercial means are 17.4%, 12.4%, and 10.5%, respectively. Mixed Waste Paper and Food Waste were consistently the next highest over the sampling periods with the overall means of 5.9% and 6.3% respectively.

When comparing periods, Cardboard increased in percentage as the seasons changed from summer to winter (from 16.3%, to 17.5% and then to 18.4%).

Wood Waste (from 9.7% to 14.5% and then to 13.2%), shows a degree of sensitivity to seasons. By studying the confidence limits of each period's mean percentages we see that Wood Waste has a large degree of variability within each season.

Yard Waste showed a fluctuation from 10.6% in Period#1 (Leafy 6.0% and Shrubby 4.6%), to 11.8% in Period#2 (Leafy 5.7% and Shrubby 6.1%), and then decreasing to 8.6% in Period#3 (Leafy 4.3% and Shrubby 4.3%).

Mixed Waste Paper, Other Paper, Ferrous Metals and Inert Solids, showed salient fluctuations. Mixed Waste Paper and Other Paper mirrored each other's trends by decreasing from Period #1 to Period #2 and increasing in Period #3. Mixed Waste Paper started at 7.9%, dropped to 4.1% and then increased slightly to 5.6%. Other Paper, with the same pattern, started at 5.8%, dropped to 3.8% and then jumped to 6.5%.

Ferrous Metals (from 2.5% in Period #1, to 5.8% in Period #2 and then to 1.9% in Period #3), shows a degree of sensitivity among seasons. Furthermore, by studying the confidence limits of each period's mean percentages, we see that Ferrous Metals has a large degree of variability within each season. Inert Solids has its largest fluctuation from Period #1 to Period #2 (6.4% to 3.9%), and its smallest change from Period #2 to Period #3 (3.9% to 3.8%).

TABLE 3-8
COMMERCIAL WASTESTREAM BY PERIOD (TONS)

RIVERSIDE COUNTY 1990 COMMERCIAL

WASTE CATEGORY	PERIOD1			PERIOD2			PERIOD3			OVERALL		
	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL
CARDBOARD	16.311	13.748	19.240	17.544	14.500	20.762	18.474	15.767	21.518	17.409	15.573	19.438
NEWSPAPER	4.475	3.279	6.090	2.884	1.987	4.000	3.705	2.788	4.787	3.696	3.052	4.487
HIGHGRADE PAPER	1.482	0.661	2.846	0.657	0.365	1.068	0.759	0.388	1.358	0.958	0.607	1.450
MIXED WASTE PAPER	7.930	6.058	10.294	4.134	2.670	6.006	5.677	4.181	7.591	5.932	4.852	7.259
OTHER PAPER	5.855	4.825	6.976	3.823	2.939	4.838	6.515	5.190	8.140	5.288	4.618	5.996
ALUMINUM CANS	0.252	0.179	0.381	0.130	0.095	0.171	0.204	0.148	0.271	0.192	0.157	0.245
TIN CANS	1.112	0.762	1.557	0.725	0.496	1.019	0.586	0.359	0.846	0.813	0.640	1.013
FERROUS METALS	2.593	1.641	3.678	5.831	3.382	9.241	1.958	1.260	2.930	3.483	2.545	4.776
NON-FERROUS ALUM SCRAP	0.354	0.225	0.514	0.761	0.248	1.801	0.598	0.174	1.326	0.586	0.279	1.103
BI-METAL	0.035	0.005	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.002	0.039
CA REDEMPTION BOTTLE	2.485	1.340	4.300	0.467	0.311	0.666	0.813	0.448	1.362	1.199	0.797	1.790
OTHER NON-RECYCL GLASS	0.220	0.135	0.335	0.078	0.035	0.139	0.519	0.074	1.173	0.258	0.114	0.481
OTHER RECYCLABLE GLASS	2.376	1.525	3.438	1.197	0.710	1.837	1.517	1.060	2.028	1.647	1.286	2.116
REFILLABLE GLASS BEV	0.002	0.000	0.008	0.032	0.000	0.127	0.000	0.000	0.000	0.011	0.000	0.042
HDPE	1.974	1.457	2.690	1.299	0.988	1.672	1.388	1.032	1.886	1.553	1.310	1.891
LDPE	1.393	1.089	1.777	1.151	0.842	1.500	0.741	0.571	0.954	1.103	0.923	1.295
PET	0.121	0.078	0.174	0.065	0.041	0.090	0.097	0.064	0.134	0.094	0.072	0.118
POLYPROPYLENE	0.141	0.105	0.204	0.092	0.067	0.126	0.087	0.065	0.108	0.109	0.089	0.135
POLYSTYRENE	0.688	0.514	0.924	0.775	0.553	1.076	0.752	0.576	0.975	0.734	0.605	0.875
PVC	0.731	0.339	1.494	0.636	0.155	1.435	0.431	0.132	0.907	0.604	0.304	1.016
OTHER PLASTICS	1.390	0.984	1.896	2.149	1.408	3.155	2.862	1.734	4.725	2.172	1.671	2.910
YARD WASTE-SHRUBBY	4.697	2.586	7.282	6.180	3.646	9.193	4.319	2.131	7.053	5.378	3.891	7.310
YARD WASTE-LEAFY	6.046	3.798	8.609	5.770	3.505	8.684	4.316	1.809	7.395	5.199	3.784	6.644
WOOD WASTE	9.783	6.870	13.055	14.582	10.962	18.911	13.204	9.280	17.932	12.491	10.250	14.734
AGRICULTURAL CROP RESID	0.020	0.000	0.080	1.195	0.039	3.351	0.008	0.000	0.025	0.414	0.022	1.106
MANURE	1.197	0.227	3.207	0.402	0.111	0.829	0.354	0.002	0.987	0.709	0.270	1.353
FOOD WASTE	7.514	5.254	10.162	5.847	3.967	7.967	5.643	3.851	7.864	6.394	5.158	7.776
TEXTILES	2.693	1.654	4.019	0.929	0.479	1.649	1.251	0.576	2.603	1.626	1.103	2.277
LEATHER	0.082	0.020	0.180	0.007	0.000	0.022	0.062	0.000	0.214	0.050	0.018	0.095
HOUSEHOLD HAZARD WASTE	1.195	0.549	2.105	0.698	0.400	1.117	0.999	0.482	1.664	0.942	0.639	1.404
INERT SOLIDS	6.485	4.163	9.620	3.932	2.035	6.097	3.869	1.941	6.165	4.912	3.493	6.546
DIAPERS	1.112	0.655	1.645	0.622	0.274	1.077	0.577	0.233	1.077	0.757	0.518	1.024
TIRES & RUBBER	2.237	0.551	4.768	3.844	1.976	5.953	3.289	1.724	5.431	3.205	1.987	4.501
WHITE GOODS	0.442	0.148	0.930	0.077	0.000	0.230	0.385	0.060	0.881	0.302	0.141	0.537
REMAINDER	4.580	3.128	6.499	11.485	8.237	15.645	14.040	9.868	19.164	9.766	7.911	11.967

3.2.3.2 County-wide Industrial

The number of samples from the Industrial sub-wastestream was not sufficient to accurately describe this sub-wastestream for each city. For cities with small industrial tonnages all industrial samples were pooled to provide county-wide means. These means were then applied to each city's industrial tonnages.

Cardboard, representing 47.6% of the industrial sector (seen in Table 3-9), is the largest category by a margin of more than 2-to-1. The second most dominant material in the industrial wastestream is Wood Waste (13.5%), followed by Inert Solids (5.8%), Ferrous Metals (5.1%), and Textiles (4.2%). The Remainder category represents over 17.8% of the industrial material found in our study. The majority of this category is composite manufactured materials disposed of by companies. (i.e.,... plastic moldings with metal strapping/banding attached)

3.2.3.3 Front Loaders

Table 3-10 shows that the front loader segment of the wastestream is mostly composed of two materials - Cardboard (17.2%) and Wood Waste (11.9%) (seen in Table 3-8). A significant amount of Yard Waste (9.9%), Mixed Waste Paper (7.0%), Other Paper (6.0%) and Food Waste (6.2%), were also present.

3.2.3.4 Drop Boxes

Table 3-11 shows that Cardboard (26.1%) is the most dominant material in the Open Drop Box strata. Wood Waste (15.5%), Ferrous Metals (8.1%) and Textiles (6.8%) rank as the second, the third and the fourth largest categories found in this segment of the wastestream.

3.2.3.5 Closed Compactors

Table 3-12 indicates materials with paper fiber (Cardboard, Newspaper, High Grade Paper, Mixed Waste Paper and Other Paper) accounted for 47.7% of weighted samples taken. Cardboard (40.7%) was the largest percentage of this category, followed by Mixed Waste Paper (2.5%), Other Paper (2.3%), Newspaper (1.6%) and High Grade Paper (0.4%).

Food Waste (12.6%) and Wood Waste (12.6%), are the next highest percentages followed by CA Redemption glass (6.5%) and Other Recyclable Glass (5.7%).

TABLE 3-9
COUNTY INDUSTRIAL WASTESTREAM

RIVERSIDE COUNTY 1990 PERIODS 1-3 POOLED

WASTE CATEGORY	INDUSTRIAL COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	47.656	38.058	57.689
NEWSPAPER	0.000	0.000	0.000
HIGHGRADE PAPER	0.064	0.013	0.151
MIXED WASTE PAPER	0.591	0.128	1.276
OTHER PAPER	0.669	0.127	1.351
ALUMINUM CANS	0.000	0.000	0.000
TIN CANS	0.000	0.000	0.000
FERROUS METALS	5.169	1.501	10.366
NON-FERROUS ALUM SCRAP	0.153	0.019	0.403
BI-METAL	0.000	0.000	0.000
CA REDEMPTION BOTTLE	0.000	0.000	0.000
OTHER NON-RECYCL GLASS	0.000	0.000	0.000
OTHER RECYCLABLE GLASS	0.002	0.000	0.009
REFILLABLE GLASS BEV	0.000	0.000	0.000
HDPE	0.919	0.244	2.053
LDPE	0.139	0.033	0.287
PET	0.012	0.000	0.050
POLYPROPYLENE	0.017	0.000	0.079
POLYSTYRENE	0.332	0.032	0.914
PVC	0.755	0.004	1.991
OTHER PLASTICS	1.027	0.087	2.640
YARD WASTE-SHRUBBY	0.000	0.000	0.000
YARD WASTE-LEAFY	0.000	0.000	0.000
WOOD WASTE	13.520	3.098	27.354
AGRICULTURAL CROP RESID	0.000	0.000	0.000
MANURE	0.000	0.000	0.000
FOOD WASTE	0.000	0.000	0.000
TEXTILES	4.266	0.165	11.749
LEATHER	0.034	0.000	0.134
HOUSEHOLD HAZARD WASTE	0.742	0.023	1.913
INERT SOLIDS	5.813	1.901	9.729
DIAPERS	0.000	0.000	0.000
TIRES & RUBBER	0.302	0.077	0.688
WHITE GOODS	0.000	0.000	0.000
REMAINDER	17.818	6.079	32.128

WASTE CATEGORY	INDUSTRIAL COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	19006.1	15178.5	23007.6
NEWSPAPER	0.0	0.0	0.0
HIGHGRADE PAPER	25.4	5.1	60.4
MIXED WASTE PAPER	235.6	51.1	508.9
OTHER PAPER	266.7	50.6	538.8
ALUMINUM CANS	0.0	0.0	0.0
TIN CANS	0.0	0.0	0.0
FERROUS METALS	2061.7	598.5	4134.0
NON-FERROUS ALUM SCRAP	61.1	7.5	160.8
BI-METAL	0.0	0.0	0.0
CA REDEMPTION BOTTLE	0.0	0.0	0.0
OTHER NON-RECYCL GLASS	0.0	0.0	0.0
OTHER RECYCLABLE GLASS	0.9	0.0	3.7
REFILLABLE GLASS BEV	0.0	0.0	0.0
HDPE	366.6	97.2	818.7
LDPE	55.6	13.0	114.6
PET	5.0	0.0	19.8
POLYPROPYLENE	6.7	0.0	31.6
POLYSTYRENE	132.3	12.7	364.6
PVC	301.0	1.5	793.9
OTHER PLASTICS	409.6	34.7	1052.9
YARD WASTE-SHRUBBY	0.0	0.0	0.0
YARD WASTE-LEAFY	0.0	0.0	0.0
WOOD WASTE	5392.0	1235.6	10909.4
AGRICULTURAL CROP RESID	0.0	0.0	0.0
MANURE	0.0	0.0	0.0
FOOD WASTE	0.0	0.0	0.0
TEXTILES	1701.2	65.9	4685.9
LEATHER	13.4	0.0	53.5
HOUSEHOLD HAZARD WASTE	296.1	9.1	762.9
INERT SOLIDS	2318.5	758.0	3880.3
DIAPERS	0.0	0.0	0.0
TIRES & RUBBER	120.6	30.6	274.5
WHITE GOODS	0.0	0.0	0.0
REMAINDER	7106.1	2424.4	12813.4

TABLE 3-10
FRONT LOADER VEHICLES COUNTY WIDE (%)

RIVERSIDE COUNTY 1990 PERIODS 1-3 POOLED

WASTE CATEGORY	FL TRUCKS (C/I) COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	17.208	15.087	19.551
NEWSPAPER	3.882	3.135	4.746
HIGHGRADE PAPER	1.011	0.628	1.533
MIXED WASTE PAPER	7.017	5.582	8.737
OTHER PAPER	6.043	5.227	6.974
ALUMINUM CANS	0.211	0.165	0.280
TIN CANS	0.807	0.635	1.006
FERROUS METALS	2.988	2.116	4.092
NON-FERROUS ALUM SCRAP	0.585	0.271	1.251
BI-METAL	0.003	0.001	0.007
CA REDEMPTION BOTTLE	1.024	0.700	1.440
OTHER NON-RECYCL GLASS	0.296	0.121	0.652
OTHER RECYCLABLE GLASS	1.584	1.216	2.077
REFILLABLE GLASS BEV	0.011	0.000	0.041
HDPE	1.727	1.408	2.175
LDPE	1.112	0.911	1.335
PET	0.092	0.070	0.119
POLYPROPYLENE	0.116	0.096	0.142
POLYSTYRENE	0.772	0.641	0.931
PVC	0.487	0.253	0.922
OTHER PLASTICS	2.350	1.699	3.362
YARD WASTE-SHRUBBY	4.939	3.279	6.769
YARD WASTE-LEAFY	5.066	3.477	6.730
WOOD WASTE	11.933	9.730	14.384
AGRICULTURAL CROP RESID	0.020	0.005	0.044
MANURE	0.644	0.239	1.148
FOOD WASTE	6.263	5.065	7.698
TEXTILES	1.814	1.112	2.840
LEATHER	0.064	0.022	0.131
HOUSEHOLD HAZARD WASTE	0.834	0.575	1.204
INERT SOLIDS	4.437	3.014	6.220
DIAPERS	0.828	0.561	1.177
TIRES & RUBBER	3.313	2.084	4.682
WHITE GOODS	0.266	0.128	0.478
REMAINDER	10.251	8.049	12.840

WASTE CATEGORY	FL TRUCKS (C/I) COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	63401.0	55584.9	72031.7
NEWSPAPER	14304.3	11551.5	17487.3
HIGHGRADE PAPER	3726.1	2314.8	5649.6
MIXED WASTE PAPER	25851.8	20567.0	32188.7
OTHER PAPER	22264.7	19258.1	25694.0
ALUMINUM CANS	777.0	607.7	1031.2
TIN CANS	2973.6	2341.4	3708.3
FERROUS METALS	11008.4	7797.8	15075.2
NON-FERROUS ALUM SCRAP	2155.9	999.5	4609.4
BI-METAL	12.9	3.5	26.3
CA REDEMPTION BOTTLE	3772.2	2580.8	5307.1
OTHER NON-RECYCL GLASS	1089.0	447.1	2401.9
OTHER RECYCLABLE GLASS	5834.4	4481.7	7653.4
REFILLABLE GLASS BEV	40.0	0.0	152.6
HDPE	6363.7	5189.4	8014.4
LDPE	4098.7	3357.5	4918.2
PET	340.3	257.3	440.3
POLYPROPYLENE	428.4	352.5	522.0
POLYSTYRENE	2843.3	2362.0	3430.1
PVC	1793.3	930.4	3396.7
OTHER PLASTICS	8658.7	6260.2	12388.2
YARD WASTE-SHRUBBY	18197.1	12082.5	24940.9
YARD WASTE-LEAFY	18666.4	12811.6	24795.0
WOOD WASTE	43965.9	35848.3	52996.1
AGRICULTURAL CROP RESID	75.2	17.5	161.5
MANURE	2373.9	879.6	4228.7
FOOD WASTE	23074.5	18661.6	28361.2
TEXTILES	6683.9	4097.9	10462.5
LEATHER	235.7	82.2	484.2
HOUSEHOLD HAZARD WASTE	3073.8	2118.3	4436.7
INERT SOLIDS	16345.7	11106.1	22915.4
DIAPERS	3051.4	2066.2	4336.0
TIRES & RUBBER	12206.5	7678.4	17248.4
WHITE GOODS	980.9	473.0	1760.5
REMAINDER	37767.6	29654.1	47306.4

TABLE 3-11
OPEN DROP BOX VEHICLES COUNTY WIDE (%)

RIVERSIDE COUNTY 1990 PERIODS 1-3 POOLED

WASTE CATEGORY	DO TRUCKS (C/I) COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	26.125	14.570	39.160
NEWSPAPER	1.428	0.463	2.796
HIGHGRADE PAPER	0.215	0.025	0.605
MIXED WASTE PAPER	0.762	0.240	1.510
OTHER PAPER	0.484	0.201	0.860
ALUMINUM CANS	0.056	0.010	0.113
TIN CANS	0.131	0.047	0.238
FERROUS METALS	8.172	3.488	14.110
NON-FERROUS ALUM SCRAP	0.153	0.064	0.272
BI-METAL	0.000	0.000	0.000
CA REDEMPTION BOTTLE	0.083	0.017	0.181
OTHER NON-RECYCL GLASS	0.009	0.004	0.023
OTHER RECYCLABLE GLASS	0.230	0.053	0.540
REFILLABLE GLASS BEV	0.000	0.000	0.000
HDPE	1.175	0.279	2.643
LDPE	0.406	0.157	0.916
PET	0.028	0.004	0.072
POLYPROPYLENE	0.044	0.007	0.106
POLYSTYRENE	0.289	0.057	0.728
PVC	1.672	0.333	3.719
OTHER PLASTICS	1.319	0.175	3.429
YARD WASTE-SHRUBBY	4.326	1.251	9.483
YARD WASTE-LEAFY	2.984	0.401	7.162
WOOD WASTE	15.566	9.153	22.431
AGRICULTURAL CROP RESID	2.350	0.000	7.050
MANURE	0.000	0.000	0.000
FOOD WASTE	2.093	0.013	4.975
TEXTILES	6.855	0.188	17.484
LEATHER	0.063	0.000	0.207
HOUSEHOLD HAZARD WASTE	0.593	0.046	1.882
INERT SOLIDS	3.787	1.970	6.231
DIAPERS	0.107	0.004	0.274
TIRES & RUBBER	1.474	0.350	3.710
WHITE GOODS	0.000	0.000	0.000
REMAINDER	17.022	11.119	23.760

WASTE CATEGORY	DO TRUCKS (C/I) COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	36346.4	20271.3	54482.3
NEWSPAPER	1987.0	644.2	3889.5
HIGHGRADE PAPER	299.6	34.2	842.1
MIXED WASTE PAPER	1060.6	334.4	2100.3
OTHER PAPER	672.9	279.3	1195.9
ALUMINUM CANS	77.4	14.1	156.5
TIN CANS	181.7	65.3	331.7
FERROUS METALS	11369.3	4852.8	19630.3
NON-FERROUS ALUM SCRAP	212.7	88.7	378.8
BI-METAL	0.0	0.0	0.0
CA REDEMPTION BOTTLE	114.9	23.1	251.1
OTHER NON-RECYCL GLASS	12.6	6.2	31.6
OTHER RECYCLABLE GLASS	320.3	73.1	750.6
REFILLABLE GLASS BEV	0.0	0.0	0.0
HDPE	1634.3	388.5	3677.6
LDPE	564.3	217.9	1275.1
PET	38.5	4.9	100.1
POLYPROPYLENE	61.6	9.9	147.3
POLYSTYRENE	401.6	79.9	1012.8
PVC	2325.8	463.3	5174.8
OTHER PLASTICS	1835.4	243.1	4770.7
YARD WASTE-SHRUBBY	6019.2	1740.8	13192.8
YARD WASTE-LEAFY	4151.5	557.2	9963.8
WOOD WASTE	21657.1	12733.9	31207.2
AGRICULTURAL CROP RESID	3269.6	0.0	9808.7
MANURE	0.0	0.0	0.0
FOOD WASTE	2912.3	18.4	6921.2
TEXTILES	9536.7	262.1	24324.4
LEATHER	87.7	0.0	288.0
HOUSEHOLD HAZARD WASTE	825.4	63.3	2618.7
INERT SOLIDS	5269.3	2741.2	8669.4
DIAPERS	148.3	6.2	381.4
TIRES & RUBBER	2050.4	487.3	5162.0
WHITE GOODS	0.0	0.0	0.0
REMAINDER	23682.4	15470.0	33056.4

TABLE 3-12
CLOSED COMPACTOR VEHICLES COUNTY WIDE (%)

RIVERSIDE COUNTY 1990 PERIODS 1-3 POOLED

WASTE CATEGORY	CD TRUCKS (C/I) COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	40.719	31.685	49.692
NEWSPAPER	1.690	0.362	3.330
HIGHGRADE PAPER	0.445	0.128	0.954
MIXED WASTE PAPER	2.575	1.548	4.047
OTHER PAPER	2.317	1.109	3.706
ALUMINUM CANS	0.135	0.021	0.333
TIN CANS	2.263	1.197	3.393
FERROUS METALS	0.478	0.134	0.829
NON-FERROUS ALUM SCRAP	0.190	0.038	0.442
BI-METAL	0.008	0.000	0.038
CA REDEMPTION BOTTLE	6.580	0.220	13.053
OTHER NON-RECYCL GLASS	0.050	0.008	0.152
OTHER RECYCLABLE GLASS	5.711	1.353	10.424
REFILLABLE GLASS BEV	0.000	0.000	0.000
HDPE	1.510	1.150	1.942
LDPE	0.842	0.301	1.826
PET	0.060	0.005	0.161
POLYPROPYLENE	0.084	0.031	0.158
POLYSTYRENE	1.024	0.147	1.898
PVC	0.041	0.016	0.070
OTHER PLASTICS	0.530	0.333	0.752
YARD WASTE-SHRUBBY	0.000	0.000	0.000
YARD WASTE-LEAFY	0.019	0.003	0.069
WOOD WASTE	12.673	7.451	17.898
AGRICULTURAL CROP RESID	0.000	0.000	0.000
MANURE	0.000	0.000	0.000
FOOD WASTE	12.606	6.657	18.877
TEXTILES	1.503	0.269	3.717
LEATHER	0.000	0.000	0.000
HOUSEHOLD HAZARD WASTE	1.209	0.027	2.388
INERT SOLIDS	0.663	0.141	1.384
DIAPERS	0.000	0.000	0.000
TIRES & RUBBER	0.102	0.054	0.152
WHITE GOODS	0.058	0.000	0.285
REMAINDER	3.916	0.362	7.470

WASTE CATEGORY	CD TRUCKS (C/I) COUNTYWIDE		
	MEAN	LOWER CL	UPPER CL
CARDBOARD	18266.3	14213.7	22291.8
NEWSPAPER	758.1	162.6	1493.7
HIGHGRADE PAPER	199.5	57.5	428.1
MIXED WASTE PAPER	1155.1	694.3	1815.3
OTHER PAPER	1039.5	497.5	1662.3
ALUMINUM CANS	60.7	9.2	149.5
TIN CANS	1015.1	536.9	1522.1
FERROUS METALS	214.3	60.2	372.1
NON-FERROUS ALUM SCRAP	85.0	17.1	198.2
BI-METAL	3.4	0.0	17.1
CA REDEMPTION BOTTLE	2951.6	98.8	5855.4
OTHER NON-RECYCL GLASS	22.5	3.6	68.3
OTHER RECYCLABLE GLASS	2562.0	607.1	4676.4
REFILLABLE GLASS BEV	0.0	0.0	0.0
HDPE	677.5	515.8	871.1
LDPE	377.7	134.9	819.1
PET	27.0	2.2	72.4
POLYPROPYLENE	37.6	13.8	70.8
POLYSTYRENE	459.2	66.1	851.5
PVC	18.6	7.3	31.5
OTHER PLASTICS	237.8	149.2	337.4
YARD WASTE-SHRUBBY	0.0	0.0	0.0
YARD WASTE-LEAFY	8.7	1.2	30.8
WOOD WASTE	5685.0	3342.7	8029.2
AGRICULTURAL CROP RESID	0.0	0.0	0.0
MANURE	0.0	0.0	0.0
FOOD WASTE	5655.1	2986.5	8468.0
TEXTILES	674.3	120.7	1667.2
LEATHER	0.0	0.0	0.0
HOUSEHOLD HAZARD WASTE	542.5	12.0	1071.5
INERT SOLIDS	297.4	63.3	620.7
DIAPERS	0.0	0.0	0.0
TIRES & RUBBER	45.6	24.2	68.4
WHITE GOODS	26.1	0.0	127.7
REMAINDER	1756.7	162.5	3350.9

II

RIVERSIDE COUNTY SOLID WASTE DIVERSION STUDY

SECTION 4: RIVERSIDE COUNTY SOLID WASTE DIVERSION STUDY

4.1 INTRODUCTION

The solid waste diversion study conducted for the County of Riverside documents the tonnages of recovered materials for 1990 from each of the cities and the unincorporated area within Riverside County.

This study was carried out in response to the California State legislation AB 939 and AB 1820. These bills require cities and counties to document the recycling rate for each of their jurisdictions by combining the information from this study with total tonnage of the waste disposed. This will determine the total waste generated and the percent diverted. The recycling rates for each material for each city and the unincorporated area are contained in the appendices.

4.2 SURVEY METHODOLOGY

4.2.1 Survey Procedures

The amounts of materials being diverted were determined by using several methods for tracking the flow of materials. These methods were designed to systematically obtain information from each trading level, from the waste generator to the end-user, while avoiding double counting. They included the following:

- Sending a confidential survey questionnaire to end-users, processors, recycling centers, buy-back centers, drop-off centers, and large waste generators with recycling programs. The survey forms included requests for annual tonnages of materials recycled, by city of origin, and a listing of companies that materials were purchased from and/or sold to, by material type. These surveys were accompanied by telephone interviews.
- Telephone interviews with the large employers and significant waste generators within each city and the unincorporated areas.
- Contacting the State of California Department of Conservation, Division of Recycling for information from certified processing centers on tonnages of redemption glass, aluminum, and plastic.

4.2.2 Allocation of Diverted Tonnages to Individual Jurisdictions

Of the participating survey respondents, only one processor and three recycling centers were unable to provide estimates of tonnages recovered for each jurisdiction, and the approximate percentage of their accounts that were commercial and residential. The allocation of diverted tonnages to individual cities and the unincorporated area was based on actual tonnages or estimates provided by the surveyed handler of the recycled material.

To allocate these tonnages to the residential, commercial and industrial sub-wastestreams and cities, several assumptions were made. Definitions for each sub-wastestream were taken from state regulation (see Appendix L). The processor, who handled 85% of these materials, estimated that 90% of his tonnage came from the commercial wastestream and 10% from the residential wastestream. Allocation of tonnages for the recycling centers, which were handling the remaining 15% of these materials, was as follows: the cardboard was applied to the commercial wastestream, the newspaper was divided equally between the commercial and residential wastestreams, the aluminum beverage containers and the HDPE containers were applied to the residential wastestream. These applied tonnages were then apportioned to each city and the unincorporated area, based upon the relative amount of tons each had in its commercial and residential wastestreams.

Double counting of materials was eliminated by adjusting all processor, end-user, and recycling center tonnages to remove tonnages of recovered materials obtained from waste generation.

4.3 TRADING LEVELS SURVEYED

The information obtained from this survey constitutes the best available information, given the fact that handlers of recovered materials at all levels are often not willing or able to provide information on the origin of recyclables. This is especially true at the level of recycling centers, where competition with other recycling centers and curbside programs is intense for some materials. Some recyclers also declined to participate in the survey because of previous problems with local governments regarding siting permits.

There are several levels of trading, and each level has a certain viewpoint of the structure of the recovered materials market. Traders that deal primarily with processors do not necessarily know the initial source of materials, and those traders that deal directly with the waste generators often have a limited perspective of the processing and end-user market structure. The trading levels are: end-users, processors, recycling centers (including buy-back and drop-off centers), and waste generators.

End-users. Regional end-users were a key to obtaining the most accurate picture on the overall movement of recyclables within the region. They were also familiar with the major processors and types of waste generators in the industry.

Processors. Processors in Riverside County and bordering counties were contacted for two primary reasons. First, to obtain tonnages of materials being processed within the region, and second, to trace the recovered materials back to the jurisdiction in which they were generated. Processors were able to provide the most accurate information on types of recyclables being recovered, and were often willing to identify the individual firms and institutions who were recycling.

Buy-back, Drop-off and Other Local Recycling Centers. This category includes curbside programs, community organizations, and thrift stores. Although these facilities do not usually track materials by origin, they are more accurate indicators of the source of recovered materials. This is because they usually tend to draw materials from a smaller

geographic area than do processors and end-users. However, the competitiveness of this industry is often reflected in price wars which can sometimes divert materials from a wider geographic area.

Waste Generators. Large companies and specific types of businesses were also contacted because they often bypass the local and regional network for recovered materials. Examples of businesses contacted are: grocery chains, publishers, printers, hotels, hospitals, schools, city, county and state offices, prisons, and military bases. Many public and private facilities generate enough recoverable material to attract processors and end-users from other counties.

Each material can have its own unique path from waste source to end-user. Some materials are usually handled by all four levels, while others may often go directly from the generator to the end-user. The route taken is determined by the type of material and the amount generated at a particular site.

4.4 MATERIALS SURVEYED

The materials targeted by this study were selected according to the requirements prescribed by state legislation and as advised by the Waste Management Board. These requirements state that in order for a material to be counted in the diversion study, it had to have been "normally" landfilled as of January 1, 1990, and a diversion program had to be in place to recycle that material.

Wood waste is an example of a material that is normally permitted in certified solid-waste disposal facilities, and, as such, any diversion of this material can be counted towards the recycling rate for that jurisdiction. An example of a material currently excluded by state law is scrap metal, which, while allowed at a certified solid waste disposal site, is not normally landfilled, as evidenced by the infrastructure of the scrap metal industry that has been in place for many years to divert all metals.

Appliances. Appliances are diverted from landfills by repair facilities and scrap metal merchants. Repair centers generally draw customers from their immediate area. Thrift stores, a large source of broken appliances, do not usually use appliance repair facilities.

Cardboard. Most cardboard is recovered from industrial accounts, department stores and grocery stores. This material usually bypasses the recycling centers, going directly from the generator to the processor or to the end-user. The trucks delivering produce and goods to grocery and department stores usually take recovered cardboard back to their central distribution center, where it can be sold directly to a mill.

Concrete, Asphalt, Dirt and Rock. Crushing and screening plants process material from street repairs and demolition sites. These operations tend to draw materials from a radius of at least twenty-five miles, according to one processor. Several grades of material are produced, from road-base aggregate, through sand and topsoil.

Food. Most of the food waste diverted in Riverside County is generated by food processing centers in the date and citrus industries. These centers process products from farms in the region, sorting, packing, and distributing the fruit. Some of these centers

have established links with dairy and hog farmers, who use the culled material as feed for their animals.

Glass. Redemption and non-redemption glass containers are usually collected by curbside programs and at recycling, buy-back and drop-off centers. This material is then sent to a beneficiation plant (which can either be a processor or end-user), where it is cleaned, sorted, and crushed before being sold to an end-user. There are a limited number of beneficiation plants in the Southern Californian region. They are: CR&R, California Beneficiation Association (CBA), CIRCO, and CAL CRINC. All recovered glass must pass through one of these processors before being sold to an end-user.

Mixed Wastepaper This grade of paper is usually collected from curbside programs or private businesses by processors. Mixed wastepaper is a lower value commodity, and consequently only large generators of this material are usually targeted.

Newspaper. Most recovered newspaper is generally collected from curbside collection programs and newspaper publishers. It is then sold to a processor or directly to a mill or end-user.

Office Paper. This includes ledger paper, computer paper, and other high grade papers. Most of this material is collected by processors or end-users from commercial sector accounts. Until recently, only large generators of this material, such as manufacturers of paper goods, commercial printers, and publishers, were targeted. The expanding domestic and export markets have increased the value for this material. Processors, end-users, and small businesses now often set up recycling programs to recover these paper grades from the wastestreams of government offices and private businesses.

Plastics. Methods of recovery of plastics are according to resin type. Polyethylene Terephthalate (PET) is collected by curbside programs and redemption centers and sold to processors, who, in turn, sell it to end-users. High Density Polyethylene (HDPE) is sold to processors and end-users either from curbside collection programs or large industrial generators. Other plastics are usually sold directly to end-users by large industrial generators. Scrap plastic can be a high value commodity if it is generated in large volumes and is free of contamination, and as such, it may be shipped over considerable distances to processors. A plant is being built in Santa Fe Springs to recycle polystyrene. The plant is designed to process 6,500 tons/year. The recycled resin can be used in the manufacture of many different products. Talco Inc., located in Corona is the largest plastic processor on the West coast. It processes a variety of resin types. Rastra Building Systems Inc., located in Riverside use industrial polystyrene to mix with concrete to be used in construction of commercial and industrial buildings.

Textile and Household. This category consists of clothing and all household good recycled through thrift stores. Included are appliances, furniture and miscellaneous items. Thrift stores provided the diversion tonnages for these materials within the county.

Tin Cans. Tin cans are usually collected by curbside programs or recycling centers.

Used Aluminum Beverage Containers. This high value material is collected by curbside programs, reverse vending machines, and recycling centers, including buy-back and drop-off centers. The collected aluminum cans are sent to a processor who is often also an end-user.

The high recycling rate enjoyed by this commodity is largely due to the high scrap value for aluminum cans. Many programs have been implemented in the commercial sector by individuals motivated by environmental and economic concerns.

Wood. Most wood recovered within the County is from furniture manufacturers, pallet manufacturers, mobile home manufacturers, lumberyards, construction/demolition projects, and the agricultural sector. This category consists of scrap wood chipped for fuel. As there are relatively few large processors of scrap wood, it often moves across county lines. Processors either site bins at the source of generation to recover the wood, charging a reduced rate for collection, or, for larger jobs, move the processing equipment to the generation site.

Compost/Green Materials. This category includes scrap wood ground for use in compost or soil amendments, all green materials—whether they were chipped and applied directly as a mulch or were composted and then used, and composted food waste. The major sources for these materials were landscapers, tree trimmers, and a compost program operated by Waste Management of the Desert. It must be noted that a state permit for Waste Management of the Desert's compost facility is still pending. If the permit is not issued, materials processed through this facility will not count toward recycling goals.

Sludge. Composted sludge and dairy manure were not included because they did not fit within the State's prescribed definitions for allowed materials at this time. Sludge may be counted towards diversion after July 1, 1992, pending additional studies. Under current regulations, only the city where the treatment plant is located can get credit for the diversion of sludge. A listing of current amounts of sludge generated (by location of the treatment plant) and an allocation of these tonnages to individual cities and the unincorporated areas is presented in Appendix M. The allocation by city and the unincorporated area is given as information, and in case the law changes to allow for the allocation of sludge on a per capita basis. Currently, no sludge is landfilled in Riverside Count – it is either composted, land applied, or stockpiled.

4.5 RESULTS

The diversion results are presented in two separate formats for each city and the unincorporated areas in accordance with AB 939 regulations. Table One combines the diversion tonnages for each material with the disposed tonnages to obtain the recycling rates for each material and the overall recycling rate for each jurisdiction. This table also summarizes the tonnages of materials recycled by material type and by sub-wastestream, i.e., commercial, residential, industrial, or other, for 1990.

Table Two for each jurisdiction summarizes the tonnages of materials recycled by diversion activity and generator source and by sub-wastestream.

A list of the businesses and programs contacted is contained in the appendices. The list is divided into: recycling centers by city; processors for: textiles, compost, fibers, concrete/asphalt/dirt/rock, glass, plastics, and wood; and large employers and department and grocery stores by city. Information on the current status of recycling programs and future plans of each contact was also supplied if it was available.

4.6 RECOMMENDATIONS

4.6.1 Monitoring

To obtain a definitive picture of the amount of recyclables being recovered from each jurisdiction, a monitoring program needs to be implemented. This program would need to address the following issues:

- Material handlers have not had the need to monitor recovered materials by origin, and often do not have the equipment or the staff to track this information.
- Material handlers are private companies, and there is little or no incentive for them to provide information regarding the volume of their business or their market share. Their fear is that sales figures and accounts will become public information and fall into the hands of competitors.

The following recommendations are aimed at addressing these two key issues.

The simplest way for each recycling center to track the source of materials is by zip code. Using this approach, the identity of their clients is protected, and the requirements of AB 939 and AB 1820 are met. The State of California is currently using a similar system to track the quantities of beverage containers redeemed. Redeemed tonnages are compiled by zip code.

Key businesses could be encouraged to participate in the formation of the guidelines for a monitoring program. Much of the reluctance encountered in the diversion study sprang from a lack of information on the goals of a diversion tracking program.

A monitoring system could actually help these recycling operations by precisely identifying their market and by providing a method to gauge the impact of their advertising dollars. This would allow for targeting of those geographic areas most profitable to their operations.

In addition to obtaining information from recycling centers and processors (including waste haulers), it is necessary to monitor the recycling activities of the businesses in each jurisdiction. Recyclables from the commercial sector are often targeted by regional processors when they are produced in large quantities. Transport of these recyclables is not always visible, as many firms "backhaul" the recyclables in the trucks delivering supplies to their facilities.

III

COMPACTED DISPOSED WASTESTREAM TABLES and PIE CARTS

Calculation of Weighted Means to Include All Pertinent Strata

For some cities no samples were collected for one or more strata in their wastestream (generally the industrial or multi-family stratum). Excluding these strata from the calculation of the overall weighted mean biases this mean, particularly if the excluded stratum is very different from the other strata. To reduce this bias, samples for these missing strata were derived from the county-wide mean percentages and included in the calculations of the overall weighted means and confidence intervals.

For example, a certain city may have a mean of 10% for waste type A in its residential stratum, 15% in its commercial stratum, and 50% in its industrial stratum. If the industrial stratum is not sampled, and thus not included in the calculation of the overall mean, then the overall weighted mean is 12.5%. If a county-wide mean, say 40%, is included, then the overall weighted mean is 22.7%. Thus, if the county-wide mean percentages are close to the actual city numbers, then the inclusion of the county-wide data will bring the calculated overall weighted means closer to the actual overall weighted mean. However, because the sample used for the unsampled stratum is a single value with no variability, the confidence intervals for the city's overall mean will be smaller than those generated using actual samples.

Exclusion of the multi-family strata from the calculation of the residential weighted mean will similarly bias this mean. To reduce this bias, samples were derived as above and included in the calculations of the residential weighted means and confidence intervals.

For some cities, sample sizes for the industrial or multi-family strata were small. If any of these samples were at all unrepresentative of the strata, then including them in the calculation of the overall and residential means would be misleading. To reduce this possible bias, samples from strata with very small sample sizes were excluded from the analysis and were replaced with a sample derived from the county-wide mean percentages as described above.

RIVERSIDE COUNTY 1990 PERIODS 1-3 POOLED (PERCENTAGE)
COMPACTED DISPOSED WASTESTREAM

CITY=UNINCORPORATED

WASTE CATEGORY	OVERALL*			RESIDENTIAL**			COMMERCIAL			INDUSTRIAL***
	MEAN	LOWER	UPPER	MEAN	LOWER	UPPER	MEAN	LOWER	UPPER	MEAN
	CL	CL	CL	CL	CL	CL	CL	CL	CL	CL
NEWSPAPER	7.654	6.445	9.038	10.987	8.975	13.043	4.752	2.941	7.036	0.000
CARDBOARD	14.185	12.797	15.778	7.566	6.359	8.971	12.120	8.183	17.051	47.656
HIGHGRADE PAPER	0.331	0.243	0.469	0.365	0.329	0.406	0.384	0.112	0.864	0.064
MIXED WASTE PAPER	7.197	5.983	8.856	9.374	7.909	11.317	5.989	3.195	9.856	0.591
OTHER PAPER	4.646	4.041	5.399	5.956	5.099	7.055	3.921	2.675	5.412	0.669
ALUMINUM CANS	0.194	0.150	0.257	0.214	0.166	0.270	0.240	0.138	0.436	0.000
TIN CANS	1.213	1.002	1.439	1.721	1.374	2.085	0.792	0.515	1.128	0.000
FERROUS METALS	3.900	2.727	5.192	3.819	2.266	5.844	3.507	1.526	6.691	5.169
NON-FERROUS ALUM SCRAP	0.514	0.250	1.160	0.377	0.288	0.512	0.921	0.133	3.100	0.153
BI-METAL	0.040	0.000	0.158	0.069	0.000	0.438	0.002	0.000	0.014	0.000
CA REDEMPTION BOTTLE	0.742	0.487	1.065	1.076	0.735	1.487	0.442	0.077	1.148	0.000
OTHER NON-RECYCL GLASS	0.122	0.060	0.208	0.161	0.069	0.297	0.102	0.022	0.270	0.000
OTHER RECYCLABLE GLASS	2.035	1.623	2.587	2.633	2.005	3.358	1.796	1.000	2.811	0.002
REFILLABLE GLASS BEV	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HDPE	1.787	1.470	2.153	1.729	1.449	2.082	2.267	1.464	3.432	0.919
LDPE	0.849	0.719	0.995	0.973	0.817	1.149	0.923	0.638	1.257	0.139
PET	0.183	0.140	0.243	0.260	0.191	0.359	0.112	0.064	0.180	0.012
POLYPROPYLENE	0.182	0.150	0.231	0.254	0.204	0.321	0.117	0.067	0.207	0.017
POLYSTYRENE	0.623	0.502	0.778	0.723	0.585	0.921	0.563	0.307	0.967	0.332
PVC	0.506	0.312	0.804	0.607	0.270	1.094	0.214	0.095	0.372	0.755
OTHER PLASTICS	1.633	1.234	2.104	1.928	1.375	2.795	1.346	0.760	2.228	1.027
YARD WASTE-SHRUBBY	5.819	4.103	7.750	7.832	5.386	10.824	4.578	2.160	7.753	0.000
YARD WASTE-LEAFY	10.145	7.471	13.382	14.399	9.673	19.749	6.600	3.549	11.003	0.000
WOOD WASTE	8.926	7.039	11.165	3.029	1.836	4.893	17.897	11.990	24.690	13.520
AGRICULTURAL CROP RESID	0.155	0.001	0.770	0.274	0.000	1.361	0.000	0.000	0.000	0.000
MANURE	0.564	0.193	1.250	0.754	0.116	1.796	0.452	0.000	1.191	0.000
FOOD WASTE	6.108	5.063	7.375	7.628	6.307	9.135	5.905	3.609	9.168	0.000
TEXTILES	2.248	1.661	3.040	2.113	1.380	3.252	1.633	0.534	3.428	4.266
LEATHER	0.053	0.015	0.110	0.028	0.000	0.108	0.106	0.020	0.269	0.034
HOUSEHOLD HAZARD WASTE	0.958	0.625	1.445	0.590	0.398	0.843	1.731	0.689	3.366	0.742
INERT SOLIDS	2.888	1.768	4.611	1.058	0.190	2.538	5.028	1.903	10.199	5.813
DIAPERS	1.779	1.216	2.597	2.583	1.674	3.997	1.049	0.506	1.818	0.000
TIRES & RUBBER	1.423	0.677	2.482	0.682	0.251	1.782	3.278	1.229	6.336	0.302
WHITE GOODS	0.509	0.114	1.415	0.801	0.137	2.373	0.186	0.000	0.622	0.000
REMAINDER	9.892	8.226	11.979	7.437	5.815	9.550	11.049	6.565	17.170	17.818
TOTAL	100.003			100.000			100.002			100.000

* Samples derived from the county-wide multi-family and industrial means were included in the calculation of the overall weighted mean.

** A sample derived from the county-wide multi-family mean was included in the calculation of the residential weighted mean.

*** County-wide mean percentage

RIVERSIDE COUNTY 1990 PERIODS 1-3 POOLED (TONS)
COMPACTED DISPOSED WASTESTREAM

CITY=UNINCORPORATED

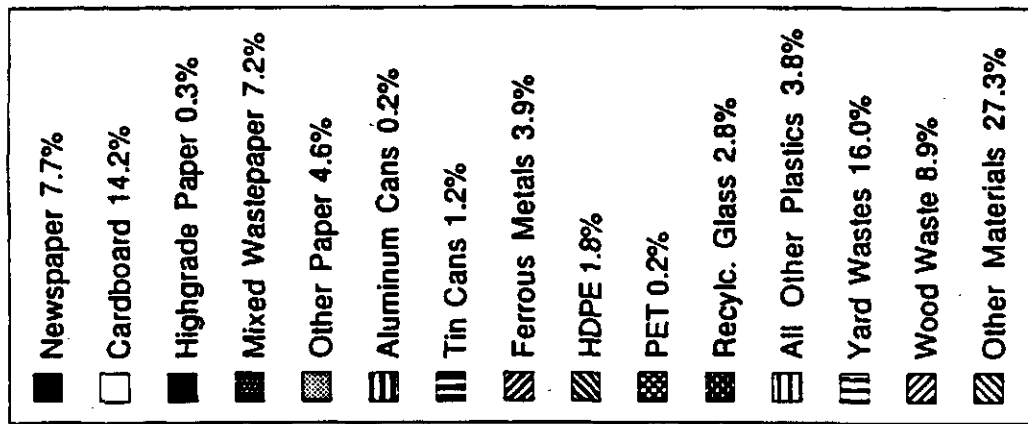
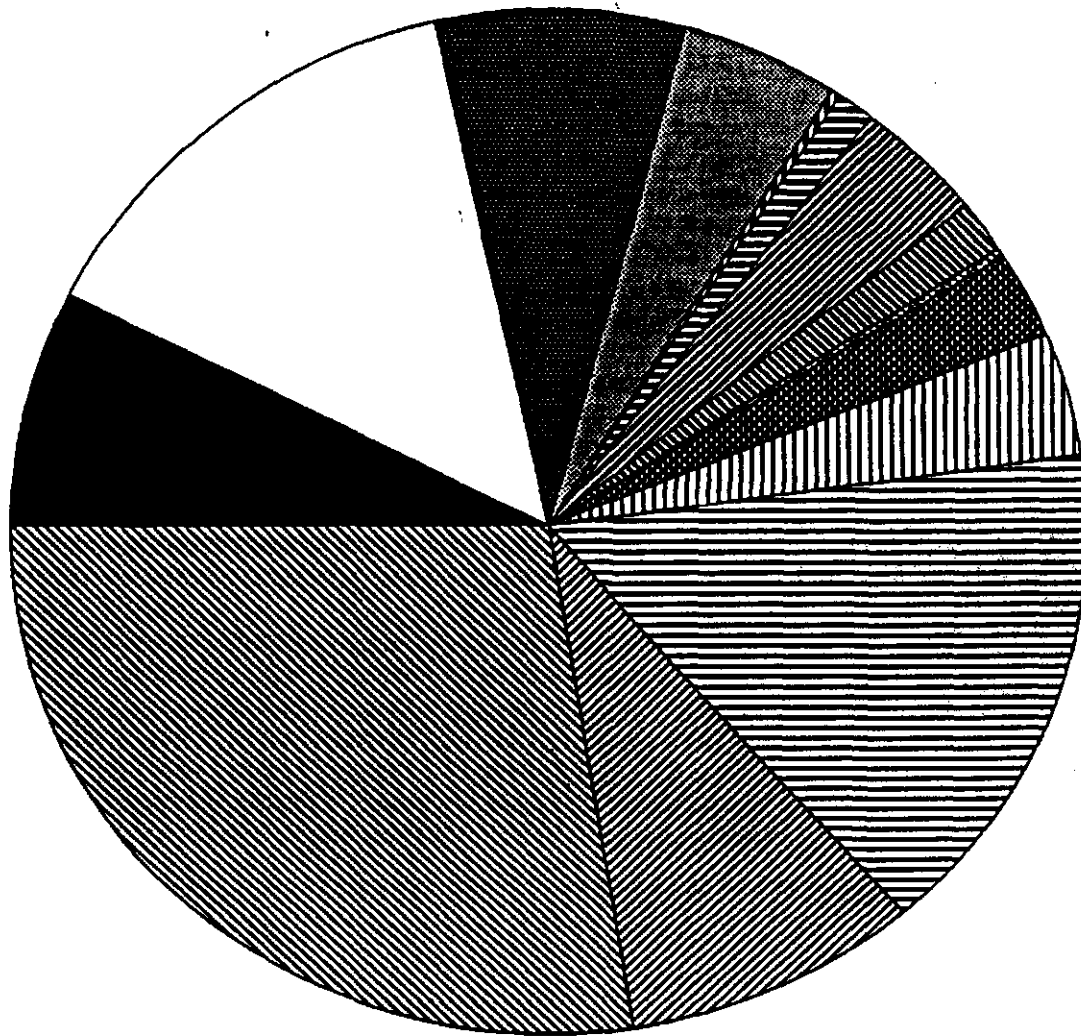
WASTE CATEGORY	OVERALL*			RESIDENTIAL**			COMMERCIAL			INDUSTRIAL
	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL	MEAN	LOWER CL	UPPER CL	MEAN***
NEWSPAPER	23390.7	19695.6	27619.5	18968.2	15495.3	22518.6	4422.5	2736.6	6547.3	0.0
CARDBOARD	43347.7	39104.8	48216.1	13063.3	10979.3	15488.1	11278.2	7614.8	15867.2	19006.2
HIGHGRADE PAPER	1012.8	742.3	1433.0	630.1	567.2	700.2	357.2	104.3	803.9	25.5
MIXED WASTE PAPER	21993.0	18283.6	27063.0	16184.4	13654.1	19539.0	5573.0	2973.2	9171.6	235.7
OTHER PAPER	14199.0	12348.9	16498.2	10283.6	8803.9	12180.9	3648.6	2489.4	5036.1	260.8
ALUMINUM CANS	592.1	459.3	785.3	369.0	286.5	465.6	223.2	128.4	405.8	0.0
TIN CANS	3707.9	3061.1	4398.2	2970.8	2372.7	3600.2	737.1	479.4	1049.8	0.0
FERROUS METALS	11918.6	8332.2	15865.0	6593.8	3912.1	10089.3	3263.3	1419.7	6226.6	2061.5
NON-FERROUS ALUM SCRAP	1569.2	763.0	3545.4	651.1	496.6	884.3	857.2	124.0	2885.0	61.0
BI-METAL	121.8	0.0	483.2	119.6	0.0	756.0	2.2	0.0	12.8	0.0
CA REDEMPTION BOTTLE	2268.1	1488.0	3256.0	1857.1	1268.8	2567.4	411.0	71.2	1068.2	0.0
OTHER NON-RECYCL GLASS	372.3	184.5	636.6	277.4	119.5	513.2	94.9	20.4	251.7	0.0
OTHER RECYCLABLE GLASS	6218.1	4960.4	7906.0	4545.8	3461.1	5797.9	1671.5	930.1	2615.8	0.8
REFILLABLE GLASS BEV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HDPE	5461.2	4491.0	6579.7	2984.7	2501.3	3593.9	2110.0	1362.7	3193.6	366.5
LDPE	2594.9	2196.5	3039.2	1680.3	1410.3	1983.5	859.1	593.8	1169.7	55.4
PET	558.1	426.9	744.1	449.3	329.7	619.1	104.0	59.6	167.5	4.8
POLYPROPYLENE	554.7	458.2	705.3	439.0	351.6	554.1	108.9	62.2	192.7	6.8
POLYSTYRENE	1904.0	1534.9	2376.6	1248.2	1009.2	1590.3	523.5	286.1	900.3	132.4
PVC	1547.5	953.5	2456.0	1047.2	465.8	1889.3	199.2	88.4	346.4	301.1
OTHER PLASTICS	4989.8	3772.1	6429.0	3328.0	2373.1	4825.4	1252.2	707.4	2073.0	409.6
YARD WASTE-SHRUBBY	17781.5	12536.9	23684.0	13521.5	9298.8	18687.4	4259.9	2010.4	7214.9	0.0
YARD WASTE-LEAFY	31001.9	22829.8	40894.6	24860.2	16700.6	34096.7	6141.7	3302.8	10238.8	0.0
WOOD WASTE	27275.7	21511.6	34118.3	5229.0	3170.6	8447.7	16654.6	11157.8	22975.6	5392.0
AGRICULTURAL CROP RESID	472.2	2.3	2352.1	472.2	0.0	2349.9	0.0	0.0	0.0	0.0
MANURE	1722.4	588.7	3819.7	1301.9	199.5	3100.3	420.5	0.0	1108.6	0.0
FOOD WASTE	18664.9	15472.1	22535.7	13170.2	10889.8	15771.0	5494.7	3358.8	8531.0	0.0
TEXTILES	6868.6	5076.0	9288.6	3647.8	2382.9	5615.0	1519.5	496.8	3189.8	1701.4
LEATHER	160.9	46.8	337.3	48.9	0.0	186.4	98.4	19.1	250.3	13.6
HOUSEHOLD HAZARD WASTE	2926.2	1911.4	4416.5	1019.1	688.0	1456.0	1611.2	641.5	3131.9	295.9
INERT SOLIDS	8824.4	5402.6	14090.7	1827.4	328.1	4382.4	4678.7	1770.5	9490.8	2318.3
DIAPERS	5435.8	3716.6	7937.5	4460.0	2890.4	6901.6	975.9	471.1	1692.2	0.0
TIRES & RUBBER	4347.4	2067.5	7585.6	1176.8	432.7	3077.1	3050.1	1144.0	5896.0	120.4
WHITE GOODS	1556.2	348.7	4323.5	1383.6	235.8	4097.0	172.6	0.0	579.2	0.0
REMAINDER	30228.6	25137.7	36605.4	12840.4	10039.3	16488.4	10282.1	6109.2	15978.2	7106.2
TOTAL	305588.5			172649.5			93057.0			39882.0

* See percentage table

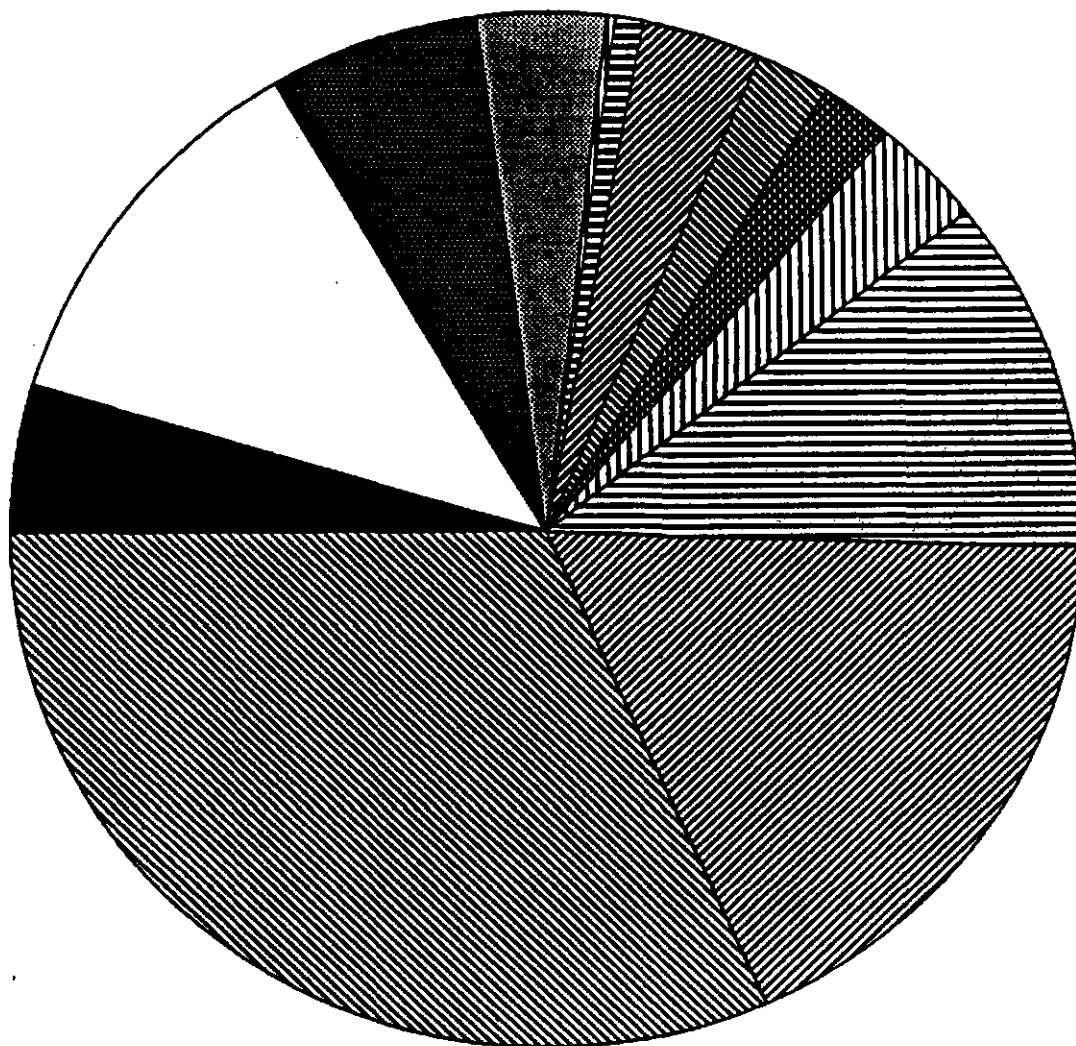
** See percentage table

*** Based on county-wide mean percentage

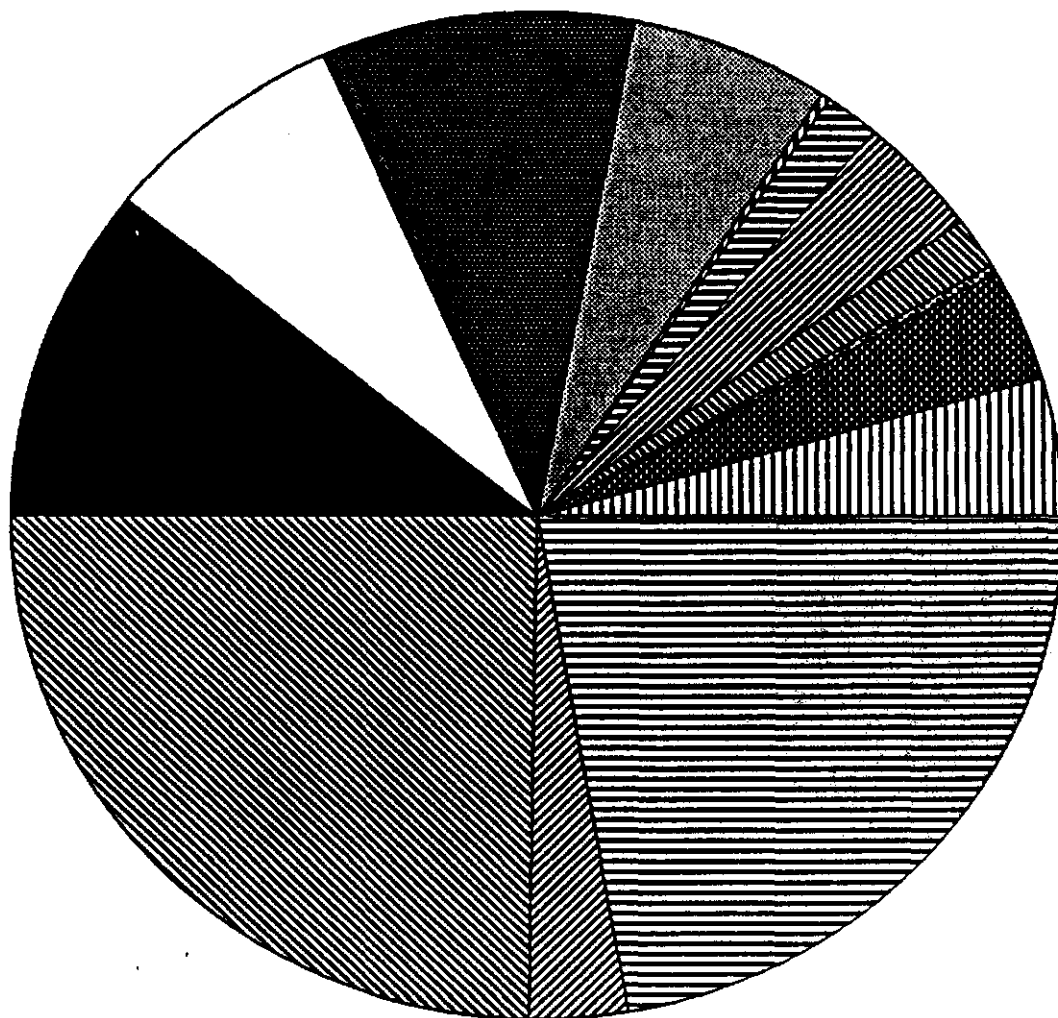
**WASTE COMPOSITION - UNINCORPORATED AREA
OVERALL COMPACTED DISPOSED WASTESTREAM
AUGUST 1990 - DECEMBER 1990**



**WASTE COMPOSITION - UNINCORPORATED AREA
COMMERCIAL COMPACTED DISPOSED WASTESTREAM
AUGUST 1990 - DECEMBER 1990**



**WASTE COMPOSITION - UNINCORPORATED AREA
RESIDENTIAL COMPACTED DISPOSED WASTESTREAM
AUGUST 1990 - DECEMBER 1990**



Riverside County Truck Tally Sheet Period 1

City Name	Single Family	Multi-Family	Commercial	Industrial	Total
Banning	2		2		4
Beaumont	2		2		4
Calimesa	1				1
Canyon Lake					0
Corona	3*		5		8
Hemet	2		2		4
Lake Elsinore	2		2		4
Moreno Valley	3		2		5
Norco	2		1		3
Perris	1		1		2
Riverside	9		10	2	21
Temecula	1		4		5
San Jacinto	2		3		5
Blythe	2		2		4
Cathedral City	2		2		4
Coachella	2		2		4
Desert Hot Springs	2		2		4
Indian Wells	2		2		4
Indio	2		2		4
La Quinta	2		2		4
Palm Desert	2		2		4
Palm Springs	3		2		5
Rancho Mirage	2		2		4
Unincorp	11		9		20
TOTAL	62		63	2	127

All trucks had two samples, unless otherwise noted.
* Only one sample taken from one of the trucks

Riverside County Truck Tally Sheet

Period 2

City Name	Single Family	Multi-Family	Commercial	Industrial	Total
Banning	2		3		5
Beaumont	2		2		4
Calimesa					0
Canyon Lake					0
Corona	3		4*	3	10
Hemet	2		2	2	6
Lake Elsinore	3		2		5
Moreno Valley	3		2	1	6
Norco	3		2	1	6
Perris	2		2		4
Riverside	7	2	10**	1	20
Temecula	2		4		6
San Jacinto	2		2		4
Blythe	1		1		2
Cathedral City	2		2		4
Coachella	1		2		3
Desert Hot Springs	1		1		2
Indian Wells	1		2		3
Indio	2		3		5
La Quinta	1		1		2
Palm Desert	2		3		5
Palm Springs	2		4		6
Rancho Mirage	1		2		3
Unincorp	8		10		18
TOTAL	53	2	66	8	129

All trucks had two samples, unless otherwise noted.

* Only one sample taken from one of the trucks

** One of the 10 trucks was rejected due to medical waste

Riverside County Truck Tally Sheet Period 3

City Name	Single Family	Multi-Family	Commercial	Industrial	Total
Banning	1		1		2
Beaumont	1		1		2
Calimesa	2		2		4
Canyon Lake	1	1			2
Corona	3	1	6		10
Hemet	2		2		4
Lake Elsinore	1	1	2		4
Moreno Valley	3		2		5
Norco	2		1		3
Perris	2		2		4
Riverside	7	2	9		18
Temecula	2		2		4
San Jacinto	1		1		2
Blythe	1		2		3
Cathedral City	2		2		4
Coachella	1		2		3
Desert Hot Springs	1		1		2
Indian Wells	1		1		2
Indio	2		3		5
La Quinta	1		1		2
Palm Desert	2		2		4
Palm Springs	3		4		7
Rancho Mirage	2		2		4
Unincorp	8		6		14
TOTAL	52	5	57		114

All trucks had two samples, unless otherwise noted.

IV

UNCOMPACTED DISPOSED WASTESTREAM

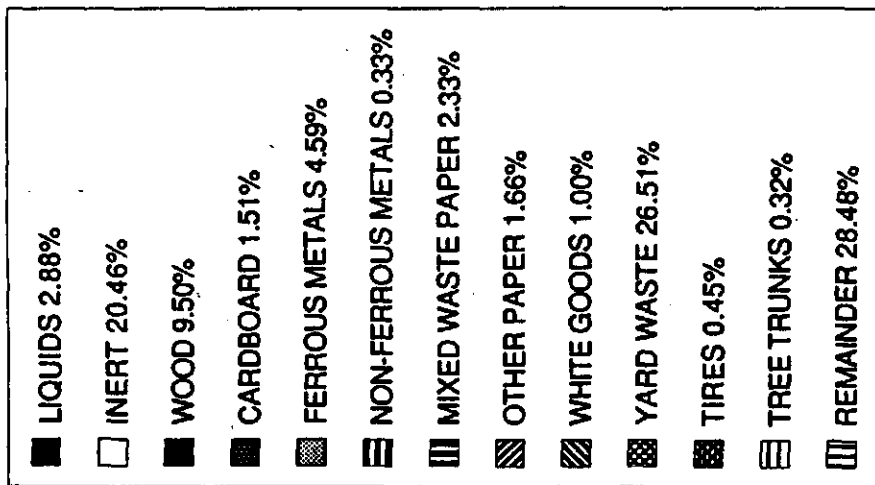
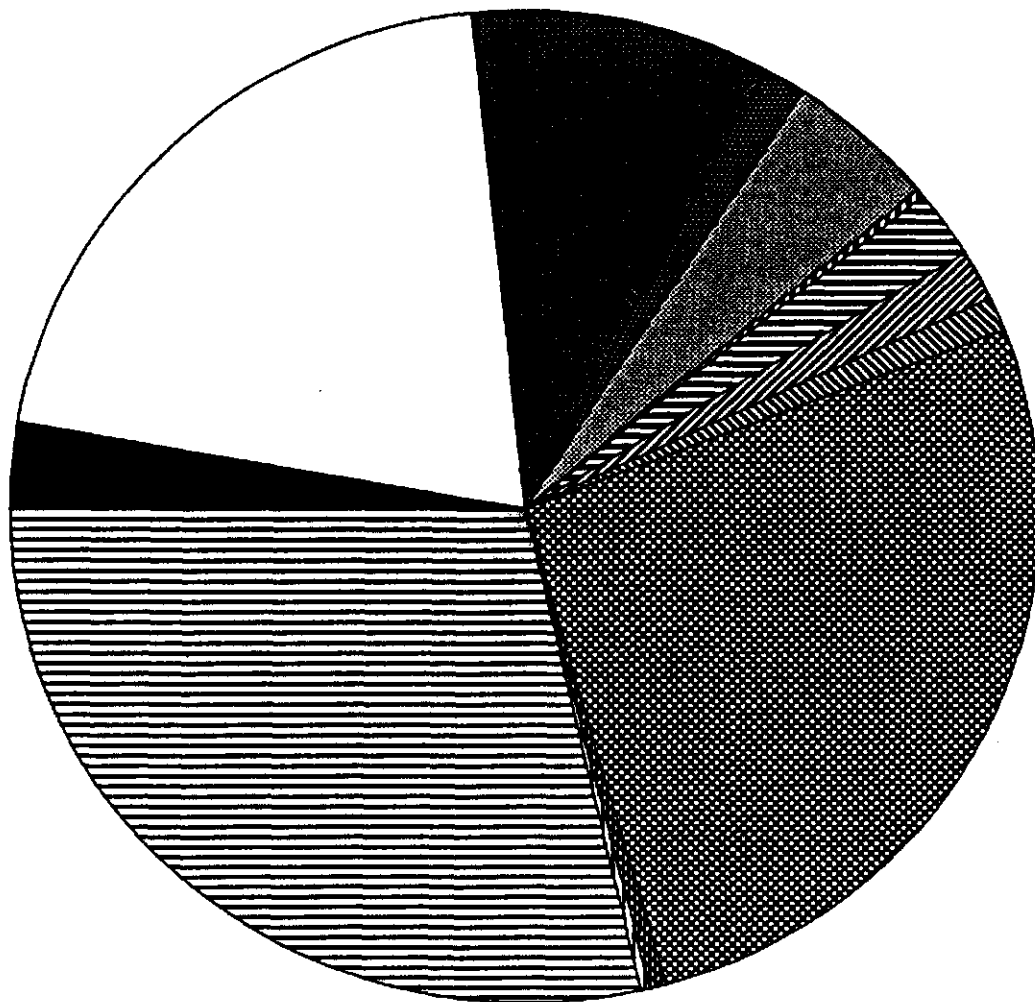
UNCOMPACTED DISPOSED WASTESTREAM SCALE/AB 939 WASTE TYPES

UNINCORP.

Scale Data	Liquids	Const./Deme <300 lbs.	Wood Brush, Grass Tree Trim.	Routine Refuse	Concrete/ Asphalt <150 lbs.	Const./Deme >300 lbs.	Tires	Tree Trunks >200 lbs.	Hard to Handle	TOTALS	Sludge
Sept	116.83	1,820.33	1,443.88	1,955.67	279.57	22.98	45.69	38.43	57.32	5,780.48	1,337.25
Oct	118.36	1,889.54	1,561.42	2,086.18	340.99	2.40	22.63	0.00	22.12	5,843.64	1,337.25
Nov	174.57	1,872.95	1,474.05	1,504.15	316.48	14.88	22.57	9.77	46.35	5,435.77	1,337.25
Dec	201.89	955.05	1,147.22	1,505.60	256.24	21.04	4.23	19.28	56.08	4,166.63	1,337.25
Subtotal	1,834.95	19,013.61	16,879.05	21,154.80	3,579.84	183.90	285.36	202.44	545.61	63,679.56	5,349.00
Unaccounted Tonnages	981.02	9,958.03	9,840.09	11,079.44	1,874.88	96.31	149.45	106.02	295.75	33,351.00	0.00
Distribution to Unincorp.	1,284.56	13,310.51	11,816.21	14,809.46	2,506.07	128.74	199.77	141.72	381.96	44,579.00	0.00
Non-Scale Landfill Tonnages										34,189.00	
Annual Total	4,080.53	42,282.15	37,535.35	47,043.70	7,960.79	408.95	634.58	450.18	1,213.32	175,798.56	5,349.00
Percentage	2.88%	29.86%	26.51%	33.22%	5.82%	0.29%	0.45%	0.32%	0.86%	100.00%	0.00%

AB 939 Waste Types Based on Scale Data	LIQUIDS	INERT	WOOD	CARD- BOARD	FERROUS METALS	NON- FERROUS METALS	MIXED WASTE PAPER	OTHER PAPER	WHITE GOODS	YARD WASTE	TIRES	TREE TRUNKS	REMAINDER	TOTAL
Annual Total	5,065.70	35,965.09	16,694.40	2,649.90	8,088.14	8,088.14	4,088.11	2,920.08	1,752.05	46,597.57	787.79	558.87	50,066.86	175,798
Percentage	2.88%	20.46%	9.50%	1.51%	4.59%	4.59%	2.33%	1.66%	1.00%	26.51%	0.45%	0.32%	28.48%	100.0

**WASTE COMPOSITION
UNINCORPORATED AREA
UNCOMPACTED DISPOSED WASTESTREAM
SEPTEMBER 1990 - DECEMBER 1990**



V

**STATISTICAL METHODS for MANUALLY
SAMPLED PORTION**

STATISTICAL METHODS FOR MANUALLY SAMPLED PORTION

1. OVERVIEW

1.1 Stratification

A stratified random sampling design was used. The strata consisted of the commercial, industrial, multi-family residential, and single-family residential sub-wastestreams for each city.

The size of each stratum was expressed as the total annual 1990 tonnage of all waste materials collected from the stratum. These annual tonnages were obtained from a survey of the haulers.

The sampling was performed on trucks at landfills. The origin (city) and source of the load (sub-wastestream) was noted for each randomly sampled truck. Two random samples were taken from each truck.

1.2 Mean Percentages for Each Waste Category

For each sample, the percentage by weight was computed for each waste category. These percentages were averaged for the following categories.

1. Each stratum. This was the arithmetic average of the samples within the stratum. This included four sub-wastestreams within each of 23 cities, in addition to the unincorporated area (which will be discussed below as though it were a city).
2. The overall residential sub-wastestream for each city. The average here is a weighted mean of the arithmetic means for the single-family and the multi-family strata for the city in question. The weights in the weighted mean are the respective sizes of the single- and multiple-family strata within the city.
3. The overall residential sub-wastestream for the County. The average here is a weighted mean of the arithmetic means for the single-family and the multi-family strata of all cities. The weights in the weighted mean are the respective sizes of the single- and multiple-family strata in each city.
4. The overall commercial sub-wastestream for the County. The average here is a weighted mean of the arithmetic means for the commercial strata for all cities. The weights in the weighted mean are the respective sizes of commercial strata in each city.
5. The overall industrial sub-wastestream for the County. The average here is a weighted mean of the arithmetic means for the industrial strata for all cities. The weights in the weighted mean are the respective sizes of industrial strata in each city.
6. The overall mean percentages for the County. The average here is a weighted mean of the arithmetic means for the all strata, where the weights in the weighted mean are the respective sizes of each stratum.

To indicate the precision of the computed means, the upper and lower bounds of the 95% confidence intervals were computed for each mean percentage.

For some strata, it was not possible to obtain a truck sample. For these strata, the overall (weighted) mean percentage for the entire county was used in the computations. This procedure would presumably result in less bias in the weighted mean percentages when compared to simply ignoring the strata with no samples.

2. STRATIFICATION

2.1 The Advantage of Stratification

Stratification can be used as a method of increasing the precision (reduce the confidence regions) of the estimates of the mean for a region or area of interest (Cochran, 1977). When using stratification within a region, and the variability within strata is small compared to the variability between strata, the precision of the estimated mean for the region will be greater than the precision of an estimate from unstratified data. An analysis of the data in Table E-1 illustrates this principle.

Table E-1		
Effect of Stratification on Precision of Estimation of the Means		
(Hypothetical Data)		
	Stratum A	Stratum B
	5	25
	3	23
	2	22
	1	21
	4	24
	3	23
Mean	3	23
Variance	2	2
Variance A & B		110.91

The data values could be percentages of a waste component of interest, such as recyclable newspaper. The strata could be the commercial and residential subwastestreams (strata) in a city (the region of interest). Variance A & B is the variance of the pooled data without regard to strata.

If we pool the data without regard to strata, the standard deviation of the mean for the County would be:

$$\sqrt{110.91/12} = 3.04$$

Using the strata, the standard deviation of the mean for the County would be approximately

$$\sqrt{W_a^2 S_a^2 / N_a + W_b^2 S_b^2 / N_b}$$

$$\sqrt{.25(2)/6 + .25(2)/6} = \sqrt{.167} = .41$$

$$\sum_{i=1}^n \frac{(X_i - \bar{x})^2}{n-1}$$

where: X_i = measurement
 \bar{x} = mean of sample
 n = number of measurements

(Cochran, 1977; equation 5.13, page 95), where W_a and W_b are the relative sizes of strata A and B (expressed as proportions), S_a^2 and S_b^2 are the variances in strata A and B, and N_a and N_b are the number of samples in strata A and B respectively. These computations assume that the two strata are of equal size (i.e., the total tonnages from both strata are equal), therefore W_a and W_b both equal 0.5.

2.2 The Choice of Strata

From the above example, it can be seen that the use of proper stratification can significantly reduce the variability (and increase the precision) of the estimates of the mean. Most of the variability from the pooled data comes from the differences between strata, while the variability from the stratified data only comes from within-stratum variability.

Our analyses have indicated that the Commercial and Residential sub-wastestreams differ significantly for several of the waste categories, i.e., the variability among these sub-wastestreams is greater than the variability within these subwastestreams. As such, stratifying the data by Commercial and Residential sub-wastestreams will increase the estimated precision of the means for the different cities or larger regions of interest. In some cases, the commercial and residential subwastestreams can be further subdivided to provide strata that achieve even greater precision in the mean estimates. Or, in addition to stratification by commercial and residential, different subregions with varying waste characteristics can be used as strata.

2.3 Computation of Means with Stratified Data

The mean for regions which are subdivided into strata are computed as

$$X = \frac{\sum W_i X_i}{\sum W_i},$$

where X is the mean of waste category X for the region, W_i is the size of stratum i , and X_i is the mean percentage of waste category X in stratum i . The summation is over all strata. X is simply a weighted mean of the stratum percentages. It is important to use a weighted mean to avoid biasing the region mean toward the percentages in the smaller strata.

The data in Table E-1 is used to demonstrate the computations. If the total size (tonnage of all waste components for the sampling period) of stratum A were 20,000 tons, and that for stratum B were 5,000 tons, then the weighted mean for the region would be

$$X = \frac{(20000)(3) + (5000)(23)}{20000 + 5000} = 7.$$

Note that this weighted mean is much lower than the arithmetic mean of the two strata (13). This is due to the much larger size of the stratum with the smaller mean. The weights in the weighted means do not have to be tons, but could be a measure of the relative size of the strata. However, this measure should be based on the same type of data that are used in the computation of the percentages. For example, we quantify the waste components by weight, and our measures of stratum size are likewise based on weight.

2.4 Computation of Confidence Regions of the Means with Stratified Data

The standard parametric method of computing the confidence region around the weighted means described above is discussed in Cochran (1977; Chapter 5, especially equations 5.11 and 5.13).

We have instead used a bootstrap technique to estimate the confidence regions (Efron 1982; Efron and Gong, 1983; Efron and Tibshirani, 1986; Efron, 1987). The steps in the bootstrap method for a single waste category are as follows.

- a. Data values (percentages) are randomly chosen, with replacement, from the data values for each stratum. The number of samples chosen equals the number of samples taken in the stratum.
- b. Using the randomly-chosen data values, the mean percentages of the waste category in each stratum are computed.

c. The overall mean percentage for the region is computed as the weighted mean of the means of the individual strata (computed in b. above). In the weighted mean, each stratum is weighted by the total tonnage in that stratum (see section 2.3 above).

d. Steps a-c are repeated many times. We usually repeat these steps 2,000 times. This will generate 2,000 separate estimates of the overall mean percentage for the region.

e. The 95% confidence interval of the mean percentage for the region is found from the distribution of the 2,000 estimates of the overall mean. The simplest technique, called the percentile method, computes the minimum and maximum values of the 95% confidence region (for example) as the percentages representing the 2.5 and 97.5 percentiles, respectively, in the distribution of 2000 estimates. We use a method called the bias-corrected percentile method, which is similar to the percentile method, but includes a correction factor for asymmetrical distributions (Efron, 1982; Efron and Gong, 1983; Efron and Tibshirani, 1986). One can compute a confidence region for the individual strata in a similar manner by utilizing a bootstrap distribution of stratum means from the data within the stratum of interest.

We have preferred the bootstrap method rather than the parametric method to compute confidence regions because the bootstrap approach does not assume that the sample data fit any particular distribution, or that the confidence region is symmetrical around the mean. Examination of the distributions of sampled data has shown that the percentages for a waste type within a strata can be highly skewed for some waste categories.

The arcsin-square-root transformation is often applied to percentage data to remove dependence of the variance on the mean (e.g., Klee and Carruth, 1970). In computing the confidence regions, there is no assumption that the variability within the strata is equal for all strata, making the transformation unnecessary. In addition, we have compared confidence regions and means estimated from transformed and untransformed data. The results based on the transformed data became nonsensical as the number of zero percentages in the data increased.

2.5 Allocation of Samples to the Strata

When allocating samples with a stratified design, it will be more efficient to take more samples in the larger and more variable strata. For a fixed number of samples, the variance of the overall mean will be minimized when

$$N_h = N \frac{W_h S_h}{\sum W_h S_h} ,$$

where N_h is the number of samples in stratum h , N is the total number of samples in all pertinent strata, W_h is the size of stratum h , and S_h is the standard deviation of the sample measurements in stratum h (Cochran, 1977, page 98). The sum is over all strata.

For example, Table E-2 contains data for contaminated film plastic from a hypothetical city in California. M_h is the number of samples taken in the respective strata.

Table E-2 Data for Contaminated Film Plastic		
	RESIDENTIAL	COMMERCIAL
M_h	12	10
S_h	0.77654	2.07796
W_h	26436	3971
$W_h S_h$	20528.6	82528.3
$\Sigma(W_h S_h)$		103056.9
$\frac{W_h S_h}{\Sigma(W_h S_h)}$	0.19920	0.80080

Notice that the commercial stratum is larger (3971 vs. 26436 tons) and more variable (standard deviation 2.07796 vs. 0.77654) for this waste category. Thus, we would expect N_h to be larger for the commercial stratum. If we were to take more samples in hypothetical city, then we would want the relative proportions of samples in the two strata to approach .20 and .80 for the residential and commercial strata, respectively (last row of Table C-2). For example, if we were going to take 50 samples from this city (i.e., $N=50$), we would want to take $(.2)(50) = 10$ samples from the residential stratum and $(.8)(50) = 40$ from the commercial stratum.

This approach is efficient because it puts the sampling in the strata which will have the most effect on the size of the confidence region. It does not make sense to take many samples to obtain a tight confidence region in a relatively small stratum, since such strata will not contribute much to the final results, nor be very significant in future recycling efforts.

The results of such an analysis will, of course, vary for the different waste categories. The final sampling will normally be a compromise based on the results from the more important waste categories.

3. ESTIMATION OF SAMPLING EFFORT NEEDED FOR DESIRED CONFIDENCE BOUNDS

The data can be used to estimate the number of samples which may be needed to obtain confidence regions of a chosen size. This can be done with the same bootstrap method described above with small modifications of step a (Section 2.4). Normally, N random draws with replacement are taken from the data values for each stratum, where N is the number of data values in the stratum. To estimate the size of the confidence bounds when M samples are taken from a stratum, we simply take M random draws with replacement from the data values. In such analyses, the numbers of

hypothetical samples (M) drawn from the different strata should reflect the principles discussed in Section 1.5.

4. DETERMINING THE OPTIMAL NUMBER OF SAMPLES PER TRUCK

4.1 The Sampling of Trucks

Rather than sample the sources of the waste materials (e.g., individual bins or cans), we feel that sampling individual trucks will usually be most efficient for estimating the percentages of materials in the strata. A single truck can contain the contents of many hundreds of bins or cans, and in effect, sampling from trucks should be representative while at the same time be less labor-intensive.

When randomly choosing the trucks for a strata, care is taken to avoid trucks which may contain waste material from more than a single strata.

4.2 Optimization Analysis

Optimization analysis is used to compute the optimal number of samples to take from each truck. The results will be optimal in that, for a set cost, the least variable estimates of mean percentages will be obtained. The optimization formula for computing the optimal number of samples to take for each truck (n) is

$$n = \sqrt{\frac{(\text{cost/truck}) (\text{variance of samples within trucks})}{(\text{cost/sample}) (\text{variance of trucks})}}$$

For example, if it costs an extra \$170 to sample each additional truck, and \$200 enumerate the waste categories in each sample within a truck, and we use standard deviation (SD) instead of the variance, this formula simplifies to

$$\begin{aligned} n &= \sqrt{\frac{170}{200}} \times \frac{(\text{SD of samples within trucks})}{(\text{SD of trucks})} \\ &= .92 \times \frac{(\text{SD of samples within trucks})}{(\text{SD of trucks})} \end{aligned}$$

At this point, one calculates the SD values for trucks and samples within trucks from some available representative data. As an example, we used data from the residential subwastestream of Oxnard, California in August 1990, to compute the relevant standard deviations. The SD of the samples within trucks for marketable newspaper was computed as 8.9, and the SD of the marketable newspaper between trucks (SD of the truck means) was computed as 8.0. Therefore

$$n = .92 \times \frac{8.9}{8.0}$$

$$= 1.02$$

This means that to get the maximum precision (minimum confidence region) for marketable newspaper within this stratum, only one sample per truck should be taken. The number of trucks to sample would depend on available resources and the desired precision (as discussed above). We have performed similar optimization analyses with data from many regions of Southern California. The results suggest that two samples per truck will generally be optimal for the major waste categories. See Sokal and Rohlf (1981) for additional details of the optimization method.

5. CALCULATION OF CONFIDENCE INTERVALS

The confidence intervals in this study show the range of variation a category may exhibit for 95% of all cases. The confidence intervals of the overall mean proportions were computed with the percentile bootstrap method (Efron and Tibshirani, 1986) for each waste component. This process is presented in table E-3.

Table E-3
Confidence Intervals Using the Percentile Bootstrap Method

Step 1: Trucks were randomly chosen, with replacement, from each truck type. The number of trucks chosen equaled the number of trucks actually sampled in each truck type.

Step 2: Using the randomly chosen trucks, the mean proportions for each truck type were computed.

Step 3: The overall mean proportion was computed for all strata combined in the same manner as the weighted means of the individual strata were computed in Step 2. In the weighted mean, each truck type was weighted by the total tonnage of all (pertinent) waste materials in that truck type.

Step 4: Steps 1-3 were repeated 1,000 times to generate 1,000 separate estimates of the overall mean proportion.

Step 5: The 95% confidence interval of the overall mean was computed from these 1,000 estimates. The minimum and maximum values of the confidence interval were the proportions representing the 2.5 and 97.5 percentiles, respectively, of all 1,000 estimates.

VI

**RIVERSIDE COUNTY WASTE CHARACTERIZATION
STUDY**

**DEFINITIONS of the THIRTY-FIVE
WASTE TYPES**

**RIVERSIDE COUNTY WASTE CHARACTERIZATION STUDY
DEFINITIONS OF THE THIRTY-FIVE WASTE TYPES**

CARDBOARD: Corrugated cardboard, kraft (brown) paper bags, and solid fiber boxes which contain a "corrugating medium" (wavy middle layer).

NEWSPAPER: Newspaper which can be reclaimed and sold in the secondary materials market.

HIGH GRADE PAPER: Various grades of white ledgers. Examples include copier, stationery, computer and other clean papers associated with office and desk activity.

MIXED WASTE PAPER: Mixture of various types and colors of paper (excluding office paper) This category includes cereal boxes, paper plates, flyers and notepads.

OTHER PAPER: Waxed paper, tissue products, carbonless form paper (NCR paper), carbon paper, blueprints, lithographs, windowed envelopes and heavily contaminated paper (where the contaminant was heavier than the paper).

ALUMINUM CANS: Includes empty UBC (Used Beverage Containers).

TIN CANS: Ferrous magnetic containers with a tin lining.

FERROUS METALS: Magnetic materials that can be recovered and sold as a graded type of scrap.

NON-FERROUS ALUMINUM SCRAP: Brass, bronze, alloys, and aluminum shavings and scrap (includes aluminum foil).

BI-METAL CONTAINERS: Cans made with two types of metals, usually with aluminum sides and tin ends.

CA REDEMPTION BOTTLE: Glass beverage containers with the imprint "CA REDEMPTION VALUE".

NON-RECYCLABLE GLASS: Glass containers that hold pesticide or toxic products, window glass, drinking glasses, windshields, mirrors and other glass containing lead.

OTHER RECYCLABLE GLASS: Clear, green or amber jars, some wine bottles and glass food containers.

REFILLABLE GLASS BEVERAGE CONTAINER: Deposit glass bottles which are usually thick-walled and marked "Return for Deposit" or "Refillable." If previously refilled, they are marked with circular scratches from cleaning and re-filling equipment.

HIGH DENSITY POLYETHYLENE (HDPE): Rigid, plastic containers, usually bearing the triangular recycling symbol enclosing a "2" on the base. They can be further divided into two sub-categories: natural (without color) and colored.

Natural or uncolored HDPE consists of plastic jugs for milk, cider, distilled water, and spring water; bottles for juice (opaque), rubbing alcohol, vinegar, single-serving juice; and thick grocery bags (distinguished from the thinner LDPE grocery bags using a manual tear-strength test).

Colored HDPE consists of plastic bottles for laundry and dish detergent, fabric softener, saline solution, bleach, lotion, motor oil and antifreeze; dispenser for items such as dental floss and baby wipes; and thick white grocery bags.

LOW DENSITY POLYETHYLENE (LDPE): Flexible film bags for bread, produce, trash, dry cleaning, etc. Also used in rigid food storage containers and protecto seal coating, can be opaque or colored and from low to high gloss.

POLYETHYLENE TEREPHTHALATE (PET): Transparent and usually green or clear in color. The bottom of the containers has a small dot or nipple, and not a seam. They sometimes have a triangular recycling symbol enclosing a "1" on the base. Examples include soft drink and liquor bottles and containers for the following products: "Pepto-Bismol", "Ocean Spray" juices, "Palmolive" dish detergent, liquid "Spic & Span", and "Boil-in -the-Bag" dinners. The following products are also usually made of PET: cassette tape, pill bottles, and white or gray microwaveable trays.

POLYPROPYLENE (PP): Polypropylene can be found in hard plastic caps used on pill bottle and in flexible fast food cutlery.

POLYSTYRENE (PS) & (EPS): Brittle yogurt and cottage cheese cups and tubs, cookie and muffin trays, clear "clamshell" containers, some vitamin bottles, and most disposable cutlery.

Expanded or foamed polystyrene (EPS) is found in white "clamshell" containers, meat and produce trays, hot cups and egg cartons.

POLYVINYL CHLORIDE (PVC): PVC bottles are often used for the following products: imported mineral water, salad dressing, vegetable oil, floor polish, plastic strapping, combs, snack wraps/bags, "Tropicana" frozen juice containers, and flexible yogurt cups and lids.

OTHER PLASTICS: Other plastics include all other resin and combinations of resins. Squeezable bottles, as an example, are made by layering resins.

YARD WASTE (Shrubby): Prunings, shrubs, and small branches from trees up to four inches in cross section.

YARD WASTE (Leafy): Leaves, grass clippings and weeds.

TEXTILES: All clothing articles. Also includes fabrics and scrap made of woolens, cottons and polyesters.

LEATHER: All leather and leather products.

HOUSEHOLD HAZARDOUS WASTES: Batteries, bleach, acids, solvents, paints, thinners, oils, pesticides, and chemicals.

INERT SOLIDS: Concrete, soil, asphalt, rock, gypsum, ceramics and pottery.

DIAPERS: Soft, absorbent, disposable material designed to absorb or collect human waste.

TIRES & RUBBER: Tires, inner tubes, latex gloves and any elastic or hard rubber.

WHITE GOODS: Household appliances such as refrigerators, stoves and salvageable items such as electronic equipment, machinery, and computer components.

ASH, SEWAGE SLUDGE, INDUSTRIAL SLUDGE, ASBESTOS, AUTO SHREDDER WASTE, AUTO BODIES, OTHER SPECIAL WASTES: None of these materials were found in the samples taken.

REMAINDER: Those materials not contained in any of the other categories. Included are mixed fines (too small to separate into individual categories), and composite materials (items with more than one material component).

VII

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

CORRESPONDENCE/METHODOLOGY APPROVAL

STATE OF CALIFORNIA

Pete Wilson, Governor

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD1020 Ninth Street, Suite 300
Sacramento, California 95814

January 23, 1991

Robert A. Nelson, Director
Riverside County Waste Management Department
11728 Magnolia, Suite A
Riverside, CA 92503

RE: Riverside County Solid Waste Generation Study Methodology

Dear Mr. Nelson:

Staff of the Board have reviewed the Riverside Solid County Waste Generation Study (SWGS) Methodology and offer the following comments:

1. Compliance [Section 18722(1)], page. B-3, - The Riverside County Solid Waste Generation Study (SWGS) should address other sources of waste generation. Other sources may include State and Federal parks or forests, military institutions and self-haulers.
2. Sample size, p. 1-5 - The sample sizes chosen for eastern and western Riverside County are 354 and 192, respectively. The final SWGS should include all the calculations used to derive the sample sizes. In addition, indicate how the samples sizes were allocated among the participating jurisdictions.
3. Sampling, page B-3 - It is unclear whether the two samples to be taken from each truck are subsamples (i.e., two 90 pound samples equaling a 180 pound sample) or, two independent samples. According to Klee and Carruth, sample sizes should weigh between 200 to 300 pounds. The proposed sample sizes for the Riverside study are too light.
4. Justification - In general, there are several examples in the Riverside County SWGS methodology in which 'previous experience' is cited as justification for decisions. However, it will be necessary in the final report to state the reasons behind the decisions. For example, rather than stating that previous experience was used to stratify the waste stream, the report should explain the governing rationale. Any evidence that backs up the judgement of the study participants should be included in the final study.

01 24 91 10:20 003
01.24.1991 00:39
Robert A. Nelson
January 23, 1991
page 2

The above comments should be considered and addressed in the final solid waste generation study. If you have any comments or questions on the above items, please call Claire Miller at (916) 323-5306. We realize that the Riverside County SWGS is probably underway already. We hope you will be able to take these comments into consideration in future sampling protocols.

Sincerely,

John D. Smith
Acting Division Chief
Local Planning Division

cc: Steve Ault
Claire Miller
WGA Branch File

THE COUNTY OF RIVERSIDE

WASTE MANAGEMENT

ROBERT A. NELSON
Director

March 21, 1991

John Smith
California Integrated
Waste Management Board
Local Planning Division
1020 Ninth Street, Suite 300
Sacramento, CA 95814

RE: AB 939 Waste Generation Study

Dear Mr. Smith:

Submitted herewith for your review is a response to your letter dated January 23, 1991, which addressed the methodology applied to the County's waste generation and diversion study.

As you know, this study was conducted for Riverside County and all of its municipalities. It is due to be completed by the end of this month by our consultants. Your prompt attention to this matter will allow all twenty-five jurisdictions involved to proceed with program planning for the Source Reduction and Recycling and Household Hazardous Waste Elements.

We are aware that our study is essentially identical to another already reviewed and approved by C.I.W.M.B. staff and are hopeful that you will be able to issue an early approval so that the subsequent steps in our mandated process may be completed.

Thank you for your past responses to the needs of our County and your attention to the matter presently before us.

Sincerely,



Michael Schier
Solid Waste Planning Manager

MS:ng
Enclosure

cc: Robert A. Nelson, Director
Bob Jacobs, CH2M Hill
John Brooks, C.I.W.M.B.
Michael Perry, Kleinfelder
Michael Cohen, C.V.A.G.
A.J. Wilson, W.R.C.O.G.



March 13, 1991

LAO30647.A1.CO

Robert Nelson, Director
County of Riverside Waste Management
11728 Magnolia, Suite A
Riverside, California 92503

Dear Mr. Nelson:

The following response was prepared by Recovery Sciences, Inc. and Ecoanalysis in response to the January 23, 1991 letter from the California Integrated Waste Management Board.

The comments received are similar to comments received on the Orange County study which used the same methodology. We responded to the Orange County comments from the California Integrated Waste Management Board on January 21, 1991 and received additional comments from the Board through Orange County on February 21, 1991. Enclosed please find the Board's response and our subsequent response to these comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Robert R. Jacobs".

Robert R. Jacobs

Enclosures



RECOVERY SCIENCES INC.

February 13, 1991

Robert Nelson, Director
Riverside County Waste Management Department
11728 Magnolia, Suite A
Riverside, CA 92503

Dear Mr. Nelson:

The following information is provided in response to the January 23, 1991 letter from the California Integrated Waste Management Board.

Question 1

This suggestion is acknowledge. Other waste sources such as Federal and State Parks and military institutions will be reviewed for further study during yearly updates.

Question 2

When applying sampling procedures to characterize the wastestream, the precision of the estimates for each waste category will depend on the following. 1) The underlying variability of the waste types (includes day today and within and between truck variability) within the strata (residential, commercial, and industrial subwastestreams). 2) The number of samples taken. 3) The manner in which the samples are allocated among the strata. 4) The adequacy of the sampling design and the care in which the design is implemented.

The higher the underlying variability (no. 1) of the key waste materials, the more samples that must be taken to obtain a given precision of the estimates. To determine whether a proposed intensity of sampling is sufficient, one must estimate the precision of the estimates of the mean percentages of the key waste materials. In addition, it is important to know the probable effect on recision of additional sampling. If reasonable amounts of additional sampling will have a minimal and unimportant effect on the precision of the estimates of the mean percentages, then it would not be efficient to take more samples - even when we may be uncomfortable with the precision of the proposed sampling program.

We performed a study using wastestream data from parts of Ventura County (EcoAnalysis and Recovery Sciences 1990) to estimate the effects on precision of taking different numbers of samples. The results for four key waste materials are shown in Figures 1-4 (Attachment 1). The confidence bounds shown apply to the entire jurisdiction rather than to an individual city.

These figures require some explanation. The curved lines above and below the straight line at zero represent estimates of the sizes of the upper and lower bounds of the 95% confidence limits with different numbers of samples. A bootstrap method with the data from a May 1990 survey was used to compute these estimates. The horizontal axis represents the number of additional samples, i.e., the number of samples in addition to the samples in the current survey. The Ventura survey included 156 samples, thus 156 should be added to the values on the horizontal axis to obtain the total number of samples associated with the different confidence interval bounds.

In the Riverside County program 744 samples from the commercial hauler wastestream were to be taken over three sampling periods, for an average of 248 samples per period. For a single sampling period, this sampling intensity would correspond to about 92 samples in Figures 1-4 ($248-156=92$).

As an example of the effect of additional sampling, we show below the estimated decreases in confidence bound size with 100 additional samples (192 samples vs. 92 samples). These values are taken from Figures 1-4 by comparing the upper and lower 95% confidence bounds for 92 and 192 additional samples on the horizontal axis.

WIDTH OF CONFIDENCE REGION AT

WASTE CATEGORY	248 SAMPLES	348 SAMPLES	DECREASE IN WIDTH
ALUMINUM	.253	.212	.041
MARKETABLE CARDBOARD	2.00	1.65	.35
MARKETABLE NEWSPAPER	.98	.82	.16
MARKETABLE MIXED GLASS	1.48	1.27	.21

For waste materials that do not vary significantly among the three surveys, all 744 samples could be pooled to obtain the means and confidence limits. In Figures 1-4, the curves are nearly flat with this many samples, and very little would be gained (in narrower confidence limits) by taking additional samples.

The question that arises at this point is whether the decreases in the widths of the confidence regions are worth the expense and effort involved in taking the additional samples. Our feeling at this point is that the confidence regions at 248 samples are sufficient for planning of recycling programs, and the estimated decreases in confidence region widths with additional samples would not be sufficient to affect management or development decisions.

We could, of course, perform a similar study with the present Riverside County data, but our experience tells us that we would probably get results similar to those of the Ventura study.

It should be noted that we have used optimization techniques (described in our "Refinement of Recommended Statistical Methodology" report) to assist in the design of the sampling program (nos. 3 and 4 above) for the purpose of gaining the most precision given the costs of sampling and reasonable availability of resources. The results of the optimization methods indicate how the samples should be allocated among the strata and the number of samples to take per truck. If a sampling program were not at least partially based on these optimization techniques, it would most probably be necessary to take many more samples to obtain the same precision as a sampling program based on optimization. The conclusions reached above would only apply to optimized study designs (such as the Ventura and Riverside County programs), since the methodology used in creating Figures 1-4 assumes an optimized sampling design.

It should be noted that some deviation from the strictly optimized design was necessary in the Riverside County study due to the need to take sufficient samples from some of the smaller cities. We do not feel that this deviation was sufficient to alter our conclusion on the need for additional sampling.

REFERENCE

EcoAnalysis and Recovery Sciences. 1990. 1990 Ventura County Waste Characterization Study. Interim Report. Prepared for Ventura County Regional Sanitation Districts. June 19, 1990.

Question 3

The two samples taken from each truck are independent of each other. Some concern was expressed that the total material sampled from a single truck may sometimes weigh less than the 200 pounds that was recommended by Klee and Carruth (1970). Klee and Carruth (1970) studied the variability among sample sizes ranging from 1700 to 200 pounds, and concluded that there was minimal difference in variability among data from the different sample sizes. Therefore they concluded that it was most economical to use 200 pound samples. The 200 pound sample size was simply the smallest sample size tested, and no conclusions were reached concerning smaller sample sizes.

During similar waste composition studies for Ventura and San Diego Counties, RSI has taken this process several steps further. The following is a discussion of how we determined the required number of samples per truck.

The number of samples to collect per truck was determined by an optimization analysis on the variability of waste within each truck. The results of this analysis portrayed both how variable the waste is and how

many samples are needed to capture this variability. For example, assume that three different items were found in every side-loader vehicle: One-fourth of the load was newspaper; one-fourth was glass, and one-half, yard waste. The variables in optimization equations are the waste components. Although it's theoretically possible to perform optimization equations simultaneously for all waste components, this study was limited to separate optimization sampling analyses for cardboard, newspaper, glass, and wood. These four components were chosen as they are representative of the different size, density, and volume characteristics of the components that make up the total manually sampled wastestream.

Table A-2 shows the optimal number of quadrats (samples per truck) for the four selected waste components at San Marcos (SM), Otay (OT), and Sycamore (SY) landfills using data from a 2-year San Diego County study. A quadrat is a 2'x2' square frame used to mark a sample location. The optimal number of quadrats differed markedly between waste components. For example, glass varied between trucks more often at San Marcos than at Otay. Similarly, wood was less variable and required fewer quadrats than cardboard. Since it is impossible to sample different numbers of quadrats for different materials, Recovery Sciences, Inc. (RSI) calculated the mean mean number of quadrats required for the four representative materials at each landfill. Thus, one representative number of quadrats per truck was used to design the sampling program.

Table A-2 Optimization Results -- Optimal Number of Quadrats per Truck			
Landfill Waste Component	SM	OT	SY
Cardboard	0.4	1.5	0.9
Newspaper	1.2	1.2	0.9
Glass	3.0	0.4	1.8
Wood	0.6	1.5	1.1
Mean	1.3	1.2	1.2

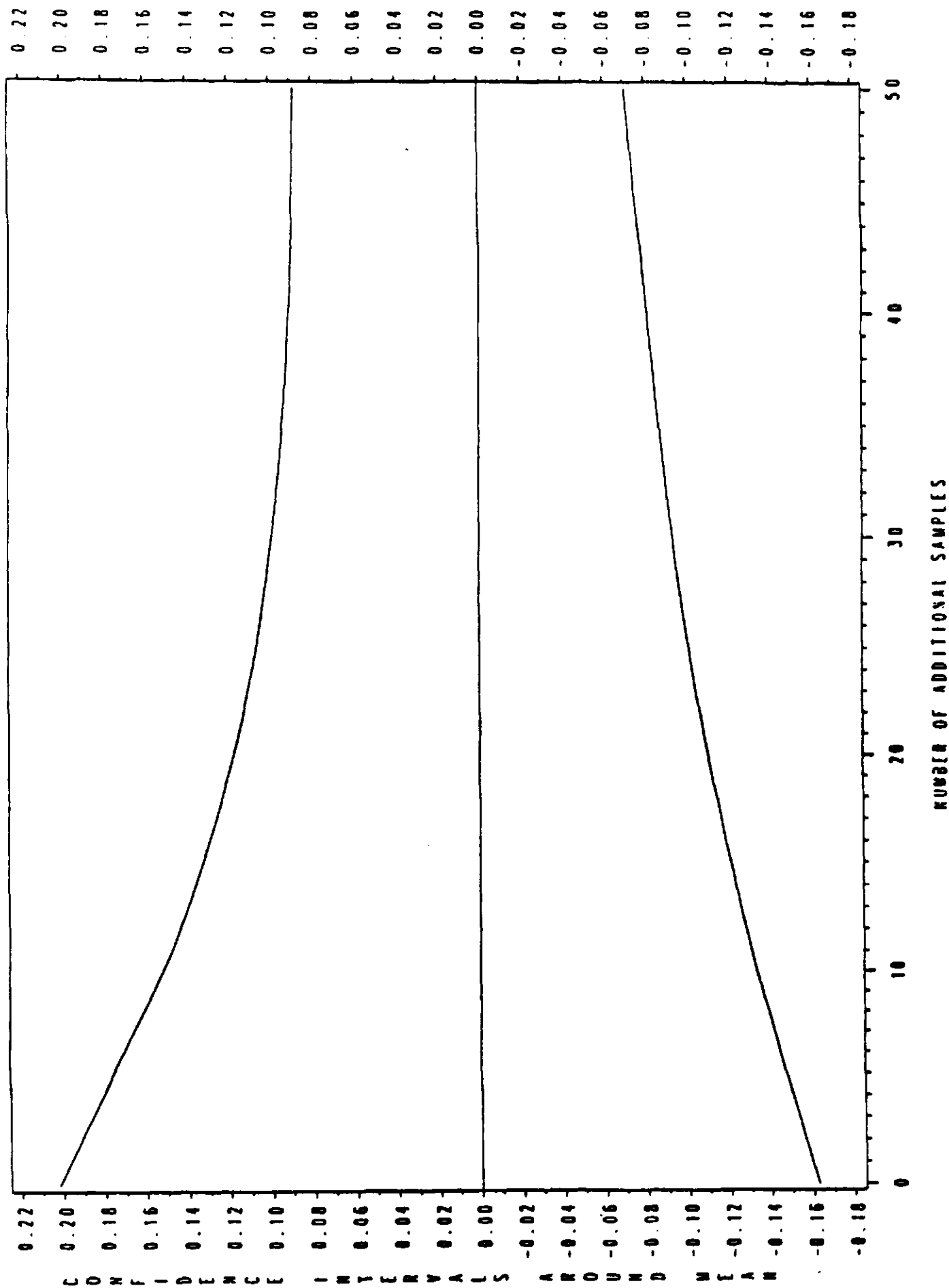
The results indicated that one to two quadrats per truck were necessary. Again, optimization results from other waste composition studies (Ventura and San Diego Counties) conducted by RSI have confirmed this amount. RSI has chosen to use two quadrats per truck to assure that an adequate sampling was completed. Since each quadrat contained approximately 60-90 lbs. of waste, the total weight sampled per truck was about 120-180 lbs. Although slightly less than the Klee and Carruth (1970) study, we feel that the above analysis justifies the use of smaller sample sizes.

Question 4

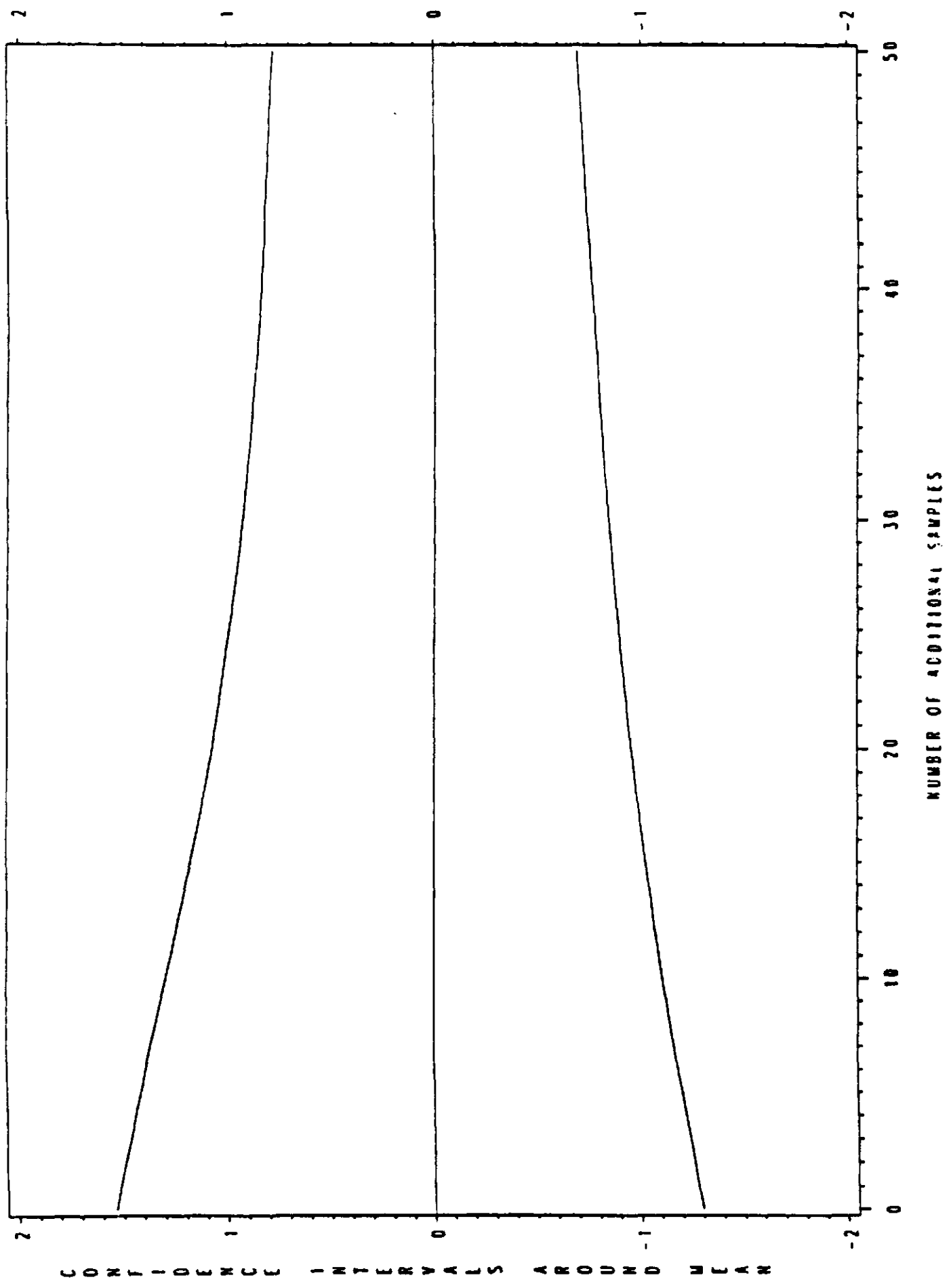
Acknowledged. The final report will include reasons, assumptions and governing rational that contributed to decisions that were made in conducting the study.

ATTACHMENT 1

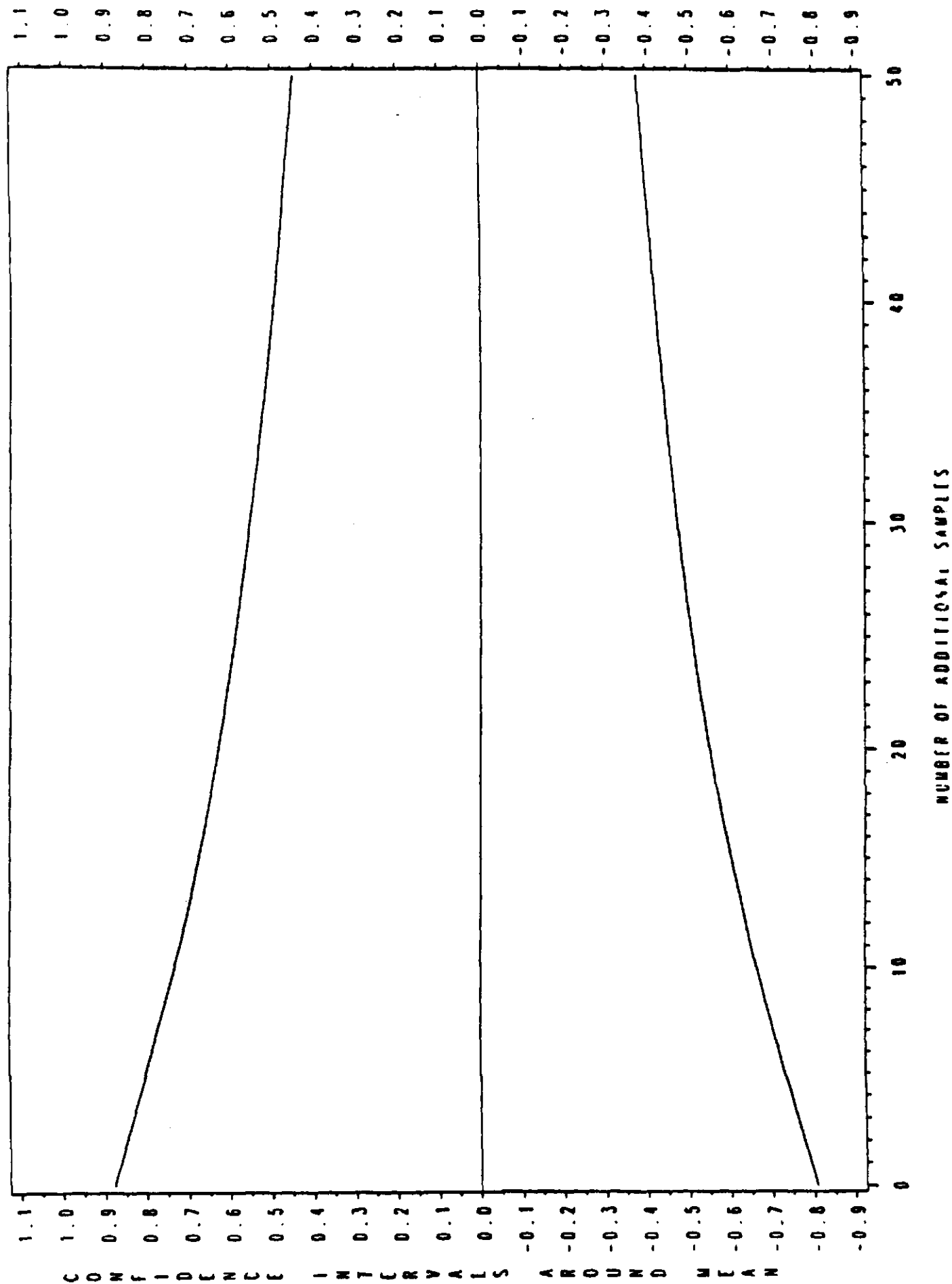
AREA=OVERALL ALUMINUM CANS



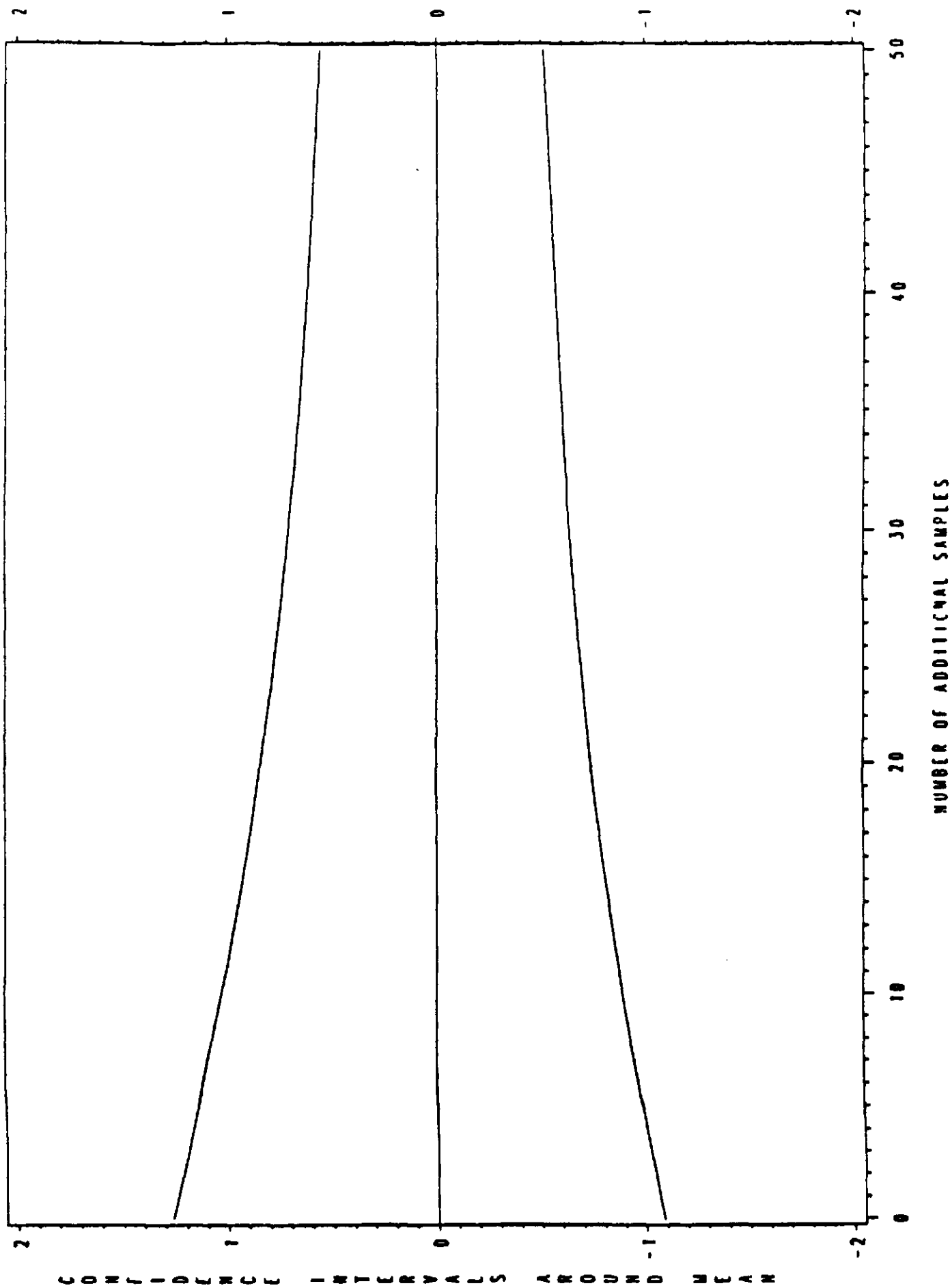
AREA=OVERALL MARKETABLE CARDBOARD



AREA=OVERALL MARKETABLE MIXED GLASS



AREA=OVERALL MARKETABLE NEWSPAPER



VIII

JULY QUESTIONNAIRE (CITY)
JULY QUESTIONNAIRE (HAULER)
NOVEMBER QUESTIONNAIRE (HAULER)

JULY 1990
CITY WASTE COMPOSITION QUESTIONNAIRE

Respondent's Name _____ Phone Number _____

Name of City _____

GENERAL INFORMATION

1. How many commercial businesses in your city?
2. How many industrial businesses in your city?
3. What are the disposal rates for the above two sources?
4. Are there any businesses or trade associations specific to your city?
Please name them.

TONNAGE INFORMATION

5. Annual overall tonnage of waste generated by your city _____
6. Annual tonnage of waste generated by commercial wastestream _____
7. Annual tonnage of waste generated by residential wastestream _____
8. Annual tonnage of waste generated by demolition/industrial sources

9. What is your source of information for questions 5 - 8?

REFUSE HAULER PROFILE

10. What companies pick up commercial waste? Contact person?
11. What companies pick up residential waste? Contact person?
12. Does your city have a franchise agreement? If so, with what company?
13. Are all haulers operating in your city licensed?

DISPOSAL PROFILE

14. What landfill does your city use?

15. Is there a problem routing vehicles to a landfill other than one normally used by your city?
16. What kind of vehicles are used to pick up residential refuse? For example, front loaders or side loaders, etc.
17. What kind of vehicles are used to pick up commercial refuse?

CITY SOLID WASTE PROGRAM

18. What recycling programs are currently on line in your community? Please describe.
19. Does your city have a dedicated staff position assigned to recycling/solid waste issues? Please name.
20. Has your city taken any action with regards to AB939? If yes, explain.
21. Does your city devote any funds for solid waste/recycling programs? Explain.
22. If yes, are the funds spent on a line item, tonnage or cubic yard basis?

Waste Characterization Survey Hauler Questionnaire

Please complete the following questionnaire. All questionnaires will remain confidential and only aggregate information by city from all respondents will be included in any report.

Firm Name _____

Address _____

Contact Person _____

Phone Number _____

1. How many trucks does your firm operate on an average day? _____
2. How many routes do you pick up per week (average)? _____
3. Please indicate the number of routes you operate by city and source. Also include unincorporated areas if applicable.

Number of Routes Per Week

City	100% Residential	100% Commercial	100% Industrial	Mixed Routes	Total
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Please use additional sheets if required

4. How many tons of waste do you pick up per week? _____

5. Please estimate annual tonnage hauled by your firm by city and source.

City	Total Tons	Tons Residen- tial	Tons Commer- cial	Tons Industrial	Tons Other (Please Specify)
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Please use additional sheets if required.

6. Where is this waste currently delivered to?

City	Disposal Site (or Transfer Station)
_____	_____
_____	_____
_____	_____
_____	_____

7. Does your company provide any special recycling services?

Yes _____
No _____

If yes, please complete table below.

City	Tons of Recyclables Collected per Week	Delivered to
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please provide any additional information that you think might be important in the design of our sampling plan. We will contact you within the next couple of weeks to discuss the information you provided and to determine the most appropriate time and dates for diverting loads selected for sampling.

Every effort will be made to minimize any disruptions of your normal operations.

Thank you for your cooperation.

NOVEMBER 1990
HAULER SURVEY

Please fill out a separate sheet for each city and the unincorporated area that your company services. This means if your company hauls waste in three cities and a portion of the unincorporated area you would fill out four separate sheets of tonnage figures.

Company Name: _____

Contact: _____

City: _____

ANNUAL TONNAGE INFORMATION FOR FISCAL YEAR JULY 1, 1989 -- JUNE 30, 1990:

RESIDENTIAL WASTESTREAM

Single Family _____

Multi-Family _____

COMMERCIAL/INDUSTRIAL WASTESTREAM

Commercial/Industrial -- Front Loaders _____

Commercial/Industrial -- Open Drop Boxes _____

Commercial/Industrial -- Compactor Roll-Off _____

DEMOLITION WASTESTREAM

Demolition -- Open Drop Box _____

OTHER

Tonnage not mentioned above _____

IX

MATERIALS DIVERTED by DIVERSION

ACTIVITY

and GENERATOR SOURCE

Unincorporated

Recovered Materials (tons) by Diversion Activity and Generator Source

	Residential	Commercial	Industrial	Other	Total
Commercial Recyclers	0.00	753.00	480.00	0.00	1,233.00
Community Organizations	116.90	0.00	0.00	0.00	116.90
Concrete/Asphalt Reprocessing Plant	0.00	0.00	143,436.00	0.00	143,436.00
Fiber Processors	224.00	1,635.00	0.00	0.00	1,859.00
Food Processors	0.00	2,528.00	0.00	0.00	2,528.00
Grocery/Department Stores	0.00	3,497.50	0.00	0.00	3,497.50
Military Bases	0.00	52.00	0.00	0.00	52.00
Plastic Processors	0.00	0.00	10.00	0.00	10.00
Recycling Centers	1,602.20	7,259.60	0.00	0.00	8,861.80
Thrift Stores	217.00	0.00	0.00	0.00	217.00
Wood Processors +	0.00	485.00	485.00	1,980.00	2,950.00
Tire Retreader	0.00	0.00	348.75	0.00	348.75
Subtotals	2,160.10	16,210.10	144,759.75	1,980.00	165,109.95

+ Incinerated

X

LIST of BUSINESSES and PROGRAMS

LIST of BUSINESSES and PROGRAMS CONTACTED

RECYCLING CENTERS

(Information obtained from DOC numbers for California Redemption Containers)

Beaumont

Beaumont Metal Recycling #

Blythe

Claypool Recycling #

Valley Resources *

Cathedral City

Palm Springs Recycling †

Coachella

Dick's Salvage #

Corona

Liston Aluminum †

Six Pack Recycling +

Indio

Mercier Distributing Company *

Palm Springs

Palm Springs Recycling †

Waste Management of the Desert †

Perris

Newsco Recycling #

Riverside Transfer and Recycling †

Riverside

Appliance Recycling Factory †

Augustino Metals +

D&L Metals†

Recycling Services Center +

Riverside Scrap Iron †

KEY:

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| <p>* Not currently recycling materials from Riverside County
 # Unwilling to respond to survey
 + Unable to answer survey questions
 † Answered survey</p> |
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Riverside Transfer †
 Scoggins Metals + Draws from all over the City and County.

Unincorporated

Corbett Brothers Recycling, Mira Loma †
 Rancho Metal and Supply, Murrieta †

Outside the County

A-1 Upland Recycling #+
 Atlas Pacific Corp. †
 Central City Recycling (a.k.a. Pacific Recycling) #
 Colton Scrap #
 D&M Metals #
 Daniels Component Exchange +
 Frankel Iron & Metal *
 Golden Aluminum †
 Ontario Metal Recycling #
 Redlands Recycling #
 Reynolds Aluminum Recycling † Recycles aluminum cans, PET and California
 Redemption glass beverage containers.

TEXTILES

Salvation Army †
 Goodwill Stores †
 United Thrift †

COMPOST - Green Waste

Bandini *
 Broadway Garden †
 Chino Basin Water District * One-third of dairies in Chino Basin are within
 Riverside County. Hopes to begin construction soon on windrow composting
 operation for dairy manure and sludge. Working with Recyc.
 Farmers Fertilizer * Does not compost manure.
 Hags & Sons * Trucks from Chino dairies to composting and farming operations in
 the Bakersfield area.
 Hyponex *
 Milk Producers Council * Has overview of dairy industry in Chino Valley Basin.

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Recyc * Composts sludge from Riverside, Sun City and Lake Elsinore Water Districts.
 Redstar * Stockpiles manure, does not compost.
 Thrifty Farms * Overview of manure composting.
 Waste Management of the Desert †

CONCRETE, DIRT, ROCK, and ASPHALT PROCESSORS

A-One Delivery † Handle weeds, grass, dirt. Screen for topsoil, sand, and gravel. Organic material mixed with steer manure and composted. Concrete and asphalt crushed for road base.
 A&A Equipment †
 D&L Construction †
 E.L. Yeager † 75% of material comes from a 20 mile radius. 99% of material is from Riverside County. Majority of material is concrete and asphalt.

FIBER PROCESSORS

Angelus Western Paper †
 Allan Company # Would provide information if paid for his record search. Buys material from box companies. A key player in the region.
 Bestway Recycling *
 Bonded Destruction # Recycles confidential office paper.
 CR&R † Buys glass, cardboard, and newspaper from haulers and recycling centers throughout the County.
 Dalton Enterprise +# Is currently writing a program to track materials by source. Draws from Orange, Los Angeles, San Bernardino and Riverside Counties. A very important processor in the region.
 Dave & Sons #
 Fontana Paper †
 Fujikawa † Buys from at least three accounts in Riverside County.
 Inland Container † Cardboard recycling.
 Inland Paper Stock #
 Los Angeles Paper Box † Answered survey. Buys cardboard. Primarily buys from converters. Draws from all over Southern California.
 Main Street Fibers # A key player.
 Pomona Paper Stock *
 Paper Fiber *

KEY:

* Not currently recycling materials from Riverside County # Unwilling to respond to survey + Unable to answer survey questions † Answered survey

Paper Recovery *
 Paper Scrap Specialty †
 Progressive Paper #
 Quality Paper Fiber †
 Recycled Waste †
 Recycling Resources *
 Recycling Services *
 Riverside Scrap † A key player for several materials.
 Smurfitt Recycling (Independent Paper Stock) † Owns Pacific Recycling.
 Sun Valley Paper Stock *
 United Paper Stock # Large player. Several commercial accounts. Has pilot restaurant glass and plastic recycling program in San Bernardino. If successful, will expand into Riverside.
 Western Pacific Pulp & Paper † Some of their material originates in Riverside County.

GLASS INDUSTRY PROCESSORS and END-USERS

There are six main players handling glass from Riverside County. They are: California Glass Recycling Corporation (CGRC), Owens Brockway, California Beneficiation Association (CBA), CIRCO, CRINC and CR&R. Owens Brockway and CBA are the only two glass manufacturing groups. The other three companies process (or beneficiate) the collected glass and sell it either to Owens Brockway or CBA. CBA is made up of four glass manufacturers: Owens Brockway, Owens Illinois, Foster Forbes and Latchford glass. The CGRC collects glass from the 2020 recycling igloos in Riverside County and sells it directly to one of the two glass manufacturing groups.

Ability Counts † Restaurant/bar glass collection program.
 California Glass Recycling Corporation †
 Circo † Recycles all glass, including tempered glass.
 CR&R †
 CRINC † Owned by Wellman Inc. Handles glass, UBC, PET and HDPE.
 Kerr Glass Manufacturing +
 Owens-Brockway Glass Company +

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† Answered survey |
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PLASTICS PROCESSORS

Coast Polymers *

CRINC † Owned by Wellman Inc. Handles glass, UBC, PET and HDPE.

CWP *

Dolco Plastics * Currently manufactures polystyrene egg cartons and meat trays, will begin using post-consumers resin in 1991. Expected capacity for all resin types: 600 - 1200 tons per year (TPY).

Envirothene # Recycling 6,000 TPY of plastic bottles, buying recycled material from several counties.

Eonexx Plastics * Recycling 60 TPY of plastic, many different resins including ABS, Styrene, HDPE, Polypropylene, Polycarbonate.

HD Plastics *

Joe's Plastics # Collects some material from Riverside .

Material Resource Plastics † Recycling post-industrial PVC, will begin recycling HDPE in 1991.

Marketing Associates #

Omega Polymers *

Plastics Reprocessing of California † Collects material from Temecula

Republic Tool † Major user of recycled HDPE, does not do pick-ups.

Society of Plastics Industries, maintains list of processors in California.

Southcoast Fibers # Some pickups, however, not interested in participating.

Southwest Polymers # Collects some material from Riverside County.

Talco Plastics † Have a lot of customers in Riverside County, mostly from the industrial sector. Is interested in curbside plastics. Largest recycle resin purchaser on the West Coast.

Western Gold Thermoplastics †

Wintech Corporation *

WOOD PROCESSORS

Apollo Wood Recycling # No tracking of material origin. "Small volume"

Artesia Sawdust #

B.P. John Hauling † Has three sites for wood recycling.

Chino Valley Sawdust #

Fibre Fuels + Largest wood processor in region. No tip fee for wood, so no record of origin of loads. Will implement a tracking program for a fee. Ninety percent of wood is processed into fuel, 10% for soil amendments and sold to

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 † Answered survey</p> |
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landscapers. Sells wood fuel to wood-fired power generation plants in the San Joachin Valley.

Fontana Fertilizer # Grinds wood into shavings and chips. Can handle wood with nails, but not painted or glued.

Gordon Cabinets † Small amount of sawdust recycled. Has paper and aluminum can recycling program.

Grove Lumber † Recycles wood.

Kendall Sawdust * Distributes material, does not process.

Midwest Recycling † Grinds tree stumps.

Recycled Wood Products + Very little from Riverside County. Sells to landscapers only.

Snavelly Forest Products *

TIRE RETREADING

Goslin Tire Service †

LARGE EMPLOYERS, DEPARTMENT and GROCERY STORES

Banning

Albertson's †

Ace Hardware *

Alpha Beta †

Cornets *

Deutsch Company † Recycles CPO, OCC and UBC.

DOC †

Goodwill †

GTE †

J.C. Penney Co. *

K Mart †

Payless †

Sears *

Smart and Final †

Thrifty †

True Value *

Vons †

Ace Hardware *

True Value *

KEY:

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| <p>* Not currently recycling materials from Riverside County</p> <p># Unwilling to respond to survey</p> <p>+ Unable to answer survey questions</p> <p>† Answered survey</p> |
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Beaumont

Alpha Beta †

DOC †

Duraplastics *

San Gregoria Pass Memorial Hospital †

Beaumont School District † Began Program for newspaper, magazines, aluminum cans and 2-liter PET bottles in November 1990.

Beaumont Stationers *

E.L. Yeager †

GTE †

Stater Brothers †

84 Lumber *

Blythe

Albertson's †

Alpha Beta †

Bardwell Pallet †

Broadway Garden †

Chuckawalla State Prison † Recycles high grade papers, mixed paper, aluminum cans and clothing. The prison is incorporating an extensive source reduction program for wood products and plastic buckets. Tonnages were not available for this study.

DOC †

J.C. Penney Co. *

K Mart †

Modern Cotton Gin * Cotton gin trash has never been landfilled. It is used as a soil amendment by local farmers.

Motel 6 *

Ripley Cotton gin*

Sears *

Sprouse Reitz *

Smart & Final †

Thrifty †

Vons †

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+ Unable to answer survey questions
† Answered survey |
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Calimesa

Aesops Recycling †

DOC †

GTE †

Stater Brothers †

Canyon Lake

A-One Delivery *

Cathedral City

Ace Hardware *

Builders Emporium †

City Offices †

DOC †

Double Tree Desert Resort †

Eisenhower Intermediate Eye Center †

Food For Less †

Gibsons † Recycled OCC cans and bottles.

Home Savers* Will begin program in 1991.

K Mart †

Lawrence Welk Desert Resort *

Lucky †

Pace Warehouse * Does not recycle cardboard.

Palm Springs Recycling City Offices †

Plastic Reprocessing †

Smart & Final †

Target †

Thrifty (2) †

Waste Management †

Coachella

A-One Delivery †

California Date Administration †

Cardinal Distributors † Recycles water. Scrap food wastes are sent to dairies, where it is dehydrated and mixed with other feed supplements or fed unprocessed.

Coachella Water District † Some informal recycling - no information on amounts were available.

DOC †

El Yeager †

KEY:

* Not currently recycling materials from Riverside County

Unwilling to respond to survey

+ Unable to answer survey questions

† Answered survey

GTE †
 Sun World *
 Thrifty†
 Vons †

Corona

A-One Delivery †
 Ace Hardware *
 Albertson's †
 Alpha Beta (2) †
 B.P. John Hauling †
 Bar Restaurant †
 Builders Emporium †
 City of Corona *
 Corona Community Hospital † Recently began recycling CPO, high grade paper, aluminum cans and California Redemption glass beverage containers. Will soon add plastics.
 Corona Employment Agency *
 Corona-Norco School District† Plans to begin recycling Polystyrene lunch trays and cutlery.
 Corona Products * Scrap metal recycling only.
 DOC †
 Far West Pallets †
 Food For Less †
 Glen Ivy Hot Springs †
 Golden California Cheese Company †
 Home Depot † Recycled OCC. Employees recycle aluminum cans.
 Goodwill †
 J.C. Penney Co *
 K Mart †
 Longs †
 Lucky †
 Manville †
 Marshall Aluminum † Recycles window glass, scrap metals and reuseable wooden and rubber shipping blocks.
 Mervyns †
 Midwest Recycling †
 MVR Pallets †
 Orange Heights † Citrus packer

KEY:

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|---|
| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
|---|

Pacific Clay *
 Paper Scrap Specialists †
 Payless † (2)
 Pic-N-Save †
 Plastic Reprocessing †
 Price Club † Recycles OCC and white ledger.
 Ralph's †
 Recyc † Currently composting backlog of sludge. Will accept green wastes in near future.
 Riverside Transfer †
 Ross *
 Salvation Army †
 Save-on (2) †
 Silvercrest Industries † Recycles cardboard.
 Smart and Final †
 Stater Brothers (2) †
 Stylus Furniture Company*
 Talco Plastics †
 Thrifty (2) †
 U.S. Tile *
 Vons †
 Western Gold Thermoplastics †
 Western Pacific †
 Woodsmith *

Desert Hot Springs

Angel View Children Hospital *
 Best Western † No organized recycling – some individuals recycle cans.
 City Yard † Began Composting Christmas trees, prunings and grass clippings.
 DOC †
 GTE †
 Spa Hotel *
 Royal Fox *
 Stater Brothers †
 Vons †
 Western Pulp and Paper †

KEY:

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|---|
| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
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Hemet

A-1 Tree Service †

Albertson's †

Alpha Beta †

Animal Haven *

Asphalt Rubber Applicators *

Bob's Tree Service †

Boston Store *

City Offices †

City Engineering Dept. †

Coast to Coast *

Curbside †

D & L Construction †

Jeff Dean's Tree Service †

Dean's EH Tree Service †

Deutsch * Employees informally recycle aluminum cans. No tonnage available.

Dill Lumber *

DOC †

E.L. Yeager †

First Presbyterian Church*

Goodwill †

GTE †

Harris *

Hemet Federal Savings* Recycling proposal pending.

Hemet Lions Club †

Hemet News †

Hemet Redimix †

Hemet United Methodist Church *

Hemet YMCA †

J. C. Penney Co. †

K Mart †

Kirby's Market *

Longs (2) †

Los Mormon Church *

Market Spot *

Millers Outpost *

Our Lady Catholic Church *

Payless †

Pic-N-Save †

KEY:

* Not currently recycling materials from Riverside County

Unwilling to respond to survey

+ Unable to answer survey questions

† Answered survey

Quest Tree Trimming †
 Riverside Transfer †
 Salvation Army †
 Skyline Homes † Cooperating with the City of Hemet and East Municipal Water
 Districts to compost wood chips with sludge in 1991.
 Sharps Home Center † Recycles OCC
 Smart & Final †
 Sprouse Reitz *
 Standard Brands *
 Stater Brothers (4) †
 Vons (2) †
 YMCA †

Indian Wells
 DOC †
 Mission Beverage †
 Ralph's †
 Save-on †
 Waste Management †

Indio
 Alpha Beta †
 Commercial Lumber & Pallet *
 Dick Henderson Wood Processor †
 DOC †
 Dole Dried Fruit †
 El Yeager †
 Food for Less †
 GTE †
 Harris *
 Henderson Equipment †
 J.C. Penney Co. †
 K Mart †
 Lucky †
 Lumbermans *
 Pic-N-Save †
 Ralph's †
 Sav-on †
 Sears †

KEY:

- | |
|---|
| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
|---|

Smart & Final †
 Stater Brothers †
 Sun and Citrus *
 Target †
 Tarmac *
 Thrifty †
 Waste Management † (Accumulating office paper, but has contamination problem.)

La Quinta

Ace Hardware †
 Centre for Healthy Living †
 Dick Henderson Wood Processor †
 DOC †
 Eisenhower Intermediate Care †
 GTE †
 La Quinta Hotel †
 Lumpy's Golf †
 PGA West † Recycles OCC and cans.
 Thrifty †
 Vons †
 Waste Management †

Lake Elsinore

Alamo Market †
 Albertson's †
 Builders Emporium †
 DOC †
 Goodwill †
 GTE †
 K Mart †
 Plastic Reprocessing †
 Rodriguez Disposal *
 Save-on †
 Sears Catalogue * (624-1461)
 Sprouse Reitz *
 Thrifty †
 Stater Brothers (2) †
 Vons †

KEY:

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|---|
| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
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Moreno Valley

Ace Hardware *

Albertson's †

Builders Emporium †

City Offices †

DOC †

El Yeager †

Food For Less †

Goodwill †

GTE †

Home Club †

Hughes (2)†

K-Mart †

Longs †

Lucky (2) †

Mervyns †

Payless (3) †

Pic-N-Save †

Plastic Reprocessing †

Ralph's †

Riverside Transfer †

Ross *

Save-on †

Sprouse Reitz *

Stater Brothers (2)†

Target †

Vons (2) †

Norco

A-One Delivery †

B.P. John Hauling †

DOC †

El Yeager †

Midwest Recycling †

Norco School District *

Naval Weapons Fleet† Just beginning recycling CPO, high grade papers and mixed paper. Next phase will divert aluminum cans, California Redemption glass beverage containers and newspaper.

Norco Eggranch †

KEY:

* Not currently recycling materials from Riverside County

Unwilling to respond to survey

+ Unable to answer survey questions

† Answered survey

Paper Scrap Specialists †
 Stater Brothers (2) †
 Wilie Labs *

Palm Desert

Ace Hardware *
 Bullock's*
 Board of Realtors. † Recently started program - no pickup yet.
 City Offices †
 Cook Corporate Centre †
 DOC †
 El Paseo Properties † Just began program
 El Yeager †
 Five Star Club †
 G.J. Murphy †
 Goodwill †
 GTE †
 Henderson Equipment †
 I. Magnin † Aluminum cans informally collected.
 J.C. Penney Co. †
 Jensen †
 Lucky (2) †
 Marriott Desert Spring. † Recycles cardboard, glass, mixed paper and CPO. Began mid-December 1990.
 Marshall *
 Mayco †
 Mission Properties † Began late 1990.
 Post Newspaper †
 Ralph's †
 Robinson's *
 Sunshine Hardware †
 The Carlotta †
 Thrifty †
 Town Hall Centre †
 Vons †
 Waste Management †

KEY:

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|---|
| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
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Palm Springs

Alpha Beta †
 B.P. John Hauling †
 Buffums † Recycles cardboard and cans.
 Bullock's *
 Cal-Crinc. †
 Desert Valley Disposal †
 El Yeager †
 Envipco †
 GTE †
 Hilton † Recycles glass, aluminum and plastic.
 Hyatt Regency † Informal aluminum can recycling.
 I Magnum
 K Mart †
 La Quinta † Recycled glass, aluminum and office paper.
 Long's †
 Los Coswalos *
 Lucky †
 Marriott Courtyard † Just starting a program.
 Massey Sand & Rock *
 Palm Springs Recycling †
 Ralph's †
 Saks † Recycles aluminum cans only.
 Thrifty (2) †
 Vons (2) †

Perris

A-One Delivery †
 Banks *
 CR & R †
 DOC †
 El Yeager †
 Goodwill †
 Modtech † Recycles OCC.
 Newberry's †
 Thrifty †
 Payless †
 Perris Valley Skydiving *

KEY:

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| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
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Radio Shack *
 Riverside Transfer †
 Starcrest Mail Order † Recycles CPO and OCC.
 Stater Brothers (2) †
 Thrifty †

Rancho Mirage

DOC †
 Eisenhower Hospital † Recycles glass beverage containers, CPO, aluminum cans,
 newspaper and plastic. Collects from all satellite centers.
 GTE †
 Longs †
 Marriott Las Palmas †
 Ritz Carlton †
 Vons †
 Waste Management †

Riverside

A-One Delivery †
 Ability Counts † Collects from bars and restaurants.
 Ace Hardware †
 Advance Business Forms † Recycles high grades and OCC.
 Albertson's †
 Alpha Beta (4) †
 Aman Brothers †
 Appliance Recycling Factory †
 Artesia Sawdust Products + Wood shavings go to horse stables, sawdust for soil
 amendments. Most of the scrap wood is chipped for fuel.
 B.P. John Hauling †
 Bar Restaurant †
 Best *
 Blue Banner Company † All citrus wastes go to juice manufacturers or cow feed.
 This is true for many packing houses.
 Bourns †
 Broadway *
 Builders Emporium †
 Bullock †
 CR&R †
 Cal Crinc †

KEY:

* Not currently recycling materials from Riverside County # Unwilling to respond to survey + Unable to answer survey questions † Answered survey

Champion Lumber Company. † Recycles sawdust, wood scraps and scrap metal.
 Charles Paul Tree Service †
 Christian Bros. Tree Service *
 Circuit City †
 City Offices †
 Coast to Coast *
 Consolidated Freightways †
 Corona College Heights † Fruit packer.
 Costco †
 CVS (4) †
 Dave & Sons Scrap Paper #
 Dave's Bindery †
 Dawn Outdoor Service * Tree trimmer.
 DOC †
 Donagon Brothers Landscape †
 Dow Jones Publishing † Recycles newspaper.
 El Yeager †
 E.T. Wall † Citrus packer.
 Fleetwood Mobile Homes #8 † Recycles cardboard.
 Fleetwood Mobile Homes #9 † Just beginning a plant-wide recycling program with
 Moreno Valley Disposal.
 Fleetwood Mobile Homes #30 † Began recycling program in 1991.
 Fleetwood Mobile Homes #47 † Recycles cardboard. Will soon begin recycling CPO.
 Also recycles scrap metals and insulation materials.
 Fontana Paper †
 Gerard Stores †
 Goodwill Stores †
 Gordon's Cabinets †
 Grove Lumber. † Recycles wood.
 Harris †
 Home Club †
 IBM * No formal recycling. Employees recycle some aluminum cans, no
 information was available on amounts.
 International Multi-Foods †
 J.C. Penney Co. †
 K Mart (3) †
 Las Plumas Lumber † Recycles sawdust and scrap lumber separately.
 Longs †
 Lucky (3) †

KEY:

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Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
|---|

LVW Brown Estates † Culled oranges sold as cowfeed.
 Mallard Coach Company † Recycles OCC, wood and scrap metals.
 Marshall *
 Master Printing *
 Mervyns †
 Metal Container Corporation †
 Midwest Recycling† Recycled wood for reduced tipping fee. Plans to expand operation in 1991.
 National Delivery Service *
 Pacific Bell †
 Paper Scrap Specialists †
 Patton News Agency *
 Pepsi Cola West † Recycles Aluminum cans and OCC. Just beginning on CPO.
 Pennysaver *
 Pic-N-Save †
 Press Enterprise † Recycles newsprint and also has an in-house recycling program recovering white and colored ledger and mixed wastepaper.
 R.B. Graphics † Recycles mixed paper and plastic film.
 Ralph's †
 Record Newspaper †
 Redman Homes *
 Riverside County †
 Riverside County Publishing † Recycles newsprint and cardboard.
 Riverside General Hospital †
 Riverside Scrap †
 Riverside Transfer †
 Rohr Industries * Will begin recycling in 1991.
 Ross †
 Royal Citrus † Citrus packer.
 Rubideaux Printing † Recycles mixed paper and film. Ink is sold as fuel.
 Salvation Army †
 Save-on †
 Sears †
 Smart & Final †
 Smurfitt Recycling †
 Stater Brothers (6) †
 Sweetheart Cup Company †
 Swiss Dairy *
 TG & Y †

KEY:

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| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
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Talco Plastics †
 Target (2) †
 Thrifty †
 Tilden Coil Construction *
 Toro Company † Recycles CPO. Is currently expanding program.
 True Value †
 Uarco Business Forms † Recycles CPO, OCC and mixed paper
 U.C. Riverside † Some informal recycling.
 United Pipe *
 United Thrift † Discarded clothing sold to wiping-cloth manufacturer.
 U.S. Post Office *
 Valley Printers. † Recycles mixed paper.
 Vons (5) †
 Western Pulp & Paper †

San Jacinto

A-One Delivery †
 Alpha Beta †
 D & L Construction †
 DOC †
 El Yeager †
 GTE †
 Rama Electrical † Strong source reduction program, recycles cardboard. No tonnage available from source reduction program.
 Sharp Home Center !

Temecula

A-One Delivery †
 Advanced Cardiovascular †
 Albertson's †
 B.P. John Hauling †
 Crushmaster †
 DOC †
 Goodwill †
 Halstead †
 Longs †
 Lucky †
 Mega †
 Mervyn's †

KEY:

* Not currently recycling materials from Riverside County # Unwilling to respond to survey + Unable to answer survey questions † Answered survey

Payless †
 Plastic Reprocessing †
 Professional Hospital Supply † Recycles cardboard and aluminum cans.
 Rancho Metals †
 Rancon. * Recycling proposal under review. Some informal recycling.
 Riverside Transfer †
 Roadrunner Electricals †
 Save-on †
 Sears Catalogue † Informal recycling of aluminum cans only.
 Stater Brothers †
 Talco Plastics †
 Target †
 Western Gold Thermoplastics †

Unincorporated

A-One Delivery †
 Aman Brothers †
 B.P. John Hauling †
 California Date Administration †
 Community Lumber, Idyllwild †
 Crushmaster †
 DOC †
 E.L. Yeager †
 GTE †
 Goodwill †
 Hemet Lions Club †
 Henderson Equipment †
 Home Club †
 Hughes (2) †
 James Lumber Company † Uses own grinder to process wood scraps for soil
 amendments.
 Jurupa This Week † Has program with disabled persons to recycle newspapers into
 fireplace logs.
 LVW Brown †
 March Air Force Base †
 Midwest Recycling †
 Mira Loma Box Plant †
 Payless (Murrieta) †
 Plastics Reprocessing †

KEY:

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|---|
| * Not currently recycling materials from Riverside County
Unwilling to respond to survey
+ Unable to answer survey questions
† Answered survey |
|---|

Rancho Metal †
Record Newspaper † Recycles newspaper.
Riverside Transfer †
Sears (near Hemet) † Recycles OCC.
Sears (Anza) Catalogue
Sprouse Reitz (Sun City)*
Stater Brothers (5) †
Target †
U.S. Forest Service, Idyllwild † Began recycling 2/91.
Vons †

KEY:

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| <ul style="list-style-type: none">* Not currently recycling materials from Riverside County# Unwilling to respond to survey+ Unable to answer survey questions† Answered survey |
|--|

XI

SAMPLES of SURVEY FORMS USED



RECOVERY SCIENCES INC.

January 23, 1991

Name of Owner/Manager

Name of Recycling Center/Processor/Generator

Dear Name of Owner/Manager:

Thank you for taking my call today for the waste diversion study. Recovery Sciences Inc. is currently conducting a waste diversion study for Riverside County and its 23 incorporated cities. The purpose of the study is to document what each city is currently recovering from its waste stream. This information is being compiled to meet the requirements of the California Integrated Waste Management Act, Assembly Bill 939. This bill mandates that all California cities and counties must reduce the amount of solid waste it generates by 25% by 1995, and 50% by the year 2000.

In order for cities to meet these reduction goals, they need to know where current recycling activities are. The cities will then plan to put in place additional programs to help reduce the amount of waste being generated. Attached is a survey asking for tonnage information for each material you handle, broken out by city of origin. We are aware that many of you do not keep records by origin, if this is the case please give an estimate. To use the survey chart go across the top to a material your company handles, then find the cities this material comes from and credit each city with the proper tonnage figure.

All of your responses will be kept confidential and will not appear in any reports. We will only issue aggregate totals to each city. The information you provide should be based on your most recent information that covers a year period. There is also a section regarding where you receive your materials and to whom you sell them. This data is needed to prevent double counting and will also be kept confidential. The final portion of the survey is a section for your comments on how city, county and state government can help further recycling.

If you have any further questions you can contact myself or Rene Kaprielian at Recovery Sciences (619) 481-1980. We need this information by January 16, 1991. Responses to the survey can be faxed to our office at (619) 481-2433.

Regards,

Stephen G. Gandy

Your Company Name _____
Contact _____

Please identify from whom in Riverside County you buy the following materials:

<u>CA Redemption Glass:</u>	<u>Non-CA Redemption Glass:</u>
<u>Mixed Paper:</u>	<u>Office Paper:</u>
<u>Cardboard:</u>	<u>Aluminum:</u>
<u>Metals:</u>	<u>HDPE:</u>
<u>PET:</u>	<u>Other Plastics:</u>
<u>Appliances:</u>	<u>Car Batteries:</u>
<u>Other Materials (Please describe each item):</u>	

Your Company Name _____
Contact _____

**To whom do you sell
the following materials:**

CA Redemption Glass:

Non-CA Redemption Glass:

Mixed Paper:

Office Paper:

Cardboard:

Newspaper:

Aluminum Cans:

Metals:

HDPE:

PET:

Other Plastics:

Appliances:

Car Batteries:

Other Materials (Please describe each item):

Comments

How can City, County, and State governments help recycling in the private sector?

ANNUAL TONNAGES OF EACH MATERIAL BY CITY JURISDICTION

Period over which annual figures are derived _____

CITY	CA Rdmp Glass	Non CA Rdmp Glass	Mixed Paper	Office Paper	Cardboard	Aluminum	Metals
Blythe							
Cathedral City							
Coechella							
Desert Hot Springs							
Indian Wells							
Indio							
La Quinta							
Palm Desert							
Palm Springs							
Rancho Mirage							
Banning							
Beaumont							
Corona							
Hemet							
Lake Elsinore							
Moreno Valley							
Norco							
Perris							
Riverside							
San Jacinto							
Temecula							
Calimesa							
Canyon Lake							
Unincorporated							

CA Rdmp Glass = California Redemption Glass Beverage Containers
Non CA Rdmp Glass = Non California Redemption Glass Beverage Containers

CITY	Dirt	Concrete	Rock	Asphalt	Wood	Manure
Blythe						
Cathedral City						
Coachella						
Desert Hot Springs						
Indian Wells						
Indio						
La Quinta						
Palm Desert						
Palm Springs						
Rancho Mirage						
Banning						
Beaumont						
Corona						
Hemet						
Lake Elsinore						
Moreno Valley						
Norco						
Perris						
Riverside						
San Jacinto						
Temecula						
Calimesa						
Canyon Lake						
Unincorporated						

XII

GENERATION SOURCES: REGULATORY DEFINITION

Generation Sources - Regulatory Definitions

RESIDENTIAL

Residential Solid Waste - means solid waste originating from single-family or multiple family dwellings.

COMMERCIAL

Commercial Solid Wastes - means solid waste originating from stores, business offices, commercial warehouses, hospitals, educational, health care, military, and correctional institutions, non-profit research organizations, and government offices. Commercial solid waste refers to SIC Codes 401 through 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.

INDUSTRIAL

Industrial Solid Waste - means solid waste originating from mechanized manufacturing facilities, factories, refineries, construction and demolition projects, and publicly operated treatment works.

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.

OTHER

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.

Source: CCR Title 14, Ch. 9, Section 18720, as revised and formally adopted by the California Integrated Waste Management Board, and submitted for Notice on September 18, 1990.

XIII

ALLOCATION of SLUDGE

Riverside County Sludge Allocation (by City) 1990

City	Population	%	Allocated by Water District*	Allocated by Capita*
Banning	20950	1.9%	269	328
Beaumont	9750	0.8%	52	138
Blythe	8400	0.8%	0	138
Calimesa†	8067	0.7%	0	121
Canyon Lake ††	6585	0.6%	0	103
Cathedral City	31750	2.8%	0	483
Coachella	14950	1.3%	40	224
Corona	70000	6.3%	2500	1087
Desert Hot Springs	11200	1.0%	100	172
Hemet	35650	3.2%	0	552
Indian Wells	2700	0.2%	0	34
Indio	36000	3.2%	316	552
Lake Elsinore	15950	1.4%	666	242
La Quinta	11850	1.1%	0	190
Moreno Valley	114900	10.3%	1314	1777
Norco	25350	2.3%	0	397
Palm Desert	20650	1.8%	2199	311
Palm Springs †††	38925	3.5%	367	604
Perris	18900	1.7%	569	293
Rancho Mirage	9250	0.8%	0	138
Riverside	218500	19.5%	5519	3365
San Jacinto	15300	1.4%	0	242
Temecula†	27000	2.4%	657	414
Unincorporated***	345798	31.0%	2686	5349
Total	1118375	100.0%	17254	17254

* Units are in dry Tons

** Original data was acquired from a telephone survey conducted by the Riverside County Health Department, Environmental Health Services Division in 1990 and pertinent verifications were obtained during the Waste Generation Study.

***There are also 730 tons of water treatment plant sludge generated in the unincorporated area. Sewage treatment does not take place at the facility so the tonnage is left out of the above sewage sludge total.

All population except where noted are based on D.O.F., Jan. 1990

† Source: Riverside County Planning Department, Building Permit Activity Report, June 1990

†† Source: Riverside County Planning Department, Feb. 1991, and the Consultant report for city incorporation by Christensen and Wallace, Inc., Mar. 1990.

††† Source: California State Senate, September, 1987

XIV

SOLID WASTE GENERATION DATA PROJECTIONS

SOLID WASTE GENERATION DATA PROJECTIONS

The California Code of Regulations, Title 14, Chapter 9, Article 6.1, Section 18722 (c) requires that each city and unincorporated area make solid waste generation data projections as part of their waste characterization (i.e., waste generation study) component. Per Section 18744 (b) (1), these projections are to be the base for calculating the waste disposal capacity needs projection which is required as part of the disposal facility capacity component. Specifically, the regulations state:

"All solid waste generation studies shall include a 15-year projection of the solid waste to be generated within the jurisdiction and diverted and disposed by the jurisdiction. The projected time period shall commence from the date of local adoption of a SRR Element. The projection is to include the amounts, waste categories and waste types generated, diverted from disposal, and disposed, for each year of the 15-year period, under 1) the solid waste management system conditions and diversion activities existing at the time that the solid waste generation study is prepared and under 2) the solid waste management system conditions expected to be realized after a jurisdiction's implementation of its SRR Element and its attainment of the statutory diversion mandates."

The following table presents the 15-year projections for your city under the solid waste management system conditions and diversion activities existing at the time that the solid waste generation study was prepared. This information fulfills the requirements of item 1) above. The projections were based on population forecasts provided by the Southern California Association of Governments (SCAG) and the results of the waste generation study. The SCAG forecast provided population data for each of the cities and unincorporated area by census tract for the year 2010. The annual growth in population was determined by subtracting the 1990 population (provided by SCAG) from the year 2010 population and dividing by 20. The resulting number was used as the city or unincorporated area incremental growth for each year for the planning period between 1990 and 2005. A constant growth in absolute number of people (if 1,000 people per year) rather than a constant percent growth rate (i.e., 2 percent per year) was used for the following reasons.

- The resulting growth rate decreases each year which is consistent with data provided by SCAG between 1987 and 1990.
- A higher growth rate in the initial year and a lower growth rate in subsequent years represent a "worst case" condition as far as estimating facility capacity requirements.

Sewage sludge was not included in the forecast as sludge is not normally disposed in landfills in Riverside County and therefore not considered a waste under AB 939 regulations.

To comply with item 2), each city must make their own projections based on:

- Proposed programs
- Targeted materials
- Implementation schedule
- Anticipated recovery rate

There are several methods available to make these projections. One suggested method is described below. Sample computation for one specific material type (yard waste) are presented in Exhibit A. Other methods could be used depending on how you have organized your data for individual programs.

1. For a targeted material type, identify programs that would divert some of this material including existing diversion programs. For the example shown in Exhibit A, three programs would target yard waste: home composting, residential curbside collection, and a commercial drop-off program.
2. Estimate the total amount of this material that would be diverted by each program for each of the 15 years. In the example shown, a home composting education program would be initiated in 1992 with full implementation by 1994 diverting 3 percent of the total yard waste. The residential curbside program would begin a phased implementation in 1994 and would be diverting 50 percent of the yard waste by the year 2000. The commercial drop-off program is an ongoing program diverting 10 percent of the yard waste based on the waste generation study and would be expanded to achieve a 20 percent waste diversion rate for this material type by 1993.
3. Add the diversion rates for each program to get the total diversion rate for this material for each of the 15 years.
4. Multiply the diversion rate and the total amount of waste anticipated to be generated (from the solid waste management system projections existing at the time the solid waste generation study is prepared) for each of the 15 years to determine the total tons diverted.
5. Subtract total tons diverted from total tons generated to obtain total tons disposed for each of the 15 years.
6. Repeat Steps 1 through 5 for each material type targeted for diversion.
7. Input final data into a format as per the attached tables showing waste types generated, diverted from disposal, and disposed for each of the 15-year period

for the solid waste management conditions expected to be realized after a jurisdiction's implementation of its SRR Element.

8. Check diversion rates to ensure that the 1995 and 2000 diversion rates are at least 25 percent and 50 percent, respectively.

Exhibit A
Waste Generation Study - Data Projections for Yard Waste

Year	Estimated Percent Diversion of Yard Waste by Program				Tons of Yard Waste		
	Home Composting	Residential Curbside Collection	Commercial Drop-off	Total Diversion	Total Generation ¹	Total Diversion	Total Disposed
1991	0	0	10	10	1,000	100	900
1992	1	0	10	11	1,010	111	899
1993	2	0	20	22	1,020	224	796
1994	3	10	20	33	1,030	340	690
1995	3	20	20	43	1,040	447	593
1996	3	30	20	53	1,050	556	494
1997	3	35	20	58	1,060	615	445
1998	3	40	20	63	1,070	674	396
1999	3	45	20	68	1,080	734	346
2000	3	50	20	73	1,090	796	294
2001	3	50	20	73	1,100	803	297
2002	3	50	20	73	1,110	810	300
2003	3	50	20	73	1,120	818	302
2004	3	50	20	73	1,130	825	305
2005	3	50	20	73	1,140	832	308
¹ From projections for item 1), solid waste management system projections existing at the time that the solid waste generation study is prepared.							

15-Year Solid Waste Projections Under Current Conditions - Solid Waste Generated

Unincorporated CIWMB Waste Categories		Weight (in tons) as of December 31 of each Year																	
Unincorporated Area Population: Change:		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		
1. Paper																			
a. Corrugated Containers		57,058	58,870	60,682	62,495	64,307	66,119	67,931	69,743	71,555	73,367	75,179	76,991	78,803	80,615	82,427	84,240		
b. Mixed Paper		27,973	28,861	29,750	30,638	31,527	32,415	33,303	34,192	35,080	35,968	36,857	37,745	38,634	39,522	40,410	41,299		
c. Newspaper		23,977	24,739	25,500	26,262	27,023	27,785	28,546	29,308	30,069	30,831	31,592	32,354	33,115	33,877	34,638	35,400		
d. High Grade Ledger Paper		1,013	1,045	1,077	1,109	1,141	1,174	1,206	1,238	1,270	1,302	1,334	1,366	1,399	1,431	1,463	1,495		
e. Other Paper		17,119	17,663	18,206	18,750	19,294	19,837	20,381	20,925	21,468	22,012	22,556	23,099	23,643	24,187	24,730	25,274		
2. Plastics																			
a. High-Density Polyethylene (HDPE)		5,482	5,656	5,830	6,004	6,178	6,352	6,526	6,700	6,874	7,049	7,223	7,397	7,571	7,745	7,919	8,093		
b. Polyethylene Terephthalate (PET)		597	616	635	654	673	692	711	730	749	768	786	805	824	843	862	881		
c. Film Plastics		2,595	2,677	2,760	2,842	2,925	3,007	3,089	3,172	3,254	3,337	3,419	3,502	3,584	3,666	3,749	3,831		
d. Other Plastics		9,006	9,292	9,578	9,864	10,150	10,436	10,722	11,008	11,294	11,580	11,866	12,152	12,438	12,724	13,010	13,296		
3. Glass																			
a. Refillable Glass Beverage Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
b. California Redemption Value Glass		2,944	3,037	3,130	3,224	3,317	3,411	3,504	3,598	3,691	3,785	3,878	3,972	4,065	4,159	4,252	4,346		
c. Other Recyclable Glass		6,258	6,457	6,656	6,854	7,053	7,252	7,451	7,649	7,848	8,047	8,246	8,444	8,643	8,842	9,041	9,239		
d. Other Non-Recyclable Glass		372	384	396	408	420	431	443	455	467	479	491	502	514	526	538	550		
4. Metals																			
a. Aluminum Cans		1,294	1,335	1,376	1,417	1,458	1,499	1,540	1,581	1,622	1,663	1,705	1,746	1,787	1,828	1,869	1,910		
b. Bi-Metal Containers		122	126	130	133	137	141	145	149	153	157	160	164	168	172	176	180		
c. Ferrous Metals and Tin Cans		23,695	24,447	25,200	25,952	26,705	27,457	28,210	28,962	29,715	30,467	31,220	31,972	32,725	33,477	34,230	34,982		
d. Non-Ferrous Metals Incl. Aluminum		2,153	2,222	2,290	2,358	2,427	2,495	2,564	2,632	2,700	2,769	2,837	2,906	2,974	3,042	3,111	3,179		
e. White Goods		3,308	3,413	3,518	3,623	3,728	3,834	3,939	4,044	4,149	4,254	4,359	4,464	4,569	4,674	4,779	4,884		
5. Yard Waste, Incl. Leaves, Grass		95,381	98,410	101,439	104,468	107,498	110,527	113,556	116,585	119,614	122,643	125,672	128,702	131,731	134,760	137,789	140,818		
6. Other Organics																			
a. Food Waste		21,193	21,866	22,539	23,212	23,885	24,558	25,231	25,904	26,577	27,250	27,923	28,596	29,270	29,943	30,616	31,289		
b. Tires and Rubber Products		5,484	5,658	5,832	6,007	6,181	6,355	6,529	6,703	6,877	7,052	7,226	7,400	7,574	7,748	7,922	8,097		
c. Wood Wastes		47,640	49,153	50,666	52,179	53,692	55,205	56,718	58,231	59,744	61,257	62,770	64,283	65,796	67,309	68,822	70,335		
d. Agricultural Wastes		472	487	502	517	532	547	562	577	592	607	622	637	652	667	682	697		
e. Manure		1,722	1,777	1,832	1,887	1,941	1,996	2,051	2,105	2,160	2,215	2,269	2,324	2,379	2,434	2,488	2,543		
f. Textiles and Leather		7,131	7,357	7,584	7,810	8,037	8,263	8,490	8,716	8,943	9,169	9,396	9,622	9,848	10,075	10,301	10,528		
7. Other Wastes																			
a. Inert Solids, Incl. Rock, Concrete		188,785	194,780	200,776	206,771	212,767	218,762	224,758	230,753	236,749	242,744	248,740	254,735	260,731	266,726	272,722	278,717		
b. Household Hazardous Wastes		2,926	3,019	3,112	3,205	3,298	3,391	3,484	3,577	3,670	3,763	3,856	3,949	4,042	4,135	4,228	4,320		
8. Special Wastes																			
a. Ash		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
b. Sewage Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
c. Industrial Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
d. Asbestos		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
e. Auto Shredder Waste		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
f. Auto Bodies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
g. Other Special Wastes		85,361	88,072	90,783	93,494	96,205	98,916	101,627	104,338	107,049	109,760	112,470	115,181	117,892	120,603	123,314	126,025		
9. Shetrock		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10. Disposable Diapers		5,436	5,608	5,781	5,954	6,126	6,299	6,472	6,644	6,817	6,989	7,162	7,335	7,507	7,680	7,853	8,025		
Totals		646,497	667,028	687,560	708,092	728,624	749,155	769,687	790,219	810,751	831,282	851,814	872,346	892,878	913,409	933,941	954,473		

15-Year Solid Waste Projections Under Current Conditions - Solid Waste Disposed

Unincorporated CIWMB Waste Categories

Weight (in tons) as of December 31 of each Year

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Paper																
a. Corrugated Containers	45,998	47,458	48,919	50,380	51,841	53,302	54,762	56,223	57,684	59,145	60,606	62,066	63,527	64,988	66,449	67,910
b. Mixed Paper	26,081	26,909	27,738	28,566	29,394	30,222	31,051	31,879	32,707	33,536	34,364	35,192	36,021	36,849	37,677	38,505
c. Newspaper	23,391	24,134	24,876	25,619	26,362	27,105	27,848	28,591	29,334	30,076	30,819	31,562	32,305	33,048	33,791	34,533
d. High Grade Ledger Paper	1,013	1,045	1,077	1,109	1,141	1,174	1,206	1,238	1,270	1,302	1,334	1,366	1,399	1,431	1,463	1,495
e. Other Paper	17,119	17,663	18,206	18,750	19,294	19,837	20,381	20,925	21,468	22,012	22,556	23,099	23,643	24,187	24,730	25,274
2. Plastics																
a. High-Density Polyethylene (HDPE)	5,461	5,635	5,808	5,982	6,155	6,329	6,502	6,676	6,849	7,022	7,196	7,369	7,543	7,716	7,890	8,063
b. Polyethylene Terephthalate (PET)	558	576	594	611	629	647	665	682	700	718	735	753	771	789	806	824
c. Film Plastics	2,595	2,677	2,760	2,842	2,925	3,007	3,089	3,172	3,254	3,337	3,419	3,502	3,584	3,666	3,749	3,831
d. Other Plastics	8,996	9,281	9,567	9,853	10,139	10,424	10,710	10,996	11,281	11,567	11,853	12,138	12,424	12,710	12,996	13,281
3. Glass																
a. Refillable Glass Beverage Containers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. California Redemption Value Glass	2,268	2,340	2,412	2,484	2,556	2,628	2,700	2,772	2,844	2,916	2,988	3,060	3,132	3,205	3,277	3,349
c. Other Recyclable Glass	6,218	6,416	6,613	6,811	7,008	7,206	7,403	7,601	7,798	7,996	8,193	8,390	8,588	8,785	8,983	9,180
d. Other Non-Recyclable Glass	372	384	396	408	420	431	443	455	467	479	491	502	514	526	538	550
4. Metals																
a. Aluminum Cans	592	611	630	649	667	686	705	724	743	761	780	799	818	837	855	874
b. Bi-Metal Containers	122	126	130	133	137	141	145	149	153	157	160	164	168	172	176	180
c. Ferrous Metals and Tin Cans	23,695	24,447	25,200	25,952	26,705	27,457	28,210	28,962	29,715	30,467	31,220	31,972	32,725	33,477	34,230	34,982
d. Non-Ferrous Metals Incl. Aluminum	2,153	2,222	2,290	2,358	2,427	2,495	2,564	2,632	2,700	2,769	2,837	2,906	2,974	3,042	3,111	3,179
e. White Goods	3,308	3,413	3,518	3,623	3,728	3,834	3,939	4,044	4,149	4,254	4,359	4,464	4,569	4,674	4,779	4,884
5. Yard Waste, Incl. Leaves, Grass	95,381	98,410	101,439	104,468	107,498	110,527	113,556	116,585	119,614	122,643	125,672	128,702	131,731	134,760	137,789	140,818
6. Other Organics																
a. Food Waste	18,665	19,258	19,850	20,443	21,036	21,629	22,222	22,814	23,407	24,000	24,593	25,185	25,778	26,371	26,964	27,556
b. Tires and Rubber Products	5,135	5,298	5,461	5,625	5,788	5,951	6,114	6,277	6,440	6,603	6,766	6,929	7,092	7,255	7,419	7,582
c. Wood Wastes	43,970	45,366	46,763	48,159	49,556	50,952	52,349	53,745	55,141	56,538	57,934	59,331	60,727	62,123	63,520	64,916
d. Agricultural Wastes	472	487	502	517	532	547	562	577	592	607	622	637	652	667	682	697
e. Manure	1,722	1,777	1,832	1,887	1,941	1,996	2,051	2,105	2,160	2,215	2,269	2,324	2,379	2,434	2,488	2,543
f. Textiles and Leather	7,029	7,252	7,476	7,699	7,922	8,145	8,369	8,592	8,815	9,038	9,261	9,485	9,708	9,931	10,154	10,378
7. Other Wastes																
a. Inert Solids, Incl. Rock, Concrete	45,349	46,789	48,229	49,669	51,109	52,549	53,990	55,430	56,870	58,310	59,750	61,191	62,631	64,071	65,511	66,951
b. Household Hazardous Wastes	2,926	3,019	3,112	3,205	3,298	3,391	3,484	3,577	3,670	3,763	3,856	3,949	4,042	4,135	4,228	4,320
8. Special Wastes																
a. Ash	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. Sewage Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Industrial Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Asbestos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Auto Shredder Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Auto Bodies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g. Other Special Wastes	85,361	88,072	90,783	93,494	96,205	98,916	101,627	104,338	107,049	109,760	112,470	115,181	117,892	120,603	123,314	126,025
9. Sheetrock																
10. Disposable Diapers	5,436	5,608	5,781	5,954	6,126	6,299	6,472	6,644	6,817	6,989	7,162	7,335	7,507	7,680	7,853	8,025
Total	481,387	496,675	511,963	527,251	542,539	557,827	573,115	588,404	603,692	618,980	634,268	649,556	664,844	680,132	695,420	710,708

15 – Year Solid Waste Projections Under Current Conditions – Solid Waste Diverted

Unincorporated CIWMB Waste Categories		Weight (in tons) as of December 31 of each Year															
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Paper																	
a. Corrugated Containers		11,061	11,412	11,763	12,115	12,466	12,817	13,168	13,520	13,871	14,222	14,574	14,925	15,276	15,627	15,979	16,330
b. Mixed Paper		1,892	1,952	2,012	2,072	2,132	2,192	2,253	2,313	2,373	2,433	2,493	2,553	2,613	2,673	2,733	2,793
c. Newspaper		587	605	624	642	661	680	698	717	736	754	773	792	810	829	847	866
d. High Grade Ledger Paper		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Other Paper		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. Plastics																	
a. High – Density Polyethylene (HDPE)		20	21	22	22	23	24	24	25	25	26	27	27	28	29	29	30
b. Polyethylene Terephthalate (PET)		39	40	41	42	44	45	46	47	49	50	51	52	53	55	56	57
c. Film Plastics		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Other Plastics		10	10	11	11	11	12	12	12	13	13	13	13	14	14	14	15
3. Glass																	
a. Refillable Glass Beverage Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. California Redemption Value Glass		675	697	718	740	761	783	804	826	847	868	890	911	933	954	976	997
c. Other Recyclable Glass		40	41	43	44	45	46	48	49	50	51	53	54	55	57	58	59
d. Other Non – Recyclable Glass		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Metals																	
a. Aluminum Cans		702	724	746	768	791	813	835	858	880	902	924	947	969	991	1,014	1,036
b. Bi – Metal Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Ferrous Metals and Tin Cans		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Non – Ferrous Metals Incl. Aluminum		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. White Goods		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. Yard Waste, Incl. Leaves, Grass		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6. Other Organics																	
a. Food Waste		2,528	2,608	2,689	2,769	2,849	2,929	3,010	3,090	3,170	3,251	3,331	3,411	3,491	3,572	3,652	3,732
b. Tires and Rubber Products		349	360	371	382	393	404	415	426	437	448	460	471	482	493	504	515
c. Wood Wastes		3,670	3,787	3,903	4,020	4,136	4,253	4,369	4,486	4,602	4,719	4,836	4,952	5,069	5,185	5,302	5,418
d. Agricultural Wastes		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Manure		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Textiles and Leather		102	105	108	111	115	118	121	124	128	131	134	137	141	144	147	150
7. Other Wastes																	
a. Inert Solids, Incl. Rock, Concrete		143,436	147,991	152,547	157,102	161,657	166,213	170,768	175,323	179,878	184,434	188,989	193,544	198,100	202,655	207,210	211,766
b. Household Hazardous Wastes		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Special Wastes																	
a. Ash		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. Sewage Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Industrial Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Asbestos		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Auto Shredder Waste		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Auto Bodies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g. Other Special Wastes		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9. Shetrock		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. Disposable Diapers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		165,110	170,354	175,597	180,841	186,085	191,328	196,572	201,815	207,059	212,303	217,546	222,790	228,034	233,277	238,521	243,765
Total % Diverted		25.5%									25.5%						
Total % Diverted without Inert Solids		4.7%									4.7%						

15 Year Solid Waste Projections under Conditions Expected to exist after the Implementation of the SRRE – Solid Waste Generated

Unincorporated CIWMB Waste Categories		Weight (in tons) as of December of each Year																
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Unincorporated Area Population:		343,963	354,887	365,810	376,734	387,658	398,582	409,505	420,429	431,353	442,277	453,200	464,124	475,048	485,972	496,895	507,819	
Change:			3.18%	3.08%	2.99%	2.90%	2.82%	2.74%	2.67%	2.60%	2.53%	2.47%	2.41%	2.35%	2.30%	2.25%	2.20%	
1. Paper																		
a. Corrugated Containers		57,058	58,870	60,682	62,495	64,307	66,119	67,931	69,743	71,555	73,367	75,179	76,991	78,803	80,615	82,427	84,240	
b. Mixed Paper		27,973	28,861	29,750	30,638	31,527	32,415	33,303	34,192	35,080	35,968	36,857	37,745	38,634	39,522	40,410	41,299	
c. Newspaper		23,977	24,739	25,500	26,262	27,023	27,785	28,546	29,308	30,069	30,831	31,592	32,354	33,115	33,877	34,638	35,400	
d. High Grade Ledger Paper		1,013	1,045	1,077	1,109	1,141	1,174	1,206	1,238	1,270	1,302	1,334	1,366	1,399	1,431	1,463	1,495	
e. Other Paper		17,119	17,663	18,206	18,750	19,294	19,837	20,381	20,925	21,468	22,012	22,556	23,099	23,643	24,187	24,730	25,274	
2. Plastics																		
a. High - Density Polyethylene (HDPE)		5,482	5,656	5,830	6,004	6,178	6,352	6,526	6,700	6,874	7,049	7,223	7,397	7,571	7,745	7,919	8,093	
b. Polyethylene Terephthalate (PET)		597	616	635	654	673	692	711	730	749	768	786	805	824	843	862	881	
c. Film Plastics		2,595	2,677	2,760	2,842	2,925	3,007	3,089	3,172	3,254	3,337	3,419	3,502	3,584	3,666	3,749	3,831	
d. Other Plastics		9,006	9,292	9,578	9,864	10,150	10,436	10,722	11,008	11,294	11,580	11,866	12,152	12,438	12,724	13,010	13,296	
3. Glass																		
a. Refillable Glass Beverage Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
b. California Redemption Value Glass		2,944	3,037	3,130	3,224	3,317	3,411	3,504	3,598	3,691	3,785	3,878	3,972	4,065	4,159	4,252	4,346	
c. Other Recyclable Glass		6,258	6,457	6,656	6,854	7,053	7,252	7,451	7,649	7,848	8,047	8,246	8,444	8,643	8,842	9,041	9,239	
d. Other Non - Recyclable Glass		372	384	396	408	420	431	443	455	467	479	491	502	514	526	538	550	
4. Metals																		
a. Aluminum Cans		1,294	1,335	1,376	1,417	1,458	1,499	1,540	1,581	1,622	1,663	1,705	1,746	1,787	1,828	1,869	1,910	
b. Bi - Metal Containers		122	126	130	133	137	141	145	149	153	157	160	164	168	172	176	180	
c. Ferrous Metals and Tin Cans		23,695	24,447	25,200	25,952	26,705	27,457	28,210	28,962	29,715	30,467	31,220	31,972	32,725	33,477	34,230	34,982	
d. Non - Ferrous Metals Incl. Aluminum		2,153	2,222	2,290	2,358	2,427	2,495	2,564	2,632	2,700	2,769	2,837	2,906	2,974	3,042	3,111	3,179	
e. White Goods		3,308	3,413	3,518	3,623	3,728	3,834	3,939	4,044	4,149	4,254	4,359	4,464	4,569	4,674	4,779	4,884	
f. Yard Waste, Incl. Leaves, Grass		95,381	98,410	101,439	104,468	107,498	110,527	113,556	116,585	119,614	122,643	125,672	128,702	131,731	134,760	137,789	140,818	
6. Other Organics																		
a. Food Waste		21,193	21,866	22,539	23,212	23,885	24,558	25,231	25,904	26,577	27,250	27,923	28,596	29,270	29,943	30,616	31,289	
b. Tires and Rubber Products		5,484	5,658	5,832	6,007	6,181	6,355	6,529	6,703	6,877	7,052	7,226	7,400	7,574	7,748	7,922	8,097	
c. Wood Wastes		47,640	49,153	50,666	52,179	53,692	55,205	56,718	58,231	59,744	61,257	62,770	64,283	65,796	67,309	68,822	70,335	
d. Agricultural Wastes		472	487	502	517	532	547	562	577	592	607	622	637	652	667	682	697	
e. Manure		1,722	1,777	1,832	1,887	1,941	1,996	2,051	2,105	2,160	2,215	2,269	2,324	2,379	2,434	2,488	2,543	
f. Textiles and Leather		7,131	7,357	7,584	7,810	8,037	8,263	8,490	8,716	8,943	9,169	9,396	9,622	9,848	10,075	10,301	10,528	
7. Other Wastes																		
a. Inert Solids, Incl. Rock, Concrete		186,785	194,780	202,776	210,771	218,767	226,762	234,758	242,753	250,749	258,744	266,740	274,735	282,731	290,726	298,722	306,717	
b. Household Hazardous Wastes		2,926	3,019	3,112	3,205	3,298	3,391	3,484	3,577	3,670	3,763	3,856	3,949	4,042	4,135	4,228	4,320	
8. Special Wastes																		
a. Ash		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
b. Sewage Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
c. Industrial Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
d. Asbestos		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
e. Auto Shredder Waste		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
f. Auto Bodies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
g. Other Special Wastes		85,361	88,072	90,783	93,494	96,205	98,916	101,627	104,338	107,049	109,760	112,470	115,181	117,892	120,603	123,314	126,025	
9. Sheetrock		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10. Disposable Diapers																		
		5,436	5,608	5,781	5,954	6,126	6,299	6,472	6,644	6,817	6,989	7,162	7,335	7,507	7,680	7,853	8,025	
Totals		646,497	667,028	687,560	708,092	728,624	749,155	769,687	790,219	810,751	831,282	851,814	872,346	892,878	913,409	933,941	954,473	

15 Year Solid Waste Projections under Conditions Expected to exist after the Implementation of the SRRB – Solid Waste Disposed

Unincorporated

Weight (in tons) as of December of each Year

CWMB Waste Categories	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Paper																
a. Corrugated Containers	43,997	45,330	42,478	39,372	35,754	33,721	31,927	29,989	27,906	26,540	29,245	29,950	30,654	31,359	32,064	32,769
b. Mixed Paper	26,081	26,841	27,072	27,268	27,176	23,987	21,980	18,122	15,260	14,064	14,411	14,758	15,106	15,453	15,800	16,148
c. Newspaper	23,390	19,791	16,575	14,444	12,431	11,670	10,562	10,551	10,524	10,482	10,741	11,000	11,259	11,518	11,777	12,036
d. High Grade Ledger Paper	1,013	1,034	1,034	976	932	933	940	941	946	949	973	996	1,020	1,043	1,067	1,090
e. Other Paper	17,119	17,663	18,024	18,375	18,715	19,143	19,566	19,878	20,180	20,625	21,135	21,644	22,154	22,663	23,172	23,682
2. Plastics																
a. High-Density Polyethylene (HDPE)	5,462	5,463	5,451	5,374	4,757	4,129	3,263	2,345	2,200	1,974	2,022	2,071	2,120	2,169	2,217	2,266
b. Polyethylene Terephthalate (PET)	558	542	476	471	444	429	355	350	352	353	362	370	379	388	397	405
c. Film Plastics	2,595	2,677	2,732	2,785	2,834	2,902	2,966	3,013	3,059	3,127	3,204	3,281	3,358	3,435	3,513	3,590
d. Other Plastics	8,966	9,255	9,425	9,568	9,642	9,549	9,435	9,357	8,922	8,882	9,101	9,321	9,540	9,759	9,979	10,198
3. Glass																
a. Refillable Glass Beverage Containers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. California Redemption Value Glass	2,269	2,187	1,972	1,773	1,791	1,774	1,682	1,763	1,772	1,817	1,862	1,906	1,951	1,996	2,041	2,086
c. Other Recyclable Glass	6,218	5,230	4,459	3,907	3,738	3,626	3,427	3,442	3,453	3,380	3,463	3,547	3,630	3,714	3,797	3,881
d. Other Non-Recyclable Glass	372	384	396	408	420	431	443	455	467	479	491	502	514	526	538	550
4. Metals																
a. Aluminum Cans	592	547	482	468	437	420	354	332	324	316	324	332	339	347	355	363
b. Bi-Metal Containers	122	126	130	133	137	141	145	149	153	157	160	164	168	172	176	180
c. Ferrous Metals and Tin Cans	23,695	23,958	24,192	23,876	20,830	20,044	18,054	16,798	16,343	15,843	16,234	16,626	17,017	17,408	17,800	18,191
d. Non-Ferrous Metals Incl. Aluminum	2,153	2,177	2,198	2,170	1,893	1,822	1,641	1,527	1,485	1,440	1,475	1,511	1,546	1,582	1,618	1,653
e. White Goods	3,308	3,410	3,501	3,569	1,413	1,246	1,221	1,213	1,162	1,136	1,164	1,192	1,220	1,248	1,276	1,304
5. Yard Waste, Incl. Leaves, Grass	93,381	91,521	90,281	81,485	33,109	33,711	28,673	29,146	23,624	23,915	24,506	25,097	25,687	26,278	26,869	27,460
6. Other Organics																
a. Food Waste	18,665	19,242	19,834	20,427	21,019	21,611	22,203	22,796	23,388	23,980	24,573	25,165	25,757	26,349	26,942	27,534
b. Tires and Rubber Products	5,135	5,319	5,360	4,661	4,160	3,832	3,343	2,963	2,827	2,828	2,898	2,967	3,037	3,107	3,177	3,247
c. Wood Wastes	46,920	48,170	49,146	50,092	51,115	17,666	14,747	9,899	9,260	8,086	8,286	8,485	8,685	8,885	9,084	9,284
d. Agricultural Wastes	472	487	502	517	532	547	562	577	592	607	622	637	652	667	682	697
e. Manure	1,722	1,777	1,832	1,887	1,941	1,996	2,051	2,105	2,160	2,215	2,269	2,324	2,379	2,434	2,488	2,543
f. Textiles and Leather	7,029	7,284	7,432	7,498	7,482	7,685	7,811	7,845	7,959	8,080	8,259	8,458	8,657	8,856	9,055	9,254
7. Other Wastes																
a. Inert Solids, Incl. Rock, Concrete	43,349	44,799	44,171	43,422	42,553	39,377	35,961	36,920	37,880	38,839	39,798	40,758	41,717	42,676	43,635	44,595
b. Household Hazardous Wastes	2,926	3,019	3,112	3,205	3,298	3,391	3,484	3,577	3,670	3,763	3,856	3,949	4,042	4,135	4,228	4,320
8. Special Wastes																
a. Ash	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. Sewage Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Industrial Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Asbestos	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Auto Shredder Waste	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Auto Bodies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g. Other Special Wastes	85,361	87,191	89,875	92,559	95,319	95,948	98,578	94,947	95,273	95,491	97,849	100,208	102,566	104,925	107,283	109,642
9. Sheetrock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. Disposable Diapers	5,436	5,608	5,723	5,835	5,943	6,079	6,213	6,312	6,408	6,549	6,711	6,873	7,034	7,196	7,358	7,520
Totals	484,336	481,035	477,865	466,523	407,816	367,807	351,589	337,313	327,550	327,894	335,993	344,092	352,190	360,289	368,388	376,486

15 Year Solid Waste Projections under Conditions Expected to exist after the Implementation of the SRRE -- Solid Waste Diverted

Unincorporated CIWMB Waste Categories		Weight (in tons) as of December of each Year															
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1. Paper																	
a. Corrugated Containers		11,061	13,540	18,205	23,123	28,552	32,398	36,003	39,753	43,649	44,827	45,934	47,042	48,149	49,256	50,363	51,470
b. Mixed Paper		1,892	2,020	2,677	3,370	4,351	4,428	11,323	16,070	19,820	21,905	22,446	22,987	23,528	24,069	24,610	25,151
c. Newspaper		587	4,948	8,925	11,818	14,593	16,115	17,984	18,757	19,545	20,348	20,851	21,353	21,856	22,359	22,861	23,364
d. High Grade Ledger Paper		0	10	43	133	209	241	265	297	324	353	362	370	379	388	396	405
e. Other Paper		0	0	182	375	579	694	815	1,046	1,288	1,387	1,421	1,455	1,490	1,524	1,558	1,592
2. Plastics																	
a. High - Density Polyethylene (HDPE)		20	192	379	630	1,421	2,223	3,263	4,355	4,675	5,075	5,200	5,326	5,451	5,576	5,702	5,827
b. Polyethylene Terephthalate (PET)		39	74	159	183	229	263	355	379	397	414	425	435	445	455	466	476
c. Film Plastics		0	0	28	57	91	105	124	159	195	210	215	221	226	231	236	241
d. Other Plastics		10	37	153	296	507	887	1,287	1,651	2,372	2,698	2,765	2,831	2,898	2,965	3,031	3,098
3. Glass																	
a. Refillable Glass Beverage Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. California Redemption Value Glass		675	850	1,158	1,451	1,526	1,637	1,822	1,835	1,920	1,968	2,017	2,065	2,114	2,163	2,211	2,260
c. Other Recyclable Glass		40	1,227	2,196	2,947	3,315	3,626	4,023	4,207	4,395	4,667	4,783	4,898	5,013	5,128	5,244	5,359
d. Other Non - Recyclable Glass		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Metals																	
a. Aluminum Cans		702	788	894	949	1,021	1,079	1,186	1,249	1,298	1,347	1,381	1,414	1,447	1,481	1,514	1,547
b. Bi-Metal Containers		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Ferrous Metals and Tin Cans		0	489	1,008	2,076	5,875	7,413	10,156	12,164	13,372	14,824	14,986	15,347	15,708	16,069	16,430	16,792
d. Non - Ferrous Metals Incl. Aluminum		0	44	92	189	534	674	923	1,105	1,215	1,329	1,362	1,395	1,427	1,460	1,493	1,526
e. White Goods		0	3	18	54	2,315	2,588	2,718	2,831	2,987	3,118	3,195	3,272	3,349	3,426	3,503	3,580
5. Yard Waste, Incl. Leaves, Grass		0	6,889	11,158	22,983	74,388	76,816	84,883	87,439	95,990	98,728	101,166	103,605	106,043	108,482	110,920	113,359
6. Other Organics																	
a. Food Waste		2,528	2,624	2,705	2,785	2,866	2,947	3,028	3,109	3,189	3,270	3,351	3,432	3,512	3,593	3,674	3,755
b. Tires and Rubber Products		349	339	472	1,345	2,021	2,523	3,186	3,740	4,051	4,224	4,328	4,433	4,537	4,641	4,745	4,850
c. Wood Wastes		720	983	1,520	2,087	2,577	37,539	41,971	48,332	50,484	53,171	54,484	55,797	57,111	58,424	59,737	61,050
d. Agricultural Wastes		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Manure		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Textiles and Leather		102	74	152	312	555	578	679	872	984	1,109	1,137	1,164	1,192	1,219	1,246	1,274
7. Other Wastes																	
a. Inert Solids, Incl. Rock, Concrete		143,436	149,981	156,605	163,349	170,213	179,385	188,796	193,833	198,869	203,905	208,941	213,977	219,014	224,050	229,086	234,122
b. Household Hazardous Wastes		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8. Special Wastes																	
a. Ash		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b. Sewage Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Industrial Sludge		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
d. Asbestos		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
e. Auto Shredder Waste		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
f. Auto Bodies		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g. Other Special Wastes		0	881	908	935	2,896	2,967	3,049	9,390	11,775	14,269	14,621	14,974	15,326	15,678	16,031	16,383
9. Sheetrock		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10. Disposable Diapers		0	0	58	119	184	220	259	332	409	440	451	462	473	484	495	506
Totals		162,161	185,994	209,695	241,569	320,807	381,348	418,099	452,906	483,201	503,388	515,821	528,254	540,687	553,120	565,554	577,987
Total % Diverted		25%	28%	30%	34%	44%	51%	54%	57%	60%	61%	61%	61%	61%	61%	61%	61%
Total % Diverted w/out Inert Solids		4%	8%	11%	16%	29%	38%	42%	46%	50%	51%	51%	51%	51%	51%	51%	51%

APPENDIX B

Alternative Program Evaluation

APPENDIX B - I GRADING CRITERIA

The AB 939 regulations required the consideration of the following 10 criteria in relation to the alternative programs identified. Riverside County used all 10 criteria in evaluating the alternative programs. A five point scale was used in evaluating the programs. The following page contains an explanation of how the five point scale was applied to each criterion and how each individual score can be interpreted. For example, a program which was considered to be effective in reducing the volume or weight of solid waste would be given a score of 5. While a program which had the potential to create hazards would be given a score of 1 or 2.

After completing the numerical analysis, a qualitative analysis was completed to account for qualities of programs not addressed in the numerical grading. Applicable qualitative analysis is included in each specific component.

1. Effectiveness in reducing either solid waste volume, weight, percentage in weight or its volumetric equivalent.
2. Hazard created by the alternative considered.
3. Ability to accommodate changing economic, technological and social conditions.
4. Consequences of the diversion alternative on the characterized waste, such as shifting solid waste generation from one type of solid waste to another.
5. Whether it can be implemented in the short-term (up to 1995) or the medium-term (from 1995 to 2000) planning periods.
6. The need for expanding existing facilities or building new facilities to support implementation of the alternative program.
7. Consistency with applicable local policies, plans and ordinances based upon local conditions.
8. Institutional barriers to local implementation of each alternative program.
9. Estimate of costs related to implementation of the alternative program for the short-term (up to 1995) and medium-term (from 1995 to 2000) planning periods.
10. Availability of local, regional, state, national and international end-uses for the material which would be diverted through implementation of each alternative program.

Appendix B – II

Explanation of Five Point Grading System

Criteria	1	2	3	4	5
Effectiveness	Very Low	Low	Moderate	High	Very High
Hazard Created	Potential Significant Negative Impacts	Some Potential Impacts	Moderate Impacts	Minor Impacts	No Impacts or Positive Impacts
Ability to Change	Unflexible	Somewhat Unflexible	Moderate	Somewhat Flexible	Very Flexible
Consequences on Waste Type	Major Negative Changes	Some Negative Changes	No Change	Some Positive Changes	Major Positive Changes
Implementation	M = Medium	SM = Short to Medium			S = Short
Need for New or Expanded Facilities	Extensive		Moderate		None
Consistency with Local Policies	Inconsistent	Unfavorable Indications	No Policy	Favorable Indications	Totally Consistent
Institutional Barriers	Very High	High	Moderate	Low	Very Low
Cost	Very High	High	Moderate	Low	Very Low
Local, Regional Nat'l & Intern'l End-uses	Very Limited		Limited		Readily Available

Appendix B-III

Source Reduction Component Alternative Program Grading

ALTERNATIVE PROGRAM	CRITERIA	Hazard Created	Ability to Change	Conseq. on waste type	Short or Med. Term Implem.	Need for ne or expanded Facilities	Consistency With Local Policies	Instit. Barriers	Cost Est.	Local, Reg. Nat'l & Intern'l end-uses	Total	
											Total	on 100 Pt. Scale
Promote the state waste exchange directory	Effectiveness	5	5	4	S	5	4	5	5	4	42	93
Establish a public recognition program for products, individuals and/or agencies		4	5	4	S	5	3	5	5	5	41	91
Consider gate fee which charges a lower rate for loads which have benefitted from recycling/S.R.		5	4	5	S	5	4	5	3	5	41	91
Consider a reporting system all identified waste generators must comply with that will also assist in limiting waste generated at the source		4	5	5	S	5	3	4	4	5	40	89
Promote efficient use of paper in County Dept.		5	5	4	S	5	3	3	5	5	40	89
Establish Source Reduction education program		4	5	4	S	5	4	5	3	5	40	89
County Purchasing Program		5	5	5	S	5	4	3	3	5	40	89
Referral system for owners of white and repairable goods		3	5	4	S	5	4	5	5	4	40	89
Require use of landscape plants which are drought resistant (Amd. County Ord. No. 348)		4	5	4	S	5	5	3	4	5	40	89
Support state and federal legislation for an environmental labeling program for products		4	5	4	SM	5	3	3	5	5	39	87
Establish a technical assistance program to help businesses/County Government reduce the amount of waste/waste toxicity generated		4	5	4	S	5	4	4	3	5	39	87
Encourage state and federal laws governing amount and types of packaging		5	4	5	SM	5	3	2	5	5	39	87
Obtain source reduction curriculum for school children		4	5	5	S	5	4	3	3	5	39	87
Establish Residential Yard Waste Mgt. Program		4	4	5	S	5	3	4	3	5	37	82
Modify refuse rate structure to reflect the amount of refuse generated		5	4	5	S	5	3	2	3	5	36	80

Source Reduction Component Alternative Program Grading

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Appendix B – IV

Recycling Component Alternative Program Grading

ALTERNATIVE PROGRAM	Effectiveness	Hazard Created	Ability to Change	Consequences on waste types	Short or Med. term Implementation	Need for new or expanded Facilities	Consistency With Local Policies	Institutional Barriers	Cost Estimate	Local, Regional Nat'l & Intern'l end-user	Total	Total Based upon 100 pts.
State/federal Policy on Products Containing Recycled Content	5	5	4	5	S	5	3	4	5	5	41	91
County Purchase of Products Containing Recycled Content	5	5	5	4	S	5	5	3	2	5	39	87
Expansion of County Office Paper Recycling Program	3	4	5	5	S	4	5	4	3	4	37	82
Technical Assistance Program	4	5	5	4	S - M	5	4	4	3	3	37	82
Anti-scavenging Ordinance	1	5	5	3	S	5	3	5	4	5	36	80
Billing Systems to Encourage Recycling	5	4	2	5	S	5	3	3	2	5	34	75
Drop-off Centers	3	4	4	5	S	3	3	4	4	4	34	75
Salvage Opportunities	4	4	4	5	S	3	3	4	3	4	34	75
Building Code Modifications	4	5	3	4	S	5	3	2	3	5	34	75
Zoning Ordinance Modifications	4	5	3	4	S	5	3	2	3	5	34	75
Private Enterprise Usage of Recyclable Products in the Manufacturing Process	5	4	3	5	S - M	2	4	3	2	4	32	71
Material Recovery Facilities	5	4	2	4	S - M	1	4	3	1	3	27	60

Appendix B – V

Composting Component Alternative Program Grading

ALTERNATIVE PROGRAM	CRITERIA		Hazard Created	Ability to Change	Consent on waste type	Short or Med. term Impacts	Need for new or expanded Facilities	Consistency With Local Policies	Instl. Barriers	Cost Rec.	Local Reg. Not a let- and-see	Total	
	Effectiveness											Total on 100% Scale	Scale
Impact conditions on facilities requiring to use Cnty. feedstock sources before and -of- county sources	5		5	4		5		5	4	5		5	43
Reconfigure entities to include the use of compost in specifications for related projects	5		5	4		5		5	4	5		5	43
Amend Cnty. purchasing policy to mandate applicable Depts. to purchase compost/mulch from Rlv. Soil.	5		5	4		5		5	4	5		5	42
-Require MRP's to include a separate yard/wood waste staging area	5		5	4		5		3	4	2		5	37
-MRP's to include a separate yard/wood waste staging area and conduct composting on-site	5		2	2		5		2	4	2		3	28
Christmas Tree Recycling Program	2		4	4		5		4	4	5		3	36
Phase -in ban on yard waste	5		5	4		5	SM	5	2	2		5	36
Investigate the use of compost as cover material at county landfills	5		4	4		5	SM	4	2	4		5	36
Collaborate to divert woody waste to a small worthy composting/recycling operation	5		4	3		5		3	4	3		3	34
Investigate the use of mulch as cover material at county landfills	4		3	4		5	SM	4	2	4		5	34
Curbside separation and pick-up of yard waste	5		4	2		5	SM	1	3	4		4	31
Staged yard waste composting	5		2	2		5	SM	1	5	2		3	26
Yard waste only composting	3		3	3		5	SM	1	3	2		3	24
Municipal solid waste composting	5		2	2		5	M	1	3	2		3	24

Appendix B – VI

ALTERNATIVE PROGRAM	Effectiveness	Hazard Created	Ability to Change	Consequences on waste type	Short or Med. term Implementation	Need for new or expanded Facilities	Consistency W/ Local Policies	Institutional Barriers	Cost Estimate	Local, Reg. Nat'l & Intern'l end-uses	Total	Total Based upon 100 pts.
Investigate the need to increase the per ton fee on the disposal of septic and other applicable liquid wastes to encourage their disposal at wastewater treatment facilities	4	4	3	4	SM	5	5	5	5	5	40	89
Investigate the need for rate incentives on recyclable special waste, include concrete asphalt, demolition debris, tree trunks, white waste goods and other hard-to-handle wastes to encourage their recycling	4	4	3	4	SM	5	5	5	5	5	40	89
Work with other agencies to encourage all treatment facilities to develop Sludge Management Plans	5	5	5	5	SM	5	3	3	3	5	39	87
Encourage the siting/usage of wood grinding operations that will divert root balls, tree trunks and other hard-to-handle pieces of wood	4	4	4	5	SM	4	5	4	3	5	38	84
Encourage the usage of mobile demolition materials recycling facilities	4	4	5	3	S	4	5	4	4	4	37	82
Woody Waste Processing Station	5	4	3	5		3	4	4	3	5	36	80
Encourage dedication of adequate wastewater treatment capacity when plants are proposed or expanding	4	5	4	5	S	1	4	4	3	5	35	78
Investigate Septic-Tank Maintenance Districts	5	5	4	3	SM	3	3	3	3	5	34	75
Investigate alternative disposal methods for tires	5	4	3	3	S	3	5	4	3	3	33	73
Promote source reduction of special waste through alternative technology	3	5	4	4	SM	2	4	4	2	5	33	73
Encourage all incineration facilities within the County to utilize appropriate methods to source reduce and recycle their ash, and, if necessary, investigate alternatives to landfilling ash	4	4	3	3	SM	3	5	4	3	3	32	71
Research the constituent materials in street sweeping waste and evaluate the applicability of reuse methods	3	3	3	4	S	5	3	3	4	3	31	69
Encourage the development of demolition materials recycling facilities	5	2	2	3	SM	3	5	4	3	4	31	69
Site sludge/green waste composting facilities	5	5	2	5	S	1	5	2	1	3	29	64
Encourage the development of a tire recycling facility within the Riverside County area	5	3	2	3	SM	1	4	3	2	5	28	62
Encourage development of alternative liquid sludge disposal, treatment & for recycling facilities	4	3	2	4	M	1	3	3	2	5	27	60
Referral system for white/repairable goods	See Chapter 3 -- Source Reduction for Grading Information											
Provide economic data to plant operators based upon County customer base at landfill septage ponds to encourage operators to increase capacity	2	5	4	3	M	1	2	3	1	4	25	56

Appendix B – VII

Household Hazardous Waste Element Alternative Program Grading

ALTERNATIVE PROGRAMS

	Effectiveness	Hazard Created	Ability to Change	Consequences on waste type	Short or Med. term Implementation	Need for new or expanded Facilities	Consistency w/ Local Policies	Institutional Barrier	Cost Estimate	Local, Reg. Nat'l & Int. end-users	Total	Total Based upon 100 pts.
Utilize all Available Private & Public Promotional Sources	5	5	5		S		5	5	4	5	44	98
Encourage the Use of Alternative Products to HHW	4	5	5		S		5	5	4	5	43	95
Media Educational Program	5	5	5	5	S		5	5	3	5	43	95
Promotional Packets for City Utilization	4	5	5		S		5	5	4	5	43	95
Utilization of Recycled Paint	3	5	4	5	S		5	5	4	5	40	89
MRF Collection of HHW	5	4	4	5	S		3	4	4	5	37	82
HHW Recycling/Reuse Program	3	4	4	5	S		3	4	4	5	35	78
Capability at MRF's to Accept Mobile Program	5	4	4	4	S		3	4	4	3	34	75
Public-Sponsored MRF Collection of all HHW	5	4	3	5	SM		3	3	3	3	33	73
Central Collection Facility	3	4	3	4	SM		3	3	2	3	29	64
Drop-off Sites at all Landfills	3	4	4	4	M		3	2	2	3	28	62
Curbside HHW Pick-up	5	1	3	4	M		2	1	1	3	23	51

APPENDIX C

Source Reduction Component

Appendix C-I
THRIFT AND REPAIR SHOPS

Name	Address	Phone	City	Specialty
Deseret Industries — Thrift Shop	725 South La Cadena	825-1810	Colton	
Book Bank	12210 Michigan Avenue	783-1173	Grand Terrace	Books
The Thrifty Penny	10939 Jurupa	681-9292	Mira Loma	
Children's Foundation				
Book Bank	24565 Alessandro	924-2206	Moreno Valley	Paperback Books
Ander's Attic	9980 Indiana Avenue	785-4331	Riverside	Books
Angie's Attic	5543 Mission Boulevard	686-6088	Riverside	
Appliance Recycling Factory	3851 Pyrite	681-5300	Riverside	Appliances
Assistance League of Riverside	9423 Magnolia Avenue	687-2404	Riverside	
Bob's Discount Furniture and Appliances	5582 Mission Boulevard	787-1173	Riverside	Furniture and Appliances
Catholic Charities	3940 11th	787-8483	Riverside	
Chantilly Lace	6040 Magnolia Avenue	781-2919	Riverside	
Don's Bargain Center and Country Store	9646 Mission Boulevard	685-9022	Riverside	
Goodwill Industries	6086 Magnolia Avenue	684-1160	Riverside	
Harris Furniture	2236 3rd	684-3924	Riverside	Furniture
Josef's Books	3769 7th	788-3063	Riverside	Books
Lane's Country Store	3575 University	682-0981	Riverside	
Lutheran Thrift Store	4850 Jackson	351-8106	Riverside	
Paperback Adventure	10088 Magnolia Avenue	359-4868	Riverside	Books
Patton Sales Corp.	10683 Magnolia Avenue	687-8770	Riverside	Office Equip.
Riverside Antiques	6708 Magnolia	684-5252	Riverside	
Terry's	3772 Elizabeth	684-8840	Riverside	
The Bargain Center	3537 Main	788-8782	Riverside	
The Salvation Army	4281 Main	684-3737	Riverside	
United Thrift Store	4343 Market	781-8221	Riverside	
Universal Bookstore	3582 Main	682-1082	Riverside	Books

COUNTY OF RIVERSIDE, CALIFORNIA
BOARD OF SUPERVISORS POLICY

Subject:

Policy
Number

Page

Printed Forms Control/Purchase and Use of Recycled A-17 1 of 1

1. Letterheads will be on regular 20 lb. bond paper, or less: without rag content. Letterheads and business cards are to be in one color only--the color to be at the discretion of the department head. Letterhead and business card paper will be recycled stock with the highest possible percentages of recycled and post consumer waste, consistent with the need for appearance and performance (e.g. ability to perform effectively in printing presses and photocopiers).
2. All County departments are authorized to use the County seal on business cards and letterheads, color to be the same as the printing.
3. County personnel are encouraged to choose papers made with recycled stock and post consumer waste for all speciality printed products (e.g. posters, flyers, brochures, etc.).
4. County personnel are encouraged to authorize Printing Services and Purchasing, when outside vendors are used, to print on the paper the fact recycled paper is being used, or use any of the generally recognized logos that represent the fact that recycled paper is being used, whenever the action is consistent with the need for appearance. This action is necessary to increase public awareness on the availability of quality recycled products.

Reference:

1. Board Policy A-39
2. Minute order dated 6-17-74
3. Minute order dated 7-16-69
4. Minute order dated 6-06-90

COUNTY OF RIVERSIDE, CALIFORNIA
BOARD OF SUPERVISORS POLICY

Subject:	<u>Policy Number</u>	<u>Page</u>
Purchase And Use Of Recycled Materials	A-39	1 of 1

Policy:

That the Board of Supervisors, recognizing the need to develop demand for recycled materials and that government procurement policy must play a leading role, directs the Purchasing Agent to develop a program for the purchase of products using recycled materials. The Purchasing Agent shall work with vendors, purchasing staff members and using departments, through the Purchasing Liaison group to develop programs that stimulate the purchase of products using recycled materials. with recycled content. To the extent the Purchasing Agent determines it is of advantage to the County, and doesn't violate any law or regulation, the Purchasing Agent may decide that recycled materials only will be specified even if the cost involved is greater than materials without recycled content. The Purchasing Agent shall advise the Board of Supervisors when a contract is awarded for materials with recycled content, when the cost of the materials with recycled content exceeds the cost of comparable materials without recycled content by more than five percent.

Reference:

1. Board Policy A-17

APPENDIX D

RECYCLING COMPONENT

Riverside County Regional Recyclers

Please contact the individual center for information on how to prepare your materials for recycling and to confirm that specific materials will be accepted.

Name	Address	City	Phone	A	CG	NC	PT	H	PS	T	NP	OP	CPO	C	MP	M	CB
Banning Recycling	201 W. Liacola	Banning	714-686-2120	X	X	X	X	X	X	X	X	X	X	X	X	X	X
C & J Recycling Centers, Inc.	1029 E. 6th	Beaumont	714-845-1255	X	X	X	X	X	X*	X	X	X	X	X	X*	X	X
B & O Metals	4140 Sutton Rd.	Blythe	619-664-4196	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Claypool Recycling	345 N. Main	Blythe	619-922-2435	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Veitans of Foreign Wars Post 2987	378 Eucalyptus St.	Blythe	619-922-4656	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Acrop Brothers Recycling	34078 County Line Road	Calimesa	714-795-5030	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Palm Springs Recycling	36630 Sunair Plaza	Cathedral City	619-321-4087	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Riverside Scrap Iron & Metal	86-015 Avenue 52	Coachella	619-398-7772	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Liston Brick Co. of Corona	20401 Temescal Canyon	Corona	714-277-4221	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MBC Mattress Co.	19720 Envoys St.	Corona	714-371-8044	Picks up Mattresses in Riverside and San Bernardino Counties													
Six Pack Recycling Center	1430 E. 6th	Corona	714-734-2910	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Talco Recycling, Inc.	720 S. Temescal	Corona	800-696-6965	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Thakar Aluminum	Partridge and Quarry	Corona	714-737-2922	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fontana Paper Mills	13733 E. Valley Blvd.	Fontana	714-823-4100	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Frankel Iron & Metal	15615 Arrow Route	Fontana	714-823-3431	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TriCo Transfer Station	9470 Mission Blvd.	Glen Avon	714-685-5516	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Valley Metals	1309 N. Juanita	Hemet	714-654-1186	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Heinmark Recycling	82-851 Avenue 52	Indio	619-347-4052	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Merrier Distributing Co.	82-355 Market	Indio	619-347-3561	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mission Beverage Co.	82-655 Market Street	Indio	619-345-2761	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Moreno Valley Recycling	14115 Business Center Drive	Moreno Valley	714-686-2120	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rancho Metal and Supply	41400 Rancon Center Blvd.	Murrieta	714-677-8586	X	X	X	X	X	X	X	X	X	X	X	X	X	X
D & M Metals	824 E. State	Ontario	714-986-1996	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Inland Container Corp.	5100 E. Jurupa	Ontario	714-983-8111	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Main Street Fibers	608 Main	Ontario	714-986-6310	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ontario Metal Recycling	717 S. Taylor	Ontario	714-983-0655	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Palm Springs Recycling	280 Oasis	Palm Springs	619-325-3377	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Newco Recycling	703 E. 4th	Perris	714-657-9811	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Riverside Recycling and Transfer	233 W. Markham	Perris	714-943-1062	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Pomona Paper Stock	1460 W. 2nd	Pomona	714-622-2076	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Reynolds Aluminum Recycling	9910 6th	Rancho Cucamonga	714-980-1203	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Bakers Bottles	2165 S. Willow	Rialto	714-877-6522	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Appliance Recycling Factory	3851 Pyrite	Riverside	714-681-5300	Accepts and repairs for sale all major appliances													
Augustine Metals	3759 Placentia	Riverside	714-682-8102	X	X	X	X	X	X	X	X	X	X	X	X	X	X
D & L Metals	6565 Mission	Riverside	714-681-2525	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Recycling Service Center	8566 Limonite	Riverside	714-685-4430	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Riverside Scrap Iron and Metals	2993 6th	Riverside	714-686-2120	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Scoggins Metals	6080 Rutland	Riverside	714-689-1264	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Inland Paper Stock	777 W. Rialto	San Bernardino	714-884-8672	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Recycled Fibers of California	165 E. Mill	San Bernardino	714-884-8404	X	X	X	X	X	X	X	X	X	X	X	X	X	X
San Bernardino Metal Co.	144 S. "G"	San Bernardino	714-889-0626	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Kelly Mfg. Co.	1672 Juanita	San Jacinto	714-654-1468	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sun City Recycling Center	27793 Jackson	Romoland	714-928-1990	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A-1 Upland Recycling	1248 W. Ninth	Upland	714-982-1044	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* - Accepts number 1 - 6 Plastic

** - Magazines only

Key to Materials: A = Aluminum, CG = CRV (California Redemption Value) Glass, NC = Non-CRV Glass, PT = PETE (i.e. 2 liter soda bottles), H = HDPE (i.e. milk and water jugs), PS = Polystyrene (i.e. styrofoam), T = Tin and Steel Cans, NP = Newspaper, OP = Office Paper (i.e. white photocopy and typing paper), CPO = Computer print-out paper, C = Cardboard, MP = Mixed Paper (i.e. magazines, envelopes, junk mail), M = Metals, CB = Car Batteries.

Board of Supervisors

County of Riverside

RESOLUTION NO. 90-668
ESTABLISHING STANDARDS FOR COMMERCIAL AND RESIDENTIAL COLLECTION
OF RECYCLABLE MATERIALS IN THE UNINCORPORATED AREA OF RIVERSIDE
COUNTY

WHEREAS, in 1989 the State of California adopted AB 939, which mandates specific goals for the reduction of wastes deposited in landfills, included in which are recycling requirements; and

WHEREAS, on March 27, 1990, the Board of Supervisors approved Agenda Item No. 9.2 which formalized Riverside County's commitment to curbside recycling through the refuse hauling permittees; and

WHEREAS, twenty (20) companies currently hold permits and are collecting and hauling refuse in the unincorporated areas of County; and

WHEREAS, the collection of refuse in Riverside County is regulated through Riverside County Ordinance 657; and

WHEREAS, subsection M.2 of Section 7 of County Ordinance 657 contains a reservation of the right to require recycling by permittees; now, therefore,

BE IT RESOLVED by the Board of Supervisors of the County of Riverside, State of California, in regular session assembled on December 11, 1990, that this Board hereby adopts the standards for the collection of recyclable materials by permittees operating under Ordinance 657 as set forth in Attachment "A" and incorporated herein by reference.

BE IT FURTHER RESOLVED that Resolution No. 90-402 adopted by

The foregoing is certified to be a true copy of a resolution duly adopted by said Board of Supervisors on the date therein set forth.

GERALD A. MALONEY, Clerk of said Board
By [Signature] Deputy

12/11/90 9.2

this Board on September 4, 1990, is hereby rescinded and shall be of no further force or effect after the effective date of this resolution.

BE IT FINALLY RESOLVED that this resolution shall take effect on January 1, 1991.

ATTACHMENT "A"

1. The permittee shall provide separate curbside collection of recyclable materials to all residential units receiving refuse service, with the exceptions noted in paragraph 3 below.

2. Curbside collection shall be performed weekly and shall be provided either by the permittee, or be subcontracted by the permittee to another permittee or to a recycling entity, as approved in writing by the Health Officer.

3. Curbside collection shall be implemented within each permit area, so that a minimum of 25% of the qualifying residential customers will be serviced by July 1, 1991 and 100% by January 1, 1992. Curbside collection shall not be required in permit areas V and VII due to the low density of residential units in these areas, making such collection cost prohibitive. Other specific areas of low residential density may be exempted annually if approved in writing by the Health Officer.

4. Permittees shall submit the following information to the Health Officer at least sixty (60) days prior to initiating curbside collection service: Area of service, Implementation date, Number of customers to be serviced, Percentage of residential customers to be serviced, Collection frequency, Materials to be collected, Data reporting plan, Containers and

collection vehicles to be used, Name of subcontractor (if applicable), Publicity program and other pertinent information as may be required to determine that the proposed program meets County standards.

5. Curbside collection shall provide a system for separation of the following designated recyclable materials from waste collected prior to transportation to the landfill, either by the customer of the collection service or by the permittee.

- a. Newsprint, glass, and PET and aluminum beverage containers are designated as the initial items for collection.
- b. Used motor oil shall be collected from all participating customers commencing July 1, 1992.
- c. Additional items may be added to the list either by amendment or resolution adopted by the Board of Supervisors.
- d. Additional materials may be collected for recycling purposes at the discretion or desire of the permittee, provided that the collection and the handling of the additional materials are reported as required in item 4, and that their collection violates no state statute or local ordinance.

6. The permittee shall provide containers for curbside collection of recyclable materials. Containers provided shall have a minimum combined capacity of seventeen (17) gallons, be constructed of rigid, durable, recyclable materials with a minimum five (5) year life expectancy warranted by the manufacturer. The permittee's company or subcontractor's company

name and phone number shall be permanently affixed to each container. Newspaper may be bundled or bagged separately. All containers or handling methods shall be approved by the Health Officer.

7. Vehicle maintenance standards, insurance coverage, and regulations covering employees used by permittee for collection and transportation of recyclable materials shall comply with all provisions established by state law and Ordinance No. 657. Subcontractors of any permittee shall be considered "personnel" of that permittee for purpose of regulation of appropriate portions of Ordinance No. 657.

8. Evidence shall be provided to the Health Officer that the permittee has offered separate collection of recyclable materials to commercial and industrial customers beginning with the implementation of service to 25% of its customers by July 1, 1991; 50% by July 1, 1992; 75% by July 1993; and 100% by July 1, 1994. The minimum product list shall be customer orientated unless specific items are subsequently designated by the Board of Supervisors by Resolution, and shall seek and maintain an aggregate commercial and industrial landfill tonnage reduction of 10% by July 1, 1994.

9. The permittee shall report monthly tonnages of refuse disposed of and each recyclable material collected to include the gross revenue for each material, for each permit area, to the Health Department to the best of the Hauler's ability, in a format prescribed by the Health Officer.

10. The permittee shall submit quarterly progress reports to the Health Officer on forms supplied by the County which

indicate the number of residential units receiving curbside collection and the percentage of residential unit customers that number represents.

11. The permittee shall not dispose of separately collected recyclable products at County landfills without prior written approval from the Department of Waste Management, or violate any state statute or local ordinances regarding the handling and storage of the recyclable materials.

12. Permittee shall bill all of its residential customers for providing refuse collection and recycling collection services only at rates approved in a Resolution adopted by the Riverside County Board of Supervisors. The monthly fee for curbside collection shall be separately itemized on each customer's bill.

Roll Call resulted as follows:

Ayes: Younglove, Dunlap, Abraham

Noes: None

Absent: Cenicerros, Larson

FORM APPROVED
COUNTY COUNSEL

NOV 6 1990

By *D. B. Lanthier*
y

JMF:gr



FROM: Waste Management

SUBMITTAL DATE: December 17, 1991

SUBJECT: Modification to Requirements for Permitted Haulers on Commercial and Industrial Recycling

RECOMMENDED MOTION: The Board approves Resolution No. 91-512, Reaffirming the County's Commitment to Implement Curbside Recycling for Residential Households and Providing for Mandatory Recycling from Commercial and Industrial Customers by January 1992.

JUSTIFICATION: This issue was last discussed by the Board at its meetings on September 17, 1991 and October 22, 1991. The Board referred the matter back to the Department for further discussions with the haulers to resolve problems with the inability to comply with the current Board mandate for commercial and industrial recycling, prior to the availability of Material Recovery Facilities (MRFs); with further direction to resolve this if possible utilizing the existing permit system. Current mandates, in resolution 90-668 annually increase recycling service offerings to these type customers by 25% of the customer base each year, starting July 1, 1991. Supervisor Melba Dunlap offered to chair these discussions and has attended the meetings in which the recommendation was developed. (Cont'd).

Robert A. Nelson
Robert A. Nelson, Director

RAN:ldl

cc: CAO

C.A.O. RECOMMENDATION:
Approve

FINANCIAL IMPACT:
N/A.

Administrative Officer Signature

Maurice M. ...

MINUTES OF THE BOARD OF SUPERVISORS

On motion of Supervisor Dunlap, seconded by Supervisor Larson and duly carried by unanimous vote, IT WAS ORDERED that the above matter is approved as recommended.

Ayes: Younglove, Cenicerros, Dunlap, Larson and Abraham
Noes: None
Absent: None
Date: December 17, 1991
By: *M. Nelson*

Waste Mgmt., Co. Co. Depts. Comments

Dist. Deputy AGENDA NO.

11.2 of 10/22/91

3.6

DEC 09 1991

B. L. ...
Deputy

The problem of implementing this part of the mandate stemmed from the wide variation of potential products between customers, the lack of MRFs to process the variable materials, and the competitive edge left with a non compliant hauler, or non participating customer, within our (multipermit) permitting system.

You will recall that the residential curbside program is working fairly well within the existing system, with 100% of our unincorporated households to be serviced by January 1, 1992. The standardization of products and simpler handling of these materials makes this possible without the mixed waste MRFs needed for the commercial and industrial waste stream.

By freezing the requirement of offering the recycling service to 25% of the commercial and industrial customers, haulers can concentrate on the customers with a higher number of recyclables where extra bins may not be necessary, but simply have the customer segregate materials using existing bins, thus holding down the cost and still avoiding extensive sorting requirements. Demanding more at this time, prior to the existence of the regional MRFs is believed to be premature and would create confusion and extra cost for interim processing facilities. We believe it would, therefore, be better to delay expansion of this aspect of the program until 1994 or 1995. Market driven voluntary expansion on a case-by-case basis with commercial and industrial customers will work better during this next 2 to 3 year period.

A minor change to the reporting requirements, (quarterly vs. monthly) has also been proposed. The Department continues to meet with the haulers and staff of the Department of Environmental Health to work on issues of separate green waste collection and volume rate based for structures and other matters which have not reached consensus for a recommendation at this time.

FINANCIAL: There are no direct County Department savings or costs connected with the decision. Commercial and Industrial customer service rates will be more stabilized as a result of the decision.

RESOLUTION NO. 91-512
REAFFIRMING THE COUNTY'S COMMITMENT TO IMPLEMENT CURBSIDE
RECYCLING FOR RESIDENTIAL HOUSEHOLDS AND PROVIDING FOR
MANDATORY RECYCLING FROM COMMERCIAL AND INDUSTRIAL
CUSTOMERS BY JANUARY, 1992

WHEREAS, on March 27, 1990, the Board of Supervisors in
Agenda Item No 9.2 formalized the County's commitment to curbside
recycling; and

WHEREAS, on September 4, 1990, the Board of Supervisors
adopted Resolution No. 90-402 Establishing Standards for Curbside
Recycling; and

WHEREAS, on December 11, 1990, the Board of Supervisors
adopted Resolution No. 90-668 Establishing Standards for Commercial
and Residential Collection of Recyclable Materials in the
Unincorporated Areas of Riverside County; now, therefore,

BE IT RESOLVED by the Board of Supervisors of the County of
Riverside, State of California, in regular session assembled on
December 17, 1991, that the County of Riverside hereby reaffirms
its desire to implement residential curbside programs to reach a
service level offered to 100% of all residential households by
January 1, 1992, including the residential curbside collection of
used motor oil by July 1, 1992.

BE IT FURTHER RESOLVED that commercial and industrial
recycling goals shall hereby be revised, deleting Section 8 of
Resolution No. 90-668 in its entirety and replacing it with new
provisions which require that evidence shall be provided to the
Director of Environmental Health that the Permittee has offered

1 separate collection of recyclable materials to commercial and
2 industrial customers beginning with the implementation of service
3 to 25% of its customers by January 1, 1992, and maintaining said
4 service level until such time as regional material recovery
5 facilities are available for processing mixed materials and/or this
6 Board adopts further standards and requirements. The minimum
7 product list shall be customer oriented unless specific items are
8 subsequently designated by the Board of Supervisors by Resolution.

9 BE IT FURTHER RESOLVED that the reports mandated in Section 9
10 of Resolution No. 90-668 shall be submitted to the Director of
11 Environmental Health within thirty (30) days of the end of the
12 quarter for which the report is made, utilizing forms provided by
13 the County.

14 BE IT FINALLY RESOLVED that all other provisions of
15 Resolution No. 90-668 shall remain in effect with no further change

16 Roll Call:

17 Ayes: Abraham, Dunlap, Cenicerros, Larson, Younglove
18 Noes: None
19 Absent: None

20
21
22
23
24 The foregoing is certified to be a true copy of a
resolution duly adopted by said Board of Super-
visors on the date therein set forth.

25 GERALD A. MALONEY, Clerk of said Board
26  Deputy

27 GB:jf-579/lit
28 8/14/91:REV-8/21/91
REV:11/27/91:RN:jf
12/9/91

COUNTY OF RIVERSIDE - DEPARTMENT OF
4065 COUNTY CIRCLE DRIVE, P.O. BOX 7600, RIVERSIDE, CA.
TELEPHONE: (714) 275-8980 FAX: (714)



ENVIRONMENTAL HEALTH SERVICES

MONTHLY RECYCLING REPORT

FOR THE MONTH OF: _____

COMPANY NAME:	PERMIT AREA:
MAILING ADDRESS:	
OFFICE MANAGER:	PHONE: ()

RECYCLABLES COLLECTED

TYPE OF ACCOUNT:		RESIDENTIAL		COMMERCIAL		INDUSTRIAL		REVENUE	
TOTAL NUMBER:									
PAPER	OCC								
	MIXED PAPER								
	NEWSPAPER								
	OFFICE PAPER								
PLASTICS: HDPE									
	PET								
	OTHER								
GLASS: CAL RETEM									
	OTHER								
GREEN WASTE									
TOTAL TONS									

RECYCLABLES COLLECTED (cont)

TYPE OF ACCOUNT:		RESIDENTIAL		COMMERCIAL		INDUSTRIAL	
REVENUE							
MATERIAL							
METALS: ALUMINUM							
STEEL CANS							
FERROUS							
NON-FERROUS							
ORGANICS: FOOD							
WOOD							
TEXTILES							
OTHER COMPACTED WHITE GOODS							
REMAINDER							
CONSTRUCTION:							
TOTALS							

MATERIALS PROCESSOR:

COMMENTS:

PREPARED BY:

DATE:

Summary of Existing 1991/92 Recycling Programs

Existing Program		Sponsor	1991 Diversion*		Comments
Public Programs					
Countywide Curbside Recycling	Private Hauler (regulated by the Waste Regulation Branch of the County Health Services Agency)	Paper Plastic Glass Metals	1,357.00 36.99 269.78 62.04	Projects formally begin on or before July 1, 1991	
Pilot Curbside Projects (5)	Private Hauler and County Waste Mgmt Dept.	Aluminum Plastic Glass Tin Newspaper OCC	1.94 4.65 41.58 4.87 218.62 .10	Project agreements expired on or before June 30, 1991. Tonnage for these programs are also included in the above totals for Countywide Curbside Recycling	
Countywide Commercial/Industrial Recycling	Private Hauler (regulated by the Waste Regulation Branch of the County Health Services Agency)			Projects formally began on or before July 1, 1991	
Idyllwild Transfer Station Community Lumber Co.	Community Lumber Co. and County Waste Mgmt Dept.	Aluminum Glass Newspaper Other Paper PET Non - CA. Red. Plastic Non - Ferrous Metals	.71 50.14 50.96 .29 .25 .23 .07		
County Office Paper Recycling	County of Riverside, GSA/Printing Services	Office Paper	17.85	Diversion does not count toward goals since most office buildings are located within Cities.	
Private Programs					
Commercial/Industrial Recycling Programs	Varies	Unknown		Private programs and other government agencies such as the U.S. Forest Service	
Market Development					
County Purchasing Policies	County of Riverside/GSA Purchasing	Diversion is counted in the Source Reduction Chapter		Please see Appendix C for resolutions and policies	
Cooperative Purchasing Program	County of Riverside/GSA Purchasing	Please see Source Reduction Reduction chapter		Pending appeal of State CIWMB decision that it would not qualify for Source Reduction diversion credits.	
Recycling Market Development Zone Application	County of Riverside (Waste Management Dept. & Economic Development Agency), County of San Bernardino, Cities of Colton, Rialto and Riverside	N/A		Application to designate the Agua Mansa Enterprise Zone as a Recycling Market Development Zone.	

APPENDIX E

Composting Component

COMPOSTING COMPONENT APPENDIX

The following discussion has been based on two assumptions: 1) Yardwaste brought to the compost site will include leaves, grass clippings, and woody wastes; 2) The composting program will begin in the fall with leaf and grass collection.

Note: The following material was written with the mid-west environment in mind. (Please refer to the Source on page 8). The second assumption is not necessarily applicable to Southern California.

ELEMENTS OF COMPOSTING

In order to successfully manage a compost site, it is extremely important to have a basic understanding of the underlying biological process that is involved in composting.

A mass of biodegradable waste, containing sufficient moisture and oxygen, will undergo a natural process called "self-heating." Microorganisms, primarily bacteria and fungi, rapidly grow on the organic matter, metabolize it and release energy in the form of heat as a by-product. The self-heating occurs because the waste material acts like an insulator if the pile is large enough. Intense metabolic activity continues until, eventually, the readily biodegradable food supply is exhausted. Microbial growth and heat generation slow down and the pile eventually cools.

There are seven factors to consider in order to effectively manage a compost pile and maintain optimal efficiency of the microbial activity:

1. **Microorganisms** - Microorganisms found on the surfaces of leaves, grass clippings, and other incoming organic matter are fully capable of starting and sustaining the composting process. This eliminates the need to purchase commercially available inoculants thus reducing costs.
2. **Moisture** - Adequate moisture in the compost pile is necessary in order to support microbial activity and growth. Moisture levels of between 40-60% are recommended and should be maintained. Too little water will slow down the composting process. Too much moisture (greater than 60%, wet weight basis) will inhibit oxygen penetration into the pile, increasing the risk of inducing odor-causing anaerobic decomposition. Incoming leaves may have a moisture level of only 30-40%, while grass clippings generally have moisture levels of 60-70%. To maintain adequate moisture levels, it may be necessary to wet the yardwaste upon initial pile formation and as necessary throughout the composting process. A good rule of thumb for testing for adequate moisture is to be able to squeeze a few drops of water from a fistful of leaves. In general, it is better to start with a pile that is too wet than to risk dryness.
3. **Oxygen** - Adequate oxygen penetration into compost piles is necessary to ensure the aerobic (requiring oxygen) decomposition of the yardwastes. Oxygen levels between 5 and 15% are recommended. Otherwise anaerobic (without oxygen) conditions can occur. This can slow down decomposition, produce foul odors and lower pH levels (i.e., too acidic or too basic). In order to maintain adequate oxygen levels, care must be taken to minimize compaction of the yardwaste, avoid excess moisture levels and turn the piles frequently enough to reoxygenate the center of the pile.

4. **Temperature** - Internal compost pile temperatures affect the rate of decomposition as well as the destruction of plant pathogens and weed seeds. Properly decomposing wastes will experience a significant rise in temperature over time, followed by a gradual decrease until decomposition is nearly complete. Temperatures between 68°F and 140°F should be maintained. Precise control over temperature is usually not essential, but gross departure from the desired range should be avoided. Temperature should be monitored on a regular basis and controlled by turning the pile. This turning will also oxygenate the center of the pile. Pile temperature should be allowed to peak for approximately three days to kill pathogens and seeds before the initial turning. This will prevent the sprouting of weeds when finished compost is utilized in its final application.
5. **pH** - A measure of the degree of acidity or alkalinity of material, pH of 7 being neutral, less than 7 acid, greater than 7, alkaline. Yardwastes generally are close to being chemically neutral. During the initial stages of normal decomposition, the production of organic acids causes the pH to decline, to as low as 4.2 if extensive anaerobic conditions develop. The pH will recover to a neutral range (6 to 8) as the acids decompose in the presence of oxygen. Persistently acidic pH is indicative of undesirable, prolonged anaerobic decomposition. This can be corrected by increased turning (oxygenation) of the pile. Adding neutralizing agents, such as lime, are not recommended for most facilities.
6. **Carbon/Nitrogen Ratio** - Microorganisms use these two elements in a proportion that averages about 30 parts carbon to 1 part nitrogen. Thus they convert organic material most efficiently when provided with materials having about a 30:1 carbon to nitrogen ratio. Most materials available for composting do not fit the 30:1 ratio. Fresh grass clippings, with a C:N ratio of 20:1, have too much nitrogen. Brown tree leaves have too little: 40:1. By combining these materials, the proper 30:1 ratio can be obtained, and faster decomposition will occur. The proper ratio of grass to leaves may vary but should not exceed 1 part grass for 1 part leaves. If leaves are not available in sufficient quantities, other bulking materials such as straw, sawdust, wood chips, tire chips, etc. may be used.

As a general rule, the carbon and nitrogen content of materials can be judged by their appearance. Fresh green vegetation is high in nitrogen while dried brown vegetation is usually higher in carbon. Table 6 lists various waste materials and their C/N ratios. Proper quantities of these types of materials must be mixed with grass clippings in order to maintain a 30:1 ratio. It is important to remember that you will have to screen out any bulking materials, such as wood chips, that are not decomposed before marketing the final compost product.

TABLE 6. Carbon/Nitrogen Ratios of Common Organic Wastes.

<u>Waste Type</u>	<u>C/N Ratio</u>
*Sewage Sludge:Activated	6:1
:Digested	16:1
*Food Wastes	15:1
Grass Clippings (fresh)	20:1
*Manure	20:1
Weeds (fresh)	25:1
Hay (dry)	40:1
Corn Stalks	60:1
Leaves (fresh)	40-80:1
Leaves and Weeds (dry)	90:1
Straw (dry)	100:1
Sawdust	500:1
Wood	700:1

*Note: Prior to incorporating these materials into a landscape waste composting operation, please contact the Local Enforcement Agency in care of the County Health Department, regarding potential regulatory constraints.

7. **Pile Size & Turning Frequency** - Compost pile temperature and oxygen content can be regulated to some extent through pile size and turning operations. Larger piles conserve heat, but if the piles are too large temperatures may become excessively high and cause anaerobic conditions to occur. As a rule of thumb, the windrows should be turned at least once every two weeks, or whenever temperatures drop to 68°F or rise above 140°F. Piles should be turned less frequently in winter to maintain heat, and more frequently in summer, due to higher microbial activity.

Large piles may also reduce oxygen penetration to the center of the pile with the same result. Proper oxygenation favors small piles but these piles may not sustain proper temperatures, especially in winter. These components can be properly balanced by active management of compost size and turning frequency. Specific recommendations depend on the technology and equipment utilized.

COMPOSTING TECHNOLOGIES

Selecting a technology for a municipal yard waste program will depend upon several factors including the anticipated end use of the product, whether it will be sold or given away, the amount of land, equipment and labor available, and financial resources for capital and operations.

Technologies vary based upon equipment, degree of attention given to the composting process, space requirements, and length of time available to obtain a finished product. The following descriptions provide a general overview of three yard waste composting technologies. It is important to note that these technologies were developed for leaf composting and that their complete applicability to mixed yardwaste composting is uncertain and is just beginning to be tested.

All three technologies involve forming moderately sized windrows 6-8 feet high and approximately 15 feet wide at the base using a front-end loader. Windrows can be as long as appropriate for the site. (Over-winter windrow size may need to be slightly larger in certain areas to maintain internal temperatures.) Water should be added, if necessary, as the windrows are formed. Woody waste should be kept separate from grass and leaves and chipped for mulch. Large pieces should be cut for use as firewood. Prior to windrow formation all incoming yardwaste should be inspected for contaminants. All unwanted materials should be manually or mechanically (screening) removed. Except for the high-level technology option, initial shredding of the grass and leaves is not necessary and is not recommended. It is costly and grass tends to clog the shredder mechanism.

A. Low-Level Technology

In the low-level approach the windrows of fall leaves are turned with a front-end loader after about a month and are then left until the following spring. As the spring leaves and grass are delivered to the site, these materials are turned into the fall leaves. Grass is continually mixed into the partially decomposed leaf windrows for the entire season. These mixed piles are turned with a front-end loader approximately once every three months (four times a year). Windrows should be combined as necessary to maintain proper size. The windrows should be allowed to cure (decompose) over a second winter to complete the process. With this method it is possible to produce a final product in about 18 months.

Infrequent turning may cause the piles to become partially anaerobic. This will most likely produce some unpleasant odors that will be strongest when the piles are turned. Consequently, proper site selection and a sufficiently large buffer zone are important if this method is to be used.

This method is relatively inexpensive because of the relatively low labor and equipment needs. However, the 18 months processing time and the need for a larger buffer zone for odor control mean less cubic yards of material can be processed per acre. This may increase total land requirements. This method may work well for smaller, isolated communities with an abundance of open space nearby.

B. Medium-Level Technology

The medium approach builds upon the low-level technology by increasing the frequency of turning and using more specialized equipment.

The use of the specialized equipment and the frequent turning schedule make this method the

preferred process technology in most urban and suburban settings. The added costs can be readily justified by the many benefits of the method. These include: more rapid decomposition of the yardwaste; maintenance of aerobic decomposition which is compatible with sensitive receptors in more urban environments; and improved quality of the final product. The success of this technology scheme depends in part upon a fall program start-up. This will ensure a sufficient supply of high carbon source leaves to off-set the high nitrogen in grass clippings delivered to the site later in the program.

After initial windrow formation and wetting in the fall, leaves are turned every 1-2 weeks until winter sets in. A front-end loader can continue to be used for these and subsequent turnings, but the turning frequency will require that this equipment be dedicated to the facility. To reduce labor costs, and to improve efficiency and the degree of mixing, aerating, and shredding, it is better to utilize a specialized windrow turner for this method. These can be purchased, leased, or rented as appropriate. Use of windrow turners will improve the quality of the finished product as well as minimize the chance the windrows will become anaerobic and cause odor problems.

As the spring leaves and grass are delivered to the site, they are turned into the existing windrows. Grass must be windrowed the same day it arrives at the site. Grass is continually mixed into the windrows for the entire grass season. The windrows are turned at least once a week throughout the spring and summer. (It may be necessary to turn more frequently if the windrows have a high percentage of grass clippings. This will reduce the chance of developing anaerobic conditions.)

Windrows should be combined as necessary to maintain proper size. After 6-8 months from initial formation, the windrows should be ready for curing. At this stage the composted material can be screened to remove contaminants and partially decomposed materials. Although this requires specialized screening equipment at additional cost, the improved quality and marketability of the final product may justify the added expense. Whether or not you screen the material, the compost should be placed in curing piles and made available to your markets.

With this medium-level method, finished compost is available by mid to late summer of the first year and results in a 12 month materials processing cycle.

A properly managed medium-level approach should maintain aerobic conditions within the windrows. This reduces the chance for unpleasant odors to develop. Consequently, this technology is appropriate for more urban setting where it may be difficult to locate facilities more than 300 or 400 feet away from adjacent homes or business.

This method is more expensive than the low-level technology because of the use of the specialized windrow turner and screening equipment. However, these costs are somewhat offset by the improved efficiency of the operation, reduced chance for odor problems, and the improved quality of the final compost product.

C. High-Level Technology

This method is a highly mechanized approach. It involves the shredding of incoming yardwaste, the use of a forced aeration system, active moisture control, mechanical turning, and final shredding and screening.

Forced aeration equipment typically uses a network of perforated plastic pipes under the windrows, through which air is drawn or blown by exhaust fans or small blowers. The pipes are positioned in a layer of wood chips to provide a porous foundation. The windrows are typically covered with a layer of finished compost to reduce evaporation and ensure that all of the compost reaches adequate temperatures. It is important to note that, according to some of the literature, this equipment may not work well with grass clippings. (NOTE: This approach is also known as aerated static pile composting).

This process has very high capital costs. If landfill tipping fees were to rise to the levels found on the east coast, this method may become cost-effective.

The biggest advantages of this approach are the improved quality of the finished compost; the finished product is available in as little as 2-4 months; the site acreage requirements are kept to a minimum; and process controls minimize odor and leachate.

An alternative high-level approach is in-vessel composting. The in-vessel technology is a fully enclosed, often fully automated, operation involving mechanical devices with feedback controls and/or forced aeration. However, due to the high capital costs, such options are not viable unless more than leaves and yard waste are being composted and the volumes are such that a quick throughput process is required.

COMPOSTING EQUIPMENT

Equipment requirements for yardwaste composting vary substantially with the type and size of operation. This section briefly discusses the major types of composting equipment available.

Front-End Loaders

A front-end loader is the single most important piece of equipment for yardwaste composting. It may be the only piece of equipment needed for smaller facilities using the low-level technology approach. A loader rated for two cubic yards of gravel should be able to handle a four cubic yard, light material bucket. A typical loader with self-leveling (automatically returns the bucket to ground level) and a thirty second cycle time should be able to move 480 cubic yards per hour and operate about 6 hours per day or 130 hours per month. It may be useful to purchase a claw attachment for loading and moving woody wastes.

Windrow Turners

Compost windrow turners are designed especially for windrow turning and aeration. The large models are self-propelled and straddle the windrow. Smaller units are side mounted on front-end loaders or tractors that are driven between windrows. Some side-mounted units have their own engine for driving the aerating mechanism and only need to be pulled by the tractor or loader. Other side-mounted units must be attached to a 3 point tractor hitch and driven off the PTO. These may require a tractor or loader with a larger engine of 100 horsepower or greater. Side mounted units turn half the windrow at a time which means two passes are needed for each windrow. They also require more space between windrows than the "straddle" units.

Advantages to windrow turners are that they thoroughly aerate and mix the material, turn more yards per hour than front-end loaders and usually produce a compost with superior texture. They are especially suited for high volume facilities. Disadvantages are that turner design usually limits windrow dimensions to a maximum of 5 to 7 feet high and 14 to 18 feet wide at the base, they usually require level surfaces to operate efficiently, and some are difficult to move from site to site because of their size.

Depending on the size of the machine, turners generally can process between 700 and 3,000 cubic yards per hour.

Shredders and Screeners

Shredders and Screening devices are useful for improving the quality of the finished compost by removing contaminants (plastic, rocks, wood chips, debris) and reducing the particle size of the compost material. Shredders can process from 25 to 250 cubic yards per hour. Vibrating screens or trommels (rotating screens) can be used for compost. Trommels are preferable since they often have brushes for self-cleaning. Some units are capable of processing from 20 to 75 cubic yards per hour.

Compost is more difficult to shred and screen than topsoil or peat because of its moisture content. The drier the final compost, the easier it will be to shred and screen.

Tub Grinders and Chippers

Woody debris, brush and limbs can occupy a lot of space at a compost facility. Fortunately tub grinders and chippers can readily reduce this material so they occupy less space. Tub grinders have been successfully used in some operations to handle large quantities of brush and tree limbs. They can also be used to shred leaves. Chippers which can process 25-50 cubic yards per hour may be adequate for most compost facilities.

Monitoring Equipment

The most useful instruments for monitoring windrows are good hands, a sensitive nose, and experience. Before these characteristics can be acquired, it may be helpful to have long-stem thermometers capable of penetrating the center of a windrow and an instrument capable of measuring moisture content.

Moisture content can be determined by accurately weighing a representative sample of material before and after driving off moisture in an oven at 220°F. A sample is dry when two successive weights are the same. Subtracting dry weight from initial weight gives moisture content, and dividing moisture content by initial weight gives percent moisture. Instruments for determining moisture in the field require a capability of measuring in the 20% - 70% moisture range.

Illinois Department of Energy and Natural Resources Office of Solid Waste and Renewable Resources, Management Strategies for Landscape Waste, Collection, Composting, Marketing, Revised, September 1989, pgs. 23 - 26, and pgs. 30 - 35.

VARIOUS APPROACHES TO COMPOSTING

Yard Waste Composting:

The composting of material in the municipal solid waste stream that is considered yard waste (See glossary for definition of Yard Waste).

Sludge/Yard Waste Composting

The composting of acceptable sewage sludge with the utilization of yard waste as the bulking agent.

Municipal Solid Waste Composting:

The process involves the biological decomposition of the putrescible (odor causing) components of the waste stream and produces a stable end-product, which has value as a soil conditioner or organic fertilizer base.

The composting operation for MSW is essentially the same as that for leaf and yard waste composting. With municipal solid waste, however, it is necessary to remove non-biodegradable components. The degree of processing depends on how the compost is to be used. Compost used for landscaping may require extensive processing to remove non-biodegradable material. On the other hand, if the compost is to be used for landfill cover where appearance is not a major concern, only minimal processing-such as using a single trommel screen before the composting operation-is required. Municipal solid waste composting systems are typically operated in conjunction with a centralized materials recovery facility.

California Waste Management Board, Achieving Optimal Waste Recycling and Source Reduction: Methods to Reach Your County's Recycling Goal, Resource Manual, by R.W. Beck and Associates, May 1989, Pg. 3-21,

Co-Composting:

Co-composting refers to the simultaneous composting of two or more diverse waste streams. California law defines co-composting as mixing the two streams at approximately 80% municipal solid waste and 20% wastewater treatment plant sludge or septage. The two streams require separate handling methods, but the same biological principles apply in composting sludge and septage as in composting MSW. Merging these wastes is beneficial because the high nitrogen content of the sludge adds to the value of the compost, while MSW serves as a carbon source and bulking agent for the sludge. Furthermore, the lower heavy metal content in the MSW can decrease the average metal concentration in the final compost product.

NOTE: The composting of yard waste with sludge is often referred to as co-composting. The term co-composting is used throughout the Source Reduction and Recycling Element in accordance with the above definition which specifies the mixing of municipal solid waste and wastewater treatment plant sludge or septage.

California Waste Management Board, Achieving Optimal Waste Recycling and Source Reduction: Methods to Reach Your County's Recycling Goal, resource Manual, by R.W. Beck and Associates, May 1989, Pg. 3-21,

AEROBIC vs. ANAEROBIC COMPOSTING

Aerobic Composting:

- *Oxygen used during the composting process
- *High temperatures
- *Absence of foul odors
- *More rapid process than anaerobic composting

Anaerobic Composting:

- *Oxygen excluded from the composting process
- *Low temperatures (Unless heat is applied from an external source)
- *Produces odorous intermediate (reduced) products
- *Slower process than aerobic composting
- *Minimum attention required to complete the process and can be sealed from the environment

Clarence Goloueke, "The Rationale for Composting", The Biocycle Guide to Composting Municipal Wastes, Edited by the Staff of Biocycle, Journal of Waste Recycling, Pg. 2

Christmas Tree Program 1991

The Christmas Tree Program expanded in 1991. The program was advertised on a Countywide basis and included drop-off locations at five landfills in the County (four active and one inactive) where residents and haulers could bring their trees. The collected trees were ground up and forwarded either to a composting facility or a waste-to-energy facility.

APPENDIX F

HOUSEHOLD HAZARDOUS WASTE ELEMENT

APPENDIX F - I

Listing of Oil, Antifreeze, Water Base Paint and Car Battery Recyclers

Oil and Antifreeze Recyclers

Petroleum Recycling Corp.
2651 Walnut Avenue
Signal Hill, CA 90806
213-595-7431

California Oil Recyclers
6880 Smith
Newark, CA 94560

Evergreen Environmental Services
1415 E. 3rd suite G
Pomona, 91766
620-4855

JB Oil Spraying
Riverside
714-672-1102

Water Based Paint Recyclers

Major Brands (subsidiary of Standard Brands)
Los Angeles, CA

Car Battery Recyclers

MK Battery
4811 Van Buren
Riverside
359-0204

Additional battery recyclers can be found in Appendix D in the listing of Recycling Centers.

APPENDIX F - I

Listing of Oil, Antifreeze, Water Base Paint and Car Battery Recyclers

Oil and Antifreeze Recyclers

Petroleum Recycling Corp.
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Los Angeles, CA

Car Battery Recyclers

MK Battery
4811 Van Buren
Riverside
359-0204

Additional battery recyclers can be found in Appendix D in the listing of Recycling Centers.

APPENDIX F - II

Assumptions Utilized in Estimating HHW Facility Cost

Estimates do not include land costs or environmental documentation costs. It is assumed that environmental documentation costs for the MRF collection programs will be included in the overall environmental documentation for the MRF. All construction costs are estimated at \$60 per square foot. This figure was derived from the "Riverside County System Cost Study", July 1991. Numbers in parentheses following storage structures denote the number of structures estimated.

MRF Collection of deregulated HHW

\$15,000 estimated for the purchase of equipment and tools. This figure was obtained from the County of Santa Clara, Department of Planning and Development, Office of Toxics and Solid Waste Management, Countywide Household Hazardous Waste Collection Program, September 28, 1990. \$25,000 estimated for the purchase of one storage structure for the collected wastes. Site work, estimated at \$25,000, includes activities such as grading and a concrete slab.

This program will most likely not require additions to existing buildings, but only a separate area, with a concrete slab and sturdy fencing.

Safety Equipment & Original Tools and Supplies	\$15,000
Storage Structures (2)	50,000
Site Work	25,000
	=====
Total	\$90,000

MRF Capability to Accept Mobile Collection Program Services

\$25,000 was estimated for the addition of a separate area, concrete slab and fencing. These are the main requirements in order for an area to be suitable for the County Mobile Collection Program to operate.

County Sponsored MRF Collection of all HHW

The following is the breakdown of estimated costs for the construction of a HHW collection facility capable of collecting all types of HHW (two options):

Option 1

Storage Structures (3)	\$75,000
Safety Equipment & Original Tools and Supplies	15,000
Trailer/Office	15,000 ¹
Site Work	25,000
	=====
	130,000

Option 2

Construction (2,300 sq. ft)	\$140,000
Safety Equipment & Original Tools and Supplies	15,000
Site Work	25,000
	=====
	180,000

Estimated Facility Size - 2,300 square feet.

Permanent HHW Collection Facility

There are two estimated cost options for this facility, one with a building and one utilizing solely storage structures and a trailer for an office. The costs for land and preparation of an EIR are not included.

Option 1 -- Estimate Facility Size - 5,000 square feet

Safety Equipment & Original Tools and Supplies	\$15,000
Construction (5,000 sq. ft.)	300,000
Site Work	25,000
	=====
Total	\$340,000

Option 2

Storage Structures (13)	\$325,000
Safety Equipment & Original Tools and Supplies	15,000
Trailer/Office	15,000
Site Work	25,000
	=====
Total	\$380,000

APPENDIX F - III

¹The trailer is similar to camper, and can be used as an office/additional storage area for tools and supplies.
Cost estimate obtained from San Bernardino County Environmental Health Services.

Assumptions Utilized in Estimating Operational Costs for Permanent HHW Collection Facilities

The operational costs for permanent HHW collection facilities were estimated using the main cost factors of: disposal; drums and supplies; transportation; and personnel costs.

Cost of Disposal:

Cost of disposal was estimated using 1990 data from collection events. This data included the amount of waste collected and the number of participants. This information was then used to develop an average pounds per participant received for 1990.

The average pounds per participant was then applied to the cost of disposal for each waste type. The estimated cost of disposal was derived from a bid submitted by Disposal Control Services, inc. Please note that the capacity of oil, latex paint and oil base paint in a 55 gallon drum is 55 gallons. Batteries and Mercury are a special situation since revenue of approximately \$1.00 per battery is received and Mercury is normally at no charge. For the remaining wastes the capacity in a 55 gallon drum is 20 gallons. This is because the waste is "lab packed" meaning it is often stored in original containers.

Cost of Transportation:

Transportation was assumed to cost \$1.25 per mile. The facilities utilized most often are in Phoenix, Arizona; Pasadena, Texas; Fresno, California; Louisiana and Arkansas. The mileage from Riverside County to these facilities was estimated and the \$1.25 figure applied to the estimated mileage. It was also assumed that approximately 120 drums would be sent in one shipment. The cost of transportation for 120 drums to the 5 main sites was then averaged to determine an average cost for transportation.

Cost of Drums/Supplies:

The cost of one 55 gallon drum was estimated at \$32.75. The average pounds per participant for other wastes was utilized to determine that on the average one participant would require 71% of one lab packed drum (20 gallons of waste per drum). For latex and oil base paint, however, one participant would require only 4% of one 55 gallon drum because the waste is bulked (meaning it is all poured into the drum together).

Personnel Costs:

Personnel costs were obtained from actual Hazardous Materials Branch personnel costs and an estimated salary for Haz Mat Technician, which is not currently employed by the Branch.

APPENDIX F – IV
HHW Estimated Operational Costs for Permanent
Collection Facility (Cont.)

Estimated Operational Costs of Disposal

Material	1990 Av. Lbs. per Participant	Cost of Disposal* per Drum at a Landfill	Cost of Disposal* per Drum by Incineration	Cost Based on Avg. lbs. per Participant	Disposal Method
Oil	3.43	N/C		N/C	Recycling
Latex Paint	0.56	\$187		\$1.90	Recycling
Oil Base Paint	1.71	\$198		\$2.00	Fuel Blending
Solvents, Thinners	7.65	\$159	\$298	\$60.82	Landfilling
Gas and Oil Mix	0.04	\$2.50 per Gallon		\$0.10	Fuel Blending
Aerosols	1	\$159	\$430	\$21.50	Incineration
Pesticides	2.62	\$159	\$430	\$56.33	Incineration
Corrosives	2.47	\$159	\$430	\$19.64	Landfilling
Oxidizers	0.48	\$159	\$509	\$12.22	Incineration
Batteries	0.2	\$1.00 per unit		(\$0.20)	Recycling
Mercury	0.01	N/C	N/C	N/C	Recycling
Misc.	0.4	\$159	n/a	\$3.18	Landfilling
Total	20.57			\$177.49	

Assumptions utilized in estimating Transportation costs

Disposal Sites	Estimated miles	\$1.25 per mile	Cost per drum at 120 per shipment
Phoenix, AZ	403	\$503.75	\$4.20
Pasadena, TX	1550	\$1,937.50	\$16.15
Fresno, CA	200	\$250.00	\$2.08
Lousiana	2000	\$2,500.00	\$20.83
Arkansas	1800	\$2,250.00	\$18.75
Average cost of Transportation per drum			\$12.40

Cost of Drums/Supplies

Materials Requiring Drums	Gallons/lbs. per Participant	% of a Drum	Cost of Drum per Participant	Transportation per Drum	Cost of Trans. per Participant
Latex & Oil Base Paint	14.26	71%	\$23.35	\$12.40	\$8.84
All other non- recyclable materials	2.27	4%	\$1.35	\$12.40	\$0.51
Total			\$25		\$9.35

Total Cost of Disposal, Transportation,
and Drum per Participant
\$212

2,340 Users per Year**
\$495,016

*Based on Bid submitted by Disposal Control Services, inc.

**Based on usage of 15 residents per day , 3 days per week and 156 operating days per year

APPENDIX F – IV
HHW Estimated Operational Costs for Permanent
Collection Facility (Cont.)

Personnel Costs

Title	Salary, overhead and benefits	Cost Per Center	Cost per Year
Haz Mat Specialist	\$35.39	\$849	\$44,167
Haz Mat Technician	\$27.00	\$648	\$33,696
Haz Mat Technician	\$27.00	\$648	\$33,696
Total	\$89.39	\$2,145	\$111,559

Total Cost

Personnel	Disposal	Total
\$111,559	\$495,016	\$606,575

APPENDIX G

Responses to Comments on Preliminary Draft SRRE/HHWE

APPENDIX G
RESPONSES TO COMMENTS ON PRELIMINARY DRAFT SRRE/HHWE

State Comment

In the Final SRRE please differentiate between the County, the county unincorporated area and the County Local Task Force (LTF). In reviewing the SRRE, it was at times difficult to separate the unincorporated area Elements information from the overall county plan. The Integrated Waste Management Act (Act) requires the county unincorporated area to be treated as an independent jurisdiction for the purposes of planning and implementation. The LTF is an independent body, having specific responsibilities under the Act to act as an advisory body to all of the cities and the county in the planning and implementation of the Act. These three roles need to be separated for clarity and accountability in the final SRRE and HHWE.

County Response

The County has clarified the roles and responsibilities of the various parties.

State Comment

Although the Act allows jurisdictions to work cooperatively on their programs, the statutes still place accountability on the individual jurisdiction for meeting the diversion goals and ultimate element implementation. Therefore in the final SRRE please provide additional information on the assignment of responsibility for running the program and funding. This information could be included in a Memorandum of Understanding (MOU), Joint Powers Agreement (JPA) or resolution between the participating Cities and the County. A copy of the final agreement should be included as an appendix in the final SRRE.

County Response

Comment noted. Once all aspects of the proposed Countywide System are worked out, agreements will be included as an appendix to the Integrated Waste Management Plan. A status report has been included in SRRE/HHWE.

State Comment

Please state how many new staff people will be needed to implement the chosen programs. It appears that the Public Information and Education Component will require 1-2 staff people alone. In addition, staff estimate that monitoring will require a 3/4 time staff position for the unincorporated area (by adding up hours in the funding portion of each component). Staff costs should also be included in the Funding Component as required by CCR 18746.

County Response

Comment noted. Staff requirements and costs are included in the Funding Component of the Final Element. Staff hours are shown as an aggregate in the Funding Component with an explanation that the hours could be covered through full-time staff, part-time staff, volunteers and/or consultants.

State Comment

CCR Section 18733.6 requires each chosen program to be monitored to evaluate its effectiveness in meeting its goals, and if the program is not meeting its stated goals what contingency measures will be taken. Please provide written criteria by which each individual program will be judged,

and if the program is not meeting its mandated diversion requirements what specific contingency measures will be used and when. Monitoring of waste diversion from a landfill will not show which programs are working and which are not. Contingency measures should also be developed for weak markets for recyclables.

County Response

Monitoring tasks have been included for each program on the implementation tables. Discussions with the State revealed that the monitoring criteria shown in each component are sufficient.

State Comment

Please provide in the implementation schedules monitoring tasks and frequency of monitoring as required by CCR Section 18733.5.

County Response

Monitoring tasks have been included in all implementation schedules.

SOLID WASTE GENERATION STUDY (SWGS):

State Comment

Page 2-2: "Remainder" cannot be considered as a waste category. However, it can be classified as a waste type provided the quantities of these waste materials are not duplicates of what have already been reported as other waste types [CCR Section 18722 (j)].

For the final SRRE, please evaluate whether "remainder" category should be classified as a specific waste type or have its contents distributed among the most appropriate waste types. Identifying the wastes will allow those that are divertable to be counted toward the jurisdiction's diversion goals.

County Response

"Remainder" is considered a material type for the purposes of the unincorporated area solid waste generation study. The definition of "remainder" located in Appendix A-VI makes it clear why it should stand alone as a material type: "Those materials not contained in any of the other categories. Included are mixed fines (too small to separate into individual categories), and composite materials (items with more than one material component)."

State Comment

Page 2-2: For clarity, the label for Table 2-1 should be dated with the base year for the data presented.

County Response

Table 2-1 has been labeled according to the State Comment.

State Comment

Page 2-3: For clarity, please also give the year for the sort dates listed.

County Response

The year of the sort dates is provided on page 2-3.

State Comment

Page 11: How many samples were taken specifically for the unincorporated Riverside County area? In addition to the formulas, please provide all calculations used to derive the number of samples taken [CCR Section 18722 (h)].

County Response

The method used to determine the number of samples for the Riverside County unincorporated area (as well as the other study participants) is explained in pages 10-13 of appendix A. Section V "Statistical Methods for Manually Sampled Portion" and Section VII "California Integrated Waste Management Board Correspondence/Methodology Approval" of Appendix A provide further background regarding the methodology/number of samples utilized in the study. Section III of appendix A provides information on the number of trucks/samples taken for each of the three sorting periods for the unincorporated area and the other jurisdictions in the study.

APPENDIX A - WASTE GENERATION STUDY

State Comment

Page 13: Please provide a brief description of how the selection of trucks assured a random sampling of demographics, income levels, etc., for the unincorporated County [CCR Section 18722(h)].

County Response

The manual sampling portion of the waste characterization study is representative of all sources of generation (residential, commercial, etc.) for the unincorporated County area. Areas in the text that discusses the methodology used in assuring the representatives of the sampling include pages 3-15 and sections V and VII of Appendix A. It should be emphasized that the selection of trucks and their corresponding routes were done on a random basis. Adjustments were made in order to ensure the routes sampled were not all from the same day of the week, source of generation and neighborhood, etc. Section III of appendix A provides specific information on how the trucks/samples were distributed among the sources of generation for each sorting period. The narrative in section III of appendix A explains the procedure used in cases where it was not possible to sample a particular source of generation (i.e. industrial).

State Comment

Page 16: Concerning the subsection title "Manual Sampling in Thirty-Five Waste Categories", the work "categories" should be changed to "types", to be consistent with CCR Section 18722 (j).

County Response

The word "categories" has been changed to "types".

State Comment

Page 21: The study used for comparable data from Toronto, Canada, does not comply with the regulations. CCR Section 18722 (l) restricts the use of out-of-state data to data obtained from other states of the United States.

County Response

The Solid Waste Generation Study for Riverside County did not use the "comparable data" methodology as allowed as an alternative sampling methodology as defined in CCR Section 18722 (l). The alternative methodology included in CCR Section 18722 (l) allows jurisdictions to characterize its waste using other jurisdiction data provided certain conditions are met. Thus, no field sampling is required.

The waste disposal characterization study for Riverside County was based solely on composition surveys conducted of each city and unincorporated area's waste stream. As described in the methodology "other data" were used only to convert the observationally studied waste stream, such as construction/demolition waste, to specific waste types required by AB 939. Identifying material types for construction/demolition debris during the waste characterization study was not practical due to the difficulty in sampling relatively homogenous loads which could bias the results unless a large number of samples were taken. During the waste characterization study, construction/demolition debris was identified visually for each city and the unincorporated area.

RIVERSIDE COUNTY SOLID WASTE DIVERSION STUDY

State Comment

Page 52: Section 4.2.2 provides a general explanation of the allocation of diverted tonnages to individual jurisdictions in Riverside County. For the final SRRE, please include the actual calculations for all allocations of diverted tonnages for materials diverted specifically for the unincorporated area. Include complete explanations for any assumptions made [CCR Section 18724 (b)].

County Response

The referenced explanation in section 4.2.2 describes the process used in allocating the diverted tonnages handled by four companies. The allocation process used in relation to these four companies (one processor and three recycling centers) was the exception as to how the tonnages for each jurisdiction were determined. The utilized method and the accompanying assumptions are thoroughly explained in section 4.2.2.

The total tonnage amounts distributed to the unincorporated County area from the four companies referenced above break down in the following manner:

<u>MATERIAL TYPE</u>	<u>RESIDENTIAL</u>	<u>COMMERCIAL</u>
Mixed Waste Paper	217.00	1,638.10
Cardboard	0.00	61.91
Newspaper	121.35	102.38
Aluminum Cans	67.10	0.00
HDPE	6.28	0.00
	=====	=====
TOTAL	411.73	1,802.39

The amount of material allocated to the various jurisdictions (including the unincorporated County) from the four companies was based on the size of each community's residential or commercial disposed waste stream in relation to all other Riverside County jurisdictions.

State Comment

Page 54: Section 4.4 provides generalities concerning various targeted diversion materials. In the final SRRE the calculations and any explanations used to disaggregate the various types of diversion materials to the unincorporated area should be included. If the weight of any diversion materials is estimated, provide all references (e.g. the weight of appliances). In addition, please state if the estimates of household items donated to thrift stores, were in the final figures, i.e., the sum of the items donated by the public, minus those items which are ultimately discarded as unsalable by the thrift stores [CCR Section 18734.2].

County Response

Section 4.4 is only intended to provide generalities concerning various targeted diversion materials. It should be noted that the methods used in determining the jurisdiction of origin for the majority of diverted material in the County are described in section 4.2.1 and included: 1) confidential survey questionnaires, 2) telephone interviews and 3) contacting the State of California Department of Conservation. The tonnages that were assigned to the unincorporated area (as well as other jurisdictions) would be dependent on the information received from the above three sources.

Surveys were sent to the entire known population of recyclers in the unincorporated area. Approximately thirty-seven (37) companies/agencies received surveys with thirty - five of them returning completed questionnaires for a return rate of 94.5%. The two missing surveys were from companies that at the time of the administration did not recycle materials from Riverside County.

It is believed that the survey results are statistically valid since the entire known population of recyclers received questionnaires. There was therefore no need to do a statistical analysis that aimed to be representative of the unincorporated area diversion activity since the entire picture was presented in the study. It should be noted that the assignment of diversion to the unincorporated area through the use of the survey was based solely on real, verifiable tonnages and not the result of extrapolation or projection. The Department of Conservation (DOC) provided recovered tonnage information by zip code. The supplied 1990 data was for a five month period. A monthly average was calculated and then multiplied by 12 months to get a yearly total. The annual tonnage was then assigned to the appropriate jurisdiction (including the unincorporated area) based upon the zip code.

Thrift stores were asked directly how much material they handled from each jurisdiction. They were not asked specifically to back out unsalable items. It is not known if they did the calculations on their own initiative. The numbers they provided through the survey were reported in the diversion study.

State Comment

Page 54: Please provide information which will allocate the food wastes between the two categories, Organic Wastes and Agricultural Wastes. For any of the food wastes which are placed

in the category of Agricultural Wastes, the requirements of PRC Section 41781 (b) (1) will need to be satisfied to quantify the food wastes as diverted.

County Response

All food waste listed in the diversion study as recovered in Riverside County (including the unincorporated area) came from food processors and therefore is classified as organic wastes.

VI: Definitions of the Thirty-five Waste Categories

State Comment

The use of the term "categories" as used in Section VI is inconsistent with CCR Section 18722(j). In the final document, please correct this Section to read Thirty-five Waste Types.

County Response

The correction has been made.

XIV SOLID WASTE GENERATION DATA PROJECTIONS

State Comment

Please label the 15-year projection tables as under current conditions and under conditions expected to exist after the implementation of the SRRE as appropriate.

For uniformity, on all tables, please use the term "Generated" instead of "Total", to more closely coincide with CCR Section 18722 (g) (2).

County Response

The changes have been made.

GENERAL COMMENTS

State Comment

To comply with CCR Section 18724(b), please discuss how the sampling methodology used in the Riverside County Waste Generation Study specifically pertains to the unincorporated area. Be sure to include all calculations and explanations of any assumptions for Unincorporated Riverside.

County Response

The narrative of CCR Section 18724(b) focuses on joint studies where the data is collected on an aggregate basis. It speaks to the method by which such aggregate data is to be disaggregated and then reported in the study. It should be noted that the Riverside County Study was designed to have trucks hauling only one jurisdiction's refuse to the sorting area. These trucks also were to be loaded with either residential or commercial waste but not material from both sources of generation. The portions of the Waste Generation Study referenced in response to state comments on pages 11 and 13 above explain the sampling methodology used in the study and how the sampling was jurisdiction specific. Any difficulties encountered in the sampling process are also explained in those sections of the document.

State Comment

For accuracy and ease of review, please label all Solid Waste tables as disposed, diverted etc.,

County Response

All applicable tables have been changed as requested.

State Comment

Please include an outline of a system on reporting procedures to quantify data on wastes disposed and diverted in the final waste generation study. The outline should state when (monthly, quarterly, yearly, etc.) and from whom (haulers, landfills, businesses, recyclers, etc.), the reports are expected from [CCR Section 18722(0)].

County Response

This outline is included on page 2-9 of the Source Reduction and Recycling Element. The reporting period (monthly, quarterly, etc.) was left open at the time of the preliminary draft but is specified as quarterly in the text of the final draft.

State Comment

The presence of seasonal variation must be accounted for in quantities of solid wastes, diverted, generated, and disposed. Please provide supportive documentation along with any conclusions concerning seasonality of the waste stream [CCR Section 18722(i)(2)]

County Response

The discussion of seasonality in terms of the waste characterization and diversion study is located in Chapter 2.

State Comment

Per Section 41780, excludes inert solids, agricultural wastes, scrap metals, white goods and sludge from the definition of solid waste, except those "...which were disposed of at permitted disposal facility as of January 1, 1990, which are diverted and which are recycled, composted or reused." Therefore please account (e.g. landfill records) for the presence of any of the above named items in the landfill(s), so that diversion credits could be applied to them.

County Response

The Waste Generation Study, which sampled waste entering the landfills during 1990, proves that the materials (except for sludge) were disposed of in permitted County facilities during the year in question.

CHAPTER 3 - SOURCE REDUCTION COMPONENT**State Comment**

Page 3-5 and 3-18 states that the County is pursuing credit for a cooperative purchasing program for recycled materials. Although the establishment of the program will be very helpful in developing markets for recycled content/recyclable materials, as noted in the Board's March 19, 1991 letter, this program is not eligible for diversion credit since the use of recycled content/recyclable material in place of virgin resources will not necessarily result in a reduction in

the amount of waste generated within that jurisdiction. However, since this program promotes the goal of waste reduction and the establishment of stable and long-term markets for recyclables it can be funded with "AB 939 fees".

County Response

Comment noted. The County is supportive of efforts that would allow it to take credit for the diversion that takes place with the purchase of products with recycled content.

State Comment

PRC Section 41781 (a) states that to determine the base rate of solid waste for a jurisdiction only the following shall be included "Materials in the waste stream generated within a local agency's jurisdiction". Therefore the program noted on page 3-18 for allocating credit to the unincorporated County for materials that are generated within an incorporated jurisdiction is not valid. The example used was the City of Riverside, any materials generated within the city meeting the definition in PRC Section 41781, are counted in the city's base amount, and they are the only ones eligible to receive credit for the diversion of those materials.

County Response

Comment noted.

LTF Comment

The stated source reduction estimated diversion of 1 percent for short term and 2 percent for medium term should be raised to reflect the same percentages as your staff has recommended to cities. Objectives of 2 to 3 percent in the short term and 4 to 6 percent in the medium term would be consistent with your recommendation to the City of Riverside et.al. (see page 48 of Agenda Item #3 dtd: 11/21/91).

It is important for the County Solid Waste Management Department to demonstrate leadership in developing a strong source reduction program. The projected increased cost in waste diversion and disposal, in the future, warrants investment in a source reduction program which will assist business enterprise and the public in reducing the need for recycling and waste disposal.

County Response

The LTF did not recommend a specific percentage to the City of Riverside. The recommendation focused on the imprecise nature of the narrative and recommended tightening the language to clarify whether the city was in fact committed to the stated source reduction diversion goals. The County stands behind its stated source reduction diversion goals and intends to develop a strong source reduction program. We believe that such a program will be needed to achieve the source reduction diversion goals stated in the Element.

LTF Comment

The Program for Technical Assistance of Business and Governmental Agencies referenced on page 3-22 should be upgraded to be consistent with Business Environmental Assistance programs established by the Department of Commerce and the County Economic Development Agency. If there is no focus or business logic applied to the program, it will become another millstone which will interfere with business attraction, retention and expansion.

County Response

The Department will include the County Economic Development Agency in the program design stage in order to ensure that the efforts do not interfere with business attraction and retention efforts.

CHAPTER 4 - RECYCLING COMPONENT

State Comment

For the year 2000, the materials recovered through the mixed waste MRF are primarily cardboard, ferrous metals and tin. These materials are, in general, easily recyclable. From the Board's analysis of the financial feasibility of the chosen materials recovery facility (MRF), it would appear that it could cost an average of \$138 per ton of material diverted through this option. Board staff have concerns over the financial feasibility and would like to suggest that the County review its chosen options to see if it might be possible to reduce this cost, or identify alternative less expensive programs, or a different mix of programs. Although it is noted in the Funding Component on page 9-4 that:

"...a system that sorts through mixed waste may appear to be more capital and labor intensive than a source-separated recyclables processing facility, the entire level of collection which is done away with generates a large degree of cost savings which is not included in cost analyses."

As noted in Appendix D, the Riverside County Board of Supervisors passed Resolution 90-668 requiring the 20 companies permitted to collect, and haul waste in the unincorporated area to provide curbside collection of recyclables to 100% of the residents by January 1, 1992 and separate collection of recyclable materials to commercial and industrial by July 1, 1994. This Resolution only excluded two areas due to low population. In addition, the majority of the cities are currently providing curbside collection to their residents (16 out of 24 jurisdictions - page 7-4). The above quote would appear to be invalidated for both the Riverside County unincorporated area and the majority, if not all, cities. Since the preferred programs in the County and Cities include the source-separation of the recyclables before it reaches the MRF, how will this generate a cost savings?

County Response

In the financial analysis completed by the State, three waste streams were not included: source separated recyclables brought to the MRF by the waste haulers and wood and green waste separated from the waste stream at the MRF (these materials are assumed but not mentioned to be recovered from the MRF's in the Recycling Component. The wood diversion is shown in the Special Wastes Component). By adding these materials to the State's equation, the cost per recovered ton drops to \$27 per ton. Total diversion through the MRF, excluding source separated material, would be 10.4% and 18% with the source separated materials. It should be noted that the cities', in addition to the County's waste stream, will be directed to the proposed MRF's.

Also, the text has been revised to show that the commercial/industrial recycling program was revised to require the haulers to, "offer separate collection of recyclable materials to commercial and industrial customers beginning with the implementation of service to 25%

of their customers by January 1, 1992 and maintaining said service level until such time as regional material recovery facilities are available for processing mixed materials".

The statement in the Funding Component has been deleted since it is not foreseen that City or County curbside recycling programs will be phased out at any time in the future.

LTF Comment

Chapter 4, pages 4-25, 26 and 27 were referenced for this comment. These pages read that we will implement the system approach. The way it reads, we are committing the cities right now to do this. It says that the cities will advise. It is very important that we clear up the wording.

County Response

The County cannot commit the cities to do anything. Therefore, text on these pages and anywhere else which discusses the system concept and committing the cities to it has been cleaned up to show the present situation where the cities are working through the proposal and we (county and cities jointly) will decide upon structure of the system.

LTF Comment

Page 4-27, the tasks under the private sector should include planning in addition to those stated.

County Response

Text has been changed accordingly.

City of Beaumont

We ask that Riverside County Solid Waste Department consider investigating an analysis of Industrial Recycling through a MRF, under Section 4 Recycling Component. We believe that this program should include an analysis of the annual cost and benefits associated with this program, along with the specific tasks and individual entities that might regulate its performance and to include a schedule of time to compare monitoring and evaluation of its progress.

County Response

Comment noted. Industrial recycling will be partly carried out through MRF's as the current plan is to direct all waste to MRF's. Cost-benefit analyses will be completed on a per facility basis as they are developed.

Waste Management of the Inland Valley (WMIV) (1)

Since the County is looking to the private sector to build and operate these facilities, and market the recyclables thereby taking all the risk, it is our position that the County should not impose constraints as to location, rate regulation or flow-control.

County Response

The responses to the following comments when considered together address this first one.

WMIV (2)

Owners who can meet all local and state criteria for constructing and operating a MRF, ought to be allowed to do so.

County Response

The County and the cities that are discussing the system approach to waste management agree that entities who can meet the permit and regulatory requirements of MRF's and the common needs of the Cities should be allowed to proceed. It is also believed that the best and fairest method for determining which company should build such a facility while protecting the public's interest is to use, to the maximum extent possible, a competitive bid process.

WMIV (3)

Furthermore, restricting the MRF's watershed to a defined geographic area reduces the MRF owners ability to justify the investment. An owner needs to be able to draw from any and all economically viable markets, even if they are located outside his predetermined zone.

County Response

The service area boundaries are intended to be adjustable in nature in order to allow for changes in the population centers in the County. An operator's requirement to work within the service area does not preclude him from generating as much business as possible within it. It is also to the operator's benefit to have a guaranteed waste stream on a daily basis. This will inherently justify the investment. Additionally, no community will be isolated without adequate processing capacity. The use of service areas enables system jurisdictions to realize economies of scale that would not be possible if facilities were located in neighboring or distant communities. The environmental benefits of established service areas are also realized with reduced transportation requirements.

WMIV (4)

We support the concept that Cities maintain individual flow control over the waste generated in their jurisdiction and not give it over to the County, an existing Association of Governments or yet to be formed JPA. As private haulers contract with cities to collect rubbish, private MRF's ought to be allowed to do the same. Making the MRF owner directly responsible for the wastestream will give them the necessary incentive and drive to build and operate an economically viable facility.

County Response

The city role in the system will depend on what type of organizational structure is eventually chosen. In any case, the cities will have a part in system development through participation in its implementation. Private haulers will continue to work with the cities in regards to waste management issues as in the past except once the system concept is implemented it will be on a collective basis. MRF operators will be given responsibility to process and incentives to reclaim as much as possible in the system concept.

WMIV (5)

The County should not provide initial funding for development activities or involve itself in the financing or facilities to be owned and operated by the private sector. The County has enough of its own financial problems to worry about.

County Response

A system-wide approach to the initial funding for development activities by a public entity will minimize the risks to all parties and enable lowest cost financing to be obtained for

major aspects of the whole system. The County also plans to consider private financing in its RFP's, thus leaving the issue of debt obligation open until benefits of both options are known. Even in the private financing option, it is anticipated that the private sector financier will insist on flow control measures. Thus, this dilemma does not go away with private ownership.

WMIV (6)

Cities should not be penalized for not joining or withdrawing from the County's "system" through discriminatory tipping fees at the landfill. As long as the cities can demonstrate that they are achieving the state-mandated diversion goals, they should not be charged more for not joining in the County program.

County Response

Lower tipping fees for joining the system are the benefit that the members receive from the economies of scale that are realized by the system as a whole. Avoiding fragmentation is believed to benefit all members of the system. A jurisdiction that withdraws from the system should be obligated for any commitments made while it relied on system facilities.

WMIV (7)

Lastly, we would like to see greenwaste and woodwaste added to the "Types of Waste to be Diverted" column on page 4-28.

County Response

Green waste and wood waste diversion at the MRF are located in Chapter 6.

CHAPTER 5 - COMPOSTING COMPONENT

State Comment

Please note concerning alternative landfill covers:

For a material to be deemed as a suitable alternative cover, the landfill operator must submit a proposal request to the Board and to the LEA for consideration. If the Board approves the request, the operator must establish a demonstration project, which would normally last at least one year. At the end of that demonstration project period, the Board and the LEA would evaluate the suitability of the demonstration cover material. If the Board and the LEA approve the material as a "suitable cover", the operator would then file an Amended Report of Disposal Site Information and an application to revise the Solid Waste Facilities Permit. After the permit is revised, the proposed material could be used as cover. Current statute and regulation interpretation indicates that a material recovered from the waste stream, which is processed and returned to a use with economic value, constitutes a diversion activity that may count towards the goals of the Act. Through this interpretation, the use of a material derived from the waste stream as an approved alternative cover material may count as a diversion activity.

County Response

Comment noted. County has revised the program discussions and implementation timelines to coincide with the process outlined above.

State Comment

Currently materials that are co-composted with sludge are not allowed to count towards diversion credit due to potential health and safety hazards.

County Response

County notes that AB 1520 was signed by the Governor and will regulate sludge based projects beginning July 1, 1992. Its provisions will be followed by the County in order to take potential credit for materials composted/co-composted with sludge.

State Comment

The SRRE is correct in the statement that since Riverside County does not allow sludge to be disposed of in their landfills credit for diversion cannot be given. This is stated in PRC Section 41781. Please be aware that the requirement that materials be normally disposed of at a permitted disposal is a code requirement and cannot be changed without an amendment to the Act. Therefore the legislature, and not the Board, would be the appropriate body to petition to change this requirement.

County Response

Comment noted. The County will promote legislative efforts to allow credit for the diversion of sludge particularly if it had not been landfilled as of January 1, 1990 as the result of County landfill operation policies.

State Comment

The County will receive credit for the program requiring the biomass fuel plant to divert 30% of its wood waste/compostable material to a composting recycling program, for only the material that originated within its jurisdiction. If the material was generated outside of the county then the generating jurisdiction would receive the credit.

County Response

All diversion estimates for this program are only for the Riverside County unincorporated area. Provisions in the agreement between the County and the biomass fuel plant stipulate accounting procedures designed to provide accountable credits to jurisdictions of generation.

State Comment

In the implementation schedule it shows the diversion of woody waste stopping at the end of 1999. Please explain what new programs will be instituted to meet the requirements of PRC 41780 for the following years.

County Response

The provisions of this program, as stated in the governing agreement, end on December 31, 1999. The matter would then become a point of negotiations between the parties as to whether it will continue in the following years. The County will seek renewal of the agreement either through sole source contract or through a request for proposal with the expressed intent to continue this type of diversion credit program.

City of Beaumont

"Under Chapter 5 - Composting Component, the existing conditions description - this section does not reflect the City of Beaumont's future participation in developing and incorporating its own Composting Facility plant".

County Response

The County SRRE/HHWE reflects existing pilot programs and facilities in which the County participates or could participate in the future. If the City of Beaumont facility would accept unincorporated waste, this could be added as an option under new programs since this facility has yet to be developed.

CHAPTER 6 - SPECIAL WASTES COMPONENT

State Comment

Please explain, as required by CCR Section 18733.4, where the sludge is being stored that is no longer land applied. In addition, please discuss the County's long-term plans for handling and disposing of sludge in the final Element.

County Response

County sludge was land applied before its land application ordinance was adopted in March of 1991. The displaced sludge is often stockpiled until end-use companies remove it. End-use companies include Bandini, Kelloggs and composting operations.

It is expected that current practices concerning sludge will continue. Any changes at the treatment plants must be cleared through the Regional Water Quality Control Boards.

LTF Comment

The estimated implementation costs for the Special Wastes Component seem low.

County Response

Implementation costs are low because staff time will be used mostly for implementation of the programs. There are no capital costs associated with the programs.

Eastern Municipal Water District (EMWD) (1)

Suggest rewording of Objective 2, page 6-1, to, "Initiate the practice of prohibiting sewage sludge with a solids content of 50% or less at county operated landfills without approval of the County Waste Management Department".

County Response

The following sentence has been added to the sludge waste type discussion in Chapter 6, "even though sewage sludge is not accepted at any County landfill, municipal sewage treatment plant grit and screenings will continue to be accepted."

EMWD (2)

Suggest rewording of Objective 9, page 6-2, to, "If feasible, eliminate the amount of septic tank wastes landfilled by 2000 while continuing to landfill chemical toilet wastes until alternate disposal methods are found".

County Response

The problems associated with disposal of chemical toilet waste at treatment facilities include the chemicals and dye's sometimes found in the septage. Since few plants accept chemical toilet waste, this addition has been made.

EMWD (3)

Recommend the addition of the following programs/objectives:

(a) In order to encourage better management of sludge, the County should work with other agencies to encourage all sewage treatment facilities to improve their sludge management plans in the areas of alternatives to landfilling.

(b) Continue to encourage environmentally feasible land application of sewage sludge in both agricultural and public lands.

County Response

(a) The text has been revised to show that not only will the County work to encourage the development of sludge management plans, but also to improve existing plans' discussions of alternatives to landfilling of sludge.

(b) The land application ordinance does not restrict the application of sludge to public lands. The ordinance does restrict the type of land to agricultural, among other specific items. If public lands were used for agriculture they would be eligible for land application.

EMWD (4)

Recommend the following alterations to existing recommendations:

(a) Encourage the dedication of adequate wastewater treatment capacity when plants are proposed or expanding with funds from Septic Tank Maintenance Districts.

(b) Investigate the need to increase the per ton charge for septic tank ~~and chemical toilet~~ waste to encourage their disposal at wastewater treatment facilities

(c) Investigate effect of requiring chemical toilet wastes disposal to Santa Ana Regional Interceptor (this is a recommendation for a new program).

County Response

(a) Since the Septic Tank Maintenance District program is proposed for investigation in the Special Wastes Component and the specifics for funding, should it be implemented, have yet to be decided, the first recommended addition is not appropriate.

(b) Item b is similar to an earlier one (#2) and has been altered to read, "Investigate the need to increase the per ton charge for septic tank and other applicable liquid wastes to encourage their diversion from the landfills."

(c) Item (c) has been added to the text as an option to pursue for the program entitled Development of Alternative Liquid/Sludge Disposal, Treatment and/or Recycling Facilities.

EMWD (5)

Recommend the alteration of the following:

Investigate the effect of increasing the per ton charge for septage and other applicable liquid wastes in encouraging their disposal at wastewater treatment facilities including additional enforcement costs incurred by increased illegal dumping.

County Response

Since illegal dumping may be a concern if the tipping fee were to be raised on septage and other applicable liquid wastes, a task has been added to the implementation timeline to investigate the potential impacts of the program before implementing it.

EMWD (6)

EMWD is concerned about the Septic Tank Maintenance Districts. They recommend adding the language to Section V, Alternative Program Selection, for Septic Tank Maintenance Districts:

This program can help minimize illegal disposal of liquid wastes by encouraging haulers to use proper disposal facilities.

County Response

Recommended language has been added to the Alternative Program Discussion.

EMWD (7)

EMWD is concerned about the Septic Tank Maintenance Districts and increasing the tip fees for liquid wastes. They recommend adding the language to Section V, Alternative Program Selection, for increasing the tip fees:

This could lead to continual increases in fees if the sewage treatment facility is attempting to discourage disposal of wastes generated out of their service area with a tiered fee schedule.

County Response

The alternative program will not be altered, yet, text has been added to the Alternative Program discussion stating that the Department will work with the treatment plants in implementing this program. By working with the treatment plants, the problem mentioned above should be avoided.

EMWD (8)

EMWD recommends adding wastewater treatment plant operators to the committee recommended to be developed in regard to Septic Tank Maintenance Districts.

County Response

Addition has been made.

EMWD (9)

EMWD recommends adding the following task to the program for increasing tipping fees for liquid wastes:

Investigate the impact of illegal dumping resulting from increased tipping fees and nonavailability/inaccessibility of disposal facilities.

County Response

Since illegal dumping could be a concern in implementing this program, a task has been added to the implementation table to investigate impacts before implementing the program.

Riverside County LEA

"On page 6-10, in the Solid Waste Section, a short description of the I-Tre Corporation reuse alternative is discussed. As you probably know, I-Tre has established a grease trap collection site in the Coachella Valley, perhaps a description of this project would be appropriate.

County Response

Text has been inserted to discuss the current program.

City of Beaumont

"Chapter 6 - Table 6-2 Population Figure for the City of Beaumont should read as 9685 as of 1990. Also under sludge/green waste composting, you should include the City of Beaumont also as participating in future endeavors in this type of project use.

County Response

Table 6-2, which lists Beaumont population at 9,750, is taken from the Riverside County Waste Generation Study and cannot be changed. In reference to sludge/green waste composting, please reference the County response to City of Beaumont comment on the Composting Component (page 12 of Appendix G).

CHAPTER 7 - EDUCATION AND PUBLIC INFORMATION COMPONENT

State Comment

Section "K. Technical Assistance" Table 7-2.2: This table relates to public information and education. The ninth program chosen would work with haulers to develop methods for calculating participation rates and conversion factors for waste collection. This program seems out of place here and would be more appropriate in another section.

County Response

Comment acknowledged. The County will reword this program, leaving out the participation rates and conversion factor portions. These two portions will remain in the Recycling Component.

State Comment

Staff suggests that you review the time allocated for start-up and continuing the programs chosen in this component. The time necessary to complete the required tasks appears to be underestimated. For example, the County currently receives an average of 10 calls per week on recycling issues and indicated in the SRRE, this number is expected to rise when a recycling hotline becomes available. If each of these calls averages 5 minutes apiece this would be over 43 hours per year at the current level. The SRRE states that the proposed program will require only 40 hours per year of staff time. This would seem to be inadequate if more calls are expected in the future.

County Response

Comment noted. It may be a more accurate estimate to say that calls are expected to increase slightly as the variety of programs offered increase. It should be noted that the County will be exploring the possibility of an automated phone system to disseminate routine information (i.e. where recycling centers are located, information about the various programs and brochures available). It is expected that an automated phone system will allow the County the ability to increase the number of phone calls handled without substantially increasing the amount of staff hours spent on the phone.

CHAPTER 8 - DISPOSAL FACILITY CAPACITY COMPONENT

State Comment

As stated in CCR Section 18744, a jurisdiction should only count import of waste when there is an import agreement in calculating their available capacity. Therefore please revise Table 8-2 to show only the amount of waste imported from the jurisdiction that the county currently has an import agreement with.

County Response

The County recognizes that State regulations only require the acknowledgement of import waste for which there is an export agreement. However, the County also recognizes that in reality, our landfills accept all of the landfilled waste from the cities and the unincorporated area. Therefore, we have not changed Table 8-2, but have included text stating that there are no formal import agreements for this waste.

County Response

Comment noted. It may be a more accurate estimate to say that calls are expected to increase slightly as the variety of programs offered increase. It should be noted that the County will be exploring the possibility of an automated phone system to disseminate routine information (i.e. where recycling centers are located, information about the various programs and brochures available). It is expected that an automated phone system will allow the County the ability to increase the number of phone calls handled without substantially increasing the amount of staff hours spent on the phone.

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CHAPTER 9 - FUNDING COMPONENT

State Comment

The funding component is the section of the element that should include a recap of all program costs and revenue sources, that were discussed in the individual component program section. Table 9-1 summarizes the estimated costs for program planning and implementation, but it does not illustrate a cost breakdown by calendar year for the short-term planning period. Rate increases are mentioned but more information and analysis are required including the cost estimated and revenue projections for each year. By what percentage will these rates be increased? In addition, adequate revenue sources that will fund your Source Reduction and Recycling element must be shown. This information must be included in the Funding Component so a comparison of costs versus revenues can be made.

County Response

Estimated costs (both public and private) required to implement the programs selected in the Element are shown in Table 9 - 1 and 9 - 2 of the Funding Component. In order to cover these public costs, Table 9 - 1 shows the estimated public costs and how much the recycling portion of the tipping fee would need to be in order to cover these costs. The tonnage used was the actual 1990 tonnage.

Estimated costs by year for the short-term have been included for the system costs. A narrative has been added discussing how it could be funded and contingency funding measures.

State Comment

As required by CCR Section 18746, the Funding Component must identify all program costs and revenue sources for planning, development and implementation by year. Your plan must include more discussion on contingency funding. This section is necessary in order to show sufficient flexibility to allow for unexpected developments. Therefore, your discussion should identify what type of financing structure currently exists and what are the projected amounts which may be used as regular funds and contingency funds from the land use assessment fees, bond proceeds, California Pollution Control Financing Authority loans, grants and private development. Please remember that this information should be specific to the County unincorporated area. If a cost is to be shared please list the amount that the unincorporated area will finance (CCR Section 18746).

County Response

A section has been added which more clearly discusses the County's current funding mechanism, how monies will be derived each year to fund implementation and identifies contingency funding.

University of California, Riverside

My main concern is with the wide ranges shown in Chapter 9, "Funding Component." If at all possible, more specific cost detail should be provided. In particular, the estimated land costs should be included as these could be a significant element of the total estimated facility costs.

County Response

The costs for facilities shown in the Funding Component have been revised to include estimated land costs. The County notes the need for more cost detail and ~~will~~ **has** included the best available information in the component.

CHAPTER 10 - INTEGRATION COMPONENT**State Comment**

Please explain how the County has integrated the components to maximize use of all feasible source reduction and recycling options. Include an explanation on how components jointly achieve diversion mandates and how priorities between components were determined [CCR Section 18748 (a) (2)].

County Response

A short discussion of the evaluation process, including the qualitative evaluation and how programs complement each other has been added. This discussion includes those programs which were chosen for implementation which have been integrated with other chosen programs (for example, the staging area for Colmac has been included in the Composting Components for the % dedicated to composting after 1995 and Special Wastes for the wood incineration they will be doing. Other examples include curbside recycling/green waste pick-up, public education programs starting strong in 1992).

State Comment

The implementation schedule in the integration component should be a compilation of all tasks noted in each one of the components (CCR Section 18748 (b)). Please revise this table in the final

SRRE to reflect revisions made in the components. In addition, this Section requires a schedule for funding source availability, which should also be included in the final SRRE.

County Response

Integration tables are the same as those shown in the individual components. Tables have been updated to include the funding source availability.

HOUSEHOLD HAZARDOUS WASTE ELEMENT

State Comment

Although the Act allows jurisdictions to work cooperatively on their programs, the statutes still place accountability on the individual jurisdiction for element implementation. Therefore in the final HHWE please provide additional information on the assignment of responsibility for running the program and funding. This information could be included in a Memorandum of Understanding (MOU), Joint Powers Agreement (JPA) or resolution between the City and the County. The terms of the agreement should be included in the final HHWE.

County Response

Comment noted. Once all aspects of the proposed Countywide System are worked out, agreements will be included as an appendix to the Integrated Waste Management Plan. A status report has been included.

State Comment

Page 10 - The County should provide an estimate of the number and the locations of collection days planned per year.

County Response

An estimate of the collection locations for each year has been included.

State Comment

Page 16 - The County should describe the program and methods planned for encouraging agencies to use recycled paint.

County Response

The County feels that to delineate the methods to be used to encourage the purchase of recycled paint would duplicate the efforts of the Purchasing Program already discussed in the Source Reduction and Recycling Components of the SRRE. Therefore, this program has been deleted from the HHWE and a statement added to the County Purchase of Products Containing Recycled Content program in the Source Reduction and Recycling Components of the SRRE that it also includes recycled paint.

State Comment

The County should describe the program planned to encourage MRF's to accept deregulated HHW. It should also be noted that latex paint, used oil, antifreeze and batteries may be collected without a Department of Toxic Substances Control permit or variance only if they are to be recycled.

County Response

A note has been included that the four materials can be collected without a permit (at this time) only if they are recycled. The program evaluation page for the Private MRF Collection of Limited HHW, MRF Capability to Accept Mobile Collection Program Services and the County-Sponsored MRF Collection of all HHW programs will include a short discussion of when each of the programs is applicable. This is necessary for the reader to understand that if the system concept is not adopted, the County will work with private operators to collect HHW on a permanent basis. Should the operators successfully negotiate to collect only deregulated HHW or no HHW, then it would be necessary to provide a means for the surrounding residents to properly dispose of the remaining regulated HHW.

State Comment

The County should explain why it is necessary for the MRF's to construct a HHW facility if the County mobile facility is already on site (see page 19).

County Response

The County mobile HHW program is intended to service only MRF's which do not collect HHW or those which collect and recycle the deregulated wastes. Section V, Alternative Program Selection of the Element discusses these programs and their interrelationship.

State Comment

The HHWE should contain a funding schedule as required by CCR Section 18751.8

County Response

The funding schedule will be taken out of the SRRE and inserted to the HHWE.

LTF Comment

We are committing every County sponsored MRF to have a HHW program regardless of where they are or anything else. Is that really what we want to say. If there any policy to say that it could be next door. What happens if there is already a HHW program at a fire station. There is concern that if we want to say everyone shall have one.

County Response

The County does not want to commit every MRF to have a HHW program. If there were to be a collection center in the vicinity, the need for one at the MRF would be diminished. The inclusion of this possibility to the Element has been made.

LTF Comment

The HHW estimated costs of implementation seems low.

County Response

The costs for brochures and other activities have been reevaluated.

LTF Comment

Objective one should be expanded because HHW does not end up only in the landfills.

County Response

It is true that HHW ends up in storm drains, vacant lots and many other places, however, it would be nearly impossible to measure the amount of illegal dumping of HHW taking place outside the landfills and determine to what extent it had been reduced.

A qualitative objective has been added to the HHWE that states that we will promote the safe handling of HHW in order to eliminate, to the extent possible, illegal disposal and dumping.