

INTEGRATED  
WASTE  
MANAGEMENT  
BOARD

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A N N U **1992** R E P O R T

# STATE OF CALIFORNIA

Pete Wilson  
*Governor*

James M. Strock  
*Secretary for Environmental Protection*  
*California Environmental Protection Agency*

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## CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

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MEMORANDUM

To: All Staff

Date: April 23, 1993

From:

  
Ralph E. Chandler, Executive Director  
CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

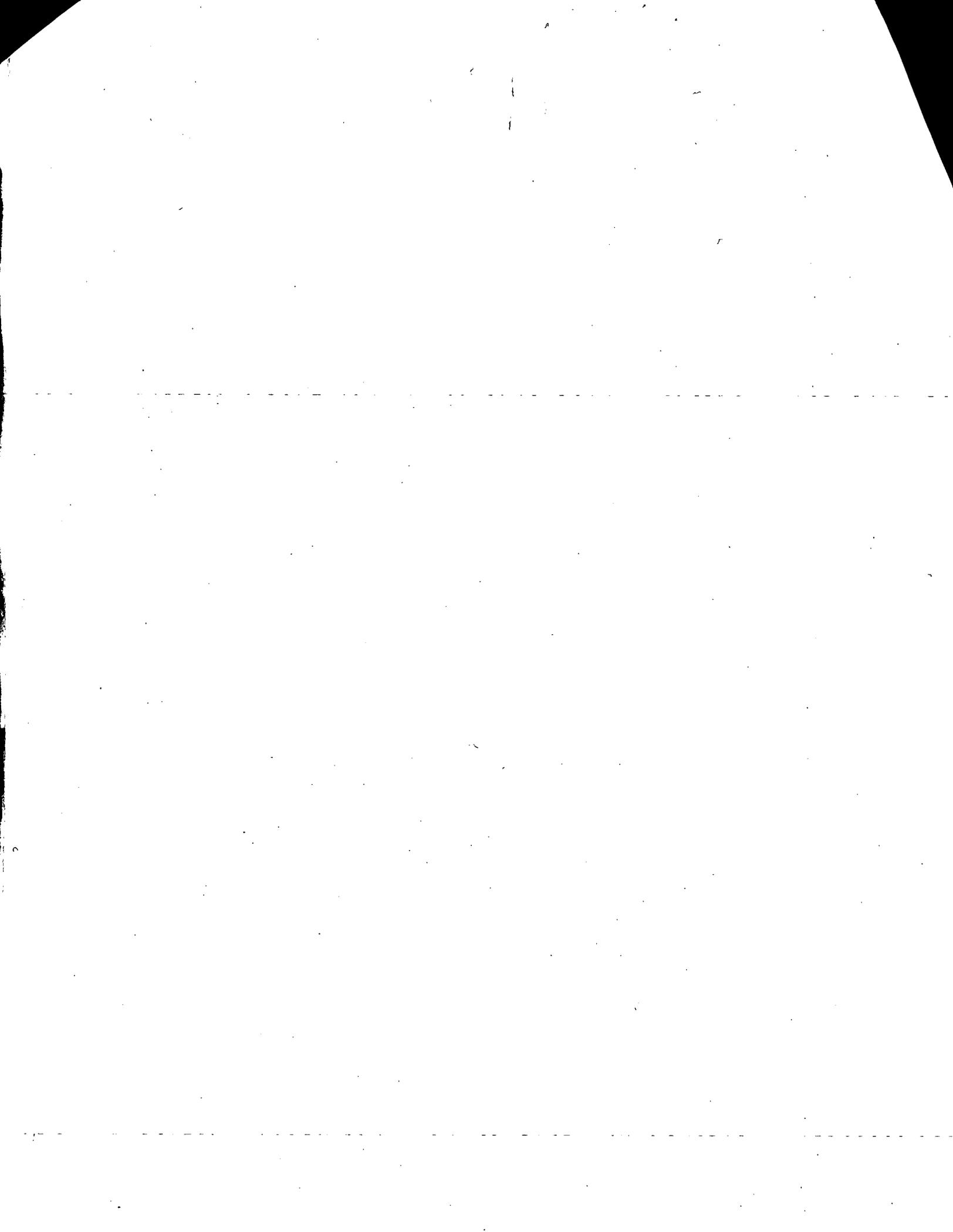
Subject: 1993 ANNUAL REPORT

Attached is a copy of the **1992 Annual Report** which recognizes the significant contributions and efforts made by staff during the past year. The report summarizes the Board's accomplishments and marks a milestone in our progress toward implementing integrated waste management.

I commend all of you for your dedication and enthusiasm in carrying out our mandates and for distinguishing the Board as an agency committed to addressing a wide range of waste management issues. Thank you also for making this report the most complete reporting of Board accomplishments to date.

If you need additional copies, please contact the Office of Public Affairs and Education at 255-2296.

ATTACHMENT



## LETTER FROM THE CHAIRMAN

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**O**n behalf of the Integrated Waste Management Board (Board), I am honored to present this 1992 report on waste management.

This year's report reflects the substantial progress we've achieved in meeting the state's comprehensive integrated waste management goals. Addressing well over 40 separate mandates, the Board in 1992 has crafted sharply focused plans and launched initiatives across the entire spectrum of waste management.

The waste management challenge is an enormous one in California. Every year, Californians generate 45 million tons of garbage, enough to cover a four-lane highway with six feet of compacted garbage, stretching from the Oregon to the Mexican border.

It is a challenge that countless numbers of Californians are working on every day. Growing numbers of children and adults, small and large businesses, the waste industry, and local government are working together, more and more, to meet the waste management challenge.

California can be proud of how far we've come in integrated waste management to date. Today, virtually every local government has created a preliminary plan on how to achieve 25 and 50 percent diversion of solid waste by 1995 and the year 2000. Each has begun to put those plans into action.

Substantial progress has been made in finding new markets for the waste materials. This past year, the Board established the first 12 of 40 "market development" zones — providing incentives to recycling businesses that will commit to directly or indirectly developing products. It is the cornerstone of an ambitious market development plan that will guide California for many years to come. More and more recycled products are being developed, and indications are, the public is ready to use more of them.

The Integrated Waste Management Board has made tremendous progress in environmental protection, as well as streamlining regulation, identifying thousands of closed, abandoned, or illegal disposal sites, inspecting hundreds of solid waste disposal facilities, and certifying local enforcement agents throughout California.

We provided many communities with aid to collect household hazardous waste. We provided used oil collection grants and helped local communities divert construction and demolition debris during their emergencies. We answered over 50,000 calls from Californians on how to reduce, reuse and recycle, and launched a public education program to reach even more.

This year's report includes details on each and every program for which the Board is responsible. It mirrors our level of commitment and reflects our sense of urgency in implementing the vision of integrated waste management crafted by the Governor and Legislature. With your continued support and assistance, we stand ready to work even harder and smarter in 1993 to meet the California waste management challenge.

Sincerely,



Michael R. Frost  
*Chairman*

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# 1992 ANNUAL REPORT

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# INTRODUCTION AND OVERVIEW

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## THE NEW WASTE MANAGEMENT PHILOSOPHY

The passage of landmark state legislation in 1989 and 1990, known as the California Integrated Waste Management Act (IWM Act), created a whole new waste management philosophy in California. Based on the principles of integrated waste management (IWM), the IWM Act emphasizes conservation of natural resources through a hierarchy of management methods to reduce, reuse, and recycle solid waste.

A full-time California Integrated Waste Management Board (CIWMB or Board) was established to provide effective and coordinated management of the state's solid waste. The Board is vested with policy-making and regulatory authority to ensure a reduction in the quantity of waste generated and disposed of in landfills, and to ensure compliance with environmental regulations. It is comprised of representatives of both Legislative and Executive branches of state government — a cooperative partnership to develop a forward-looking solid waste management system.

The 1992 Annual Report summarizes the Board's mission, its organization for implementation, IWM priorities, and programs and accomplishments to date.

## THE CALIFORNIA WASTE STREAM

Californians produced an estimated 45 million tons of solid waste in 1990. (See figure 1, page 9, for the estimated average 1990 waste stream composition.) This amount of waste would cover the entire City of San Francisco with more than two feet of compacted garbage, or cover a four-lane freeway stretching from the northwest corner of California to the southeast with six feet of garbage. The 45 million tons equals about 8 lbs/per person/day. At this rate, a Californian who lives to be 70 years old would leave a legacy of 210,000 lbs of waste to his/her children.

Approximately 41 percent of the state's waste is from residential sources; 24 percent from the industrial sector; and 35 percent from commercial sources. The distribution of the California waste stream closely parallels that of the state's population. Nearly one-half of California's 30 million residents reside in Los Angeles, Orange, and San Diego counties; more than half of the solid waste generated statewide comes from this three-county area.

The size of California's waste stream will continue to grow as the population increases. With a projected state population of more than 36 million residents by the year 2000, California's waste may reach approximately 60 million tons at today's rate of generation. Contrasting with this growth in population is decreasing landfill capacity at a time when nearly 88 percent of waste generated is disposed of in landfills. The remaining permitted landfill disposal capacity statewide was estimated at 13 to 18 years in January 1990. At that time, counties representing approximately 70 percent of the state's population indicated that they will be facing a landfill capacity shortage within the next 13 years if 1990 conditions persist. Ten counties containing nearly 40 percent of the state's population estimated they have less than five years remaining in landfill disposal capacity.

## MISSION OF THE BOARD

The mission of the Board is to protect the public health and safety and the environment through waste prevention, waste diversion, and safe waste processing and disposal. The Board accomplishes this mission by:

- Educating the public about the value of resource conservation and the economic and environmental costs of waste disposal;
- Facilitating the development of markets for recyclable materials and the treatment of solid waste as a resource;

- Aggressively enforcing environmental regulations;
- Developing effective relationships with local governments and private industry to develop and implement integrated waste management programs;
- Conducting focused research in support of the waste management hierarchy;
- Developing cost-effective, economically feasible, and environmentally safe approaches to waste management; and
- Facilitating the development of facilities required to divert waste from disposal and provide disposal capacity for materials that cannot feasibly be diverted.

## ISSUES AND MANDATES

The IWM Act and related laws have placed many important issues before the Board, with many mandates to be implemented. The following are among the leading examples of these issues and mandates.

- A statewide hierarchy was established for IWM, with priorities of (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and land disposal.
- Each city and county is required to divert 25 percent of its solid waste from landfills through source reduction, recycling, and composting by January 1995. Fifty-percent diversion is required by the year 2000 (transformation may account for up to 10 percent of the mandated 50 percent).
- Each city and county must develop a plan and implement programs to meet these goals, with the oversight and assistance of the Board. The County Integrated Waste Management Plans include specified elements from each city and county regarding plans for source reduction and recycling, household hazardous waste, and siting of solid waste facilities; they are submitted for Board review and approval.

- Local enforcement agencies monitoring solid waste handling and disposal facilities must meet certification criteria developed by the Board. To strengthen protection of public health and the environment, the Board must review and revise statewide standards for solid waste handling and disposal, and increase its monitoring of these facilities.
- The Board must develop statewide public information and education programs to gain public support for, and increased participation in, the priorities and goals of IWM.

## BOARD ORGANIZATION

To facilitate the open discussion of these issues, assist in implementing the mandates, and provide a forum for careful examination of information from all points of view, the Board has established six three-member committees pursuant to Public Resources Code (PRC) Section 40500. These committees provide a framework allowing full review of issues and proposals prior to a hearing by the full Board; this facilitates the consideration of noncontroversial items as well as provides an opportunity for discussion of issues requiring careful review. The committees are listed below.

1. **The Administration Committee** oversees the Board's management responsibilities and issues related to its operational requirements.
2. **The Integrated Waste Management Planning Committee** oversees local implementation of IWM priorities and goals.
3. **The Market Development Committee** oversees the Board's aggressive market development mandates, providing for the development and expansion of markets for recycled materials.
4. **The Permitting and Enforcement Committee** oversees local procedures for issuing and enforcing solid waste facility permits, enforces state minimum standards, develops new standards and regulations, and pursues local government and private sector compliance with state standards for solid waste facilities.

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**5. The Policy, Research and Technical**

**Assistance Committee** oversees development and implementation of the Board's short- and long-term research needs, including the expansion of existing and development of new technology for handling and processing solid wastes, such as special wastes.

**6. The Legislation and Public Affairs**

**Committee** oversees legislative proposals and issues affecting Board activities and develops public information and education programs to support IWM goals.

The Board's staff is organized to reflect the relationships between many of the Board's programs and the constituents served by those programs. Staff is organized into four divisions as described below.

**1. The Planning and Assistance Division**

oversees the development and implementation of aggressive waste diversion programs to achieve state mandates, providing assistance to local communities in meeting the coordinated planning features of the IWM Act. Market development initiatives implemented by the division are key to the success of waste diversion. Assistance to state agencies and institutions, local government, and the public and private sectors implementing waste diversion programs is provided through technical assistance and material support programs.

**2. The Permitting and Compliance Division**

reviews and recommends operating permits — not only for specific solid waste facilities, but for solid waste handling, processing, and disposal technologies, as well. The division reviews permitted solid waste facilities for compliance with state standards and operational/closure conditions. The division evaluates and certifies local enforcement agencies (LEAs) to administer provisions of the permitting, inspection, and enforcement programs and works closely with LEAs to ensure environmentally safe disposal and handling of solid wastes. The Board reviews and recommends Closure and Postclosure

Maintenance Plans for active solid waste landfills for compliance with statutory and regulatory requirements. For permitted, unpermitted or inactive sites, the division evaluates the need for remediation for compliance with statutory and regulatory requirements.

**3. The Research and Technology Development**

**Division** provides technical and regulatory development, implementation, and support functions related to waste diversion, handling and disposal technologies, specific assessment and handling practices, application of technologies, and special studies.

**4. The Administration and Finance Division**

handles the Board's administrative functions, providing financial, accounting, personnel, data processing, and equipment and maintenance functions.

The Board/Executive support functions are handled by four offices reporting to the Executive Director.

**The Legal Office** provides Board and staff support on legal history, actions, analysis, and advice. The office directly handles all litigation and other legal actions entered into by the Board.

**The Legislation Office** analyzes all legislation related to IWM issues and pursues positions and amendments as directed by the Board. The office is also responsible for developing legislative proposals, based upon staff needs, for approval by the Board.

**The Public Affairs and Education Office** is responsible for coordinating public education programs and for disseminating information on all aspects of IWM through publication of materials and public outreach activities. This office also oversees the Board's school curriculum development activities.

**The Policy and Evaluation Office** is responsible for the development of long-term program emphasis under the direction of the Board. The office develops proposed Board policy on intra-Board issues as well as interagency environmental issues.

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## IWM PRIORITIES

Beyond the organizational initiatives outlined above, the Board has made significant progress in developing IWM priorities and programs as mandated by law.

### I. SOURCE REDUCTION

Source reduction is the top priority in California's IWM hierarchy because it reduces waste at the source of generation, thereby creating an array of economic and environmental benefits. Organizations practicing source reduction benefit economically by adopting purchasing practices to reduce waste, using supplies more efficiently, and by repairing or reusing products to make them last longer. Additionally, when waste is never created, it does not have to be collected, processed, recycled, or landfilled. This reduces waste management costs and pollution generated from these activities.

Source reduction also encourages innovation. Several businesses found that when they identified ways to reduce waste and use resources more efficiently, new and improved products and packaging emerged. Source reduction can, therefore, help California businesses compete effectively in national and international markets. Other benefits include: conserving natural resources and energy by increasing the longevity of products; reducing air or water pollutants often associated with manufacturing new products; and, extending the life span of landfills.

Although source reduction offers great potential, it is a relatively underdeveloped approach, especially when compared to traditional waste management practices that rely on managing discards. Most state-mandated programs and new waste management efforts of local governments have focused on recycling activities. This is not surprising because recycling offers a relatively quick and proven approach to diverting significant amounts of waste. Source reduction can require a change in behavior of consumers, business, and industry or a change in product and packaging design; in some cases it may take several years to implement these changes. Another key barrier to source reduction is the lack of information about the impacts of source reduction programs and activities that would allow private sector and local government managers to compare

source reduction options to other waste management alternatives. The following are key Board accomplishments in overcoming barriers to promoting source reduction.

#### Accomplishments

- A statewide action plan was initiated for source reduction, including research on source reduction quantification methodologies.
- A home composting educational video was produced that outlines options for handling yard waste at the source of generation.
- A program implementation plan was initiated for recycled rigid plastic containers. The program requires certain containers to meet standards in manufacture for source reduction, reuse or refilling, recycling, and postconsumer content.
- The Board is pilot-testing source reduction and recycling programs in schools throughout several counties to develop a model program for local governments and school officials.
- The Board developed and distributed interim educational materials to educators statewide, providing lessons on IWM.
- The Board has promoted its California Materials Exchange (CALMAX) program. CALMAX serves as a communications network for trading inexpensive or free materials and brings reusers, recyclers, and waste generators together to simultaneously create new markets and reduce waste.

### II. RECYCLING AND COMPOSTING

Recycling and composting programs form the core of California's waste diversion efforts to date. Effective waste diversion approaches that can be implemented immediately, recycling and composting have the potential to divert large quantities of waste from landfills and will play a significant role in meeting the state's waste diversion goals.

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The most important challenge facing recycling and composting programs is the creation of a strong and stable marketplace for the secondary materials generated by recycling and composting. For these programs to succeed and prosper, they must be consistently successful in competing against virgin materials in the marketplace. State efforts to strengthen the recycling marketplace are called market development, and are a top priority of the Board.

A key activity initiated by the Board is the preparation of a Market Development Plan that will provide a comprehensive analysis of recycling markets and recommendations to guide and coordinate market development statewide. Preparation of the plan included a comprehensive analysis of key secondary material types, input from a wide variety of interest groups, and a methodical prioritization of alternative actions. In addition to promoting the long-term success of recycling in California, the plan will help promote the economic benefits of recycling, including job creation and increased local tax base.

#### **Accomplishments**

- The amount of materials collected from state agencies for recycling increased from 2,123 tons in 1991 to 6,207 tons in 1992, and the number of state agencies (facilities) with recycling programs increased from 324 to 480.
- Twelve Recycling Market Development Zones, regionally dispersed throughout the state, were designated and workshops were conducted to assist with implementation. The 12 zones designated are: the Cities of Long Beach, Los Angeles, Merced/Atwater, Oakland/Berkeley, Oroville, and Porterville; the Counties of Contra Costa, Glenn, San Bernardino/Riverside, and Ventura; the City and County of Sacramento; and, the City and County of San Diego.
- The Board received and processed the first certifications from consumers of newsprint. Every California newsprint consumer is required to certify to the Board the number of tons of newsprint and recycled-content newsprint used during the preceding calendar year, to ensure that at least 25 percent of all newsprint is made from recycled-content

newsprint. The majority of California commercial printers and publishers exceeded the 25-percent individual goal. As a group, California commercial printers and publishers used over 40-percent recycled-content newsprint in their operations. Eight of the top 10 daily newspapers reported meeting the 25-percent recycled-content newsprint requirement.

- Bi-monthly CALMAX catalogs were published for the entire 1992 year. CALMAX is a free classified-listing catalog designed to help businesses find markets for or exchange materials they have traditionally discarded. Over 65 exchanges and diversion of nearly 112,000 tons of materials have been reported.
- The Board published the following report: *Plastics: Waste Management Alternatives*. Please see the Publications List, Appendix D, Plastics for further information.

### **III. ENVIRONMENTALLY SAFE SOLID WASTE FACILITIES**

As the lead agency for solid waste management in California, the Board must ensure that local solid waste programs and facilities meet required state standards for the protection of public health, safety, and the environment. The Board implements this goal through the following 10 major mandated programs:

1. local enforcement agency (LEA) certification and performance evaluation;
2. permitting solid waste facilities;
3. review of environmental documents;
4. inspections of solid waste facilities;
5. closure/postclosure maintenance plans;
6. operating liability for solid waste landfills;
7. corrective action;
8. closed, illegal, and abandoned sites;
9. hazardous waste identification and removal; and
10. a research and development program.

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The Board and local governments are facing several significant challenges in managing the state's solid waste. These range from diminishing landfill capacity and the need to evaluate viable alternatives that meet California's environmental standards, to permitting new types of solid waste facilities that sort and process recyclable material, to reviewing proposed development projects on old landfill sites that pose unique threats to public health, safety, and the environment.

Current solid waste management challenges have increased the complexity of the Board's review and approval process for solid waste facilities. The Board has initiated several regulatory improvements to streamline the existing regulatory process and provide solid waste facility operators with predictable, straightforward standards. The Board is pursuing improvements to the following regulations: Federal Subtitle D Regulations, Solid Waste Facilities Permit (SWFP) Regulations, Composting Regulations, and Asbestos Regulations.

#### **Accomplishments**

- The Board reviewed and certified 61 jurisdictions as LEAs for the 1992 calendar year and provided LEA training at several locations statewide in the following: designation and certification processes and requirements; permitting procedures and regulations; closure/postclosure procedures and regulations; and, financial assurance mechanisms.
- The Board evaluated and concurred in 108 SWFPs submitted by LEAs.
- Approximately 800 inspections of solid waste facilities were conducted in 1992, including annual and other permit-related inspections.
- The Board served as the enforcement agency (EA) in five jurisdictions in 1992 (Del Norte County, Nevada County's McCourtney Landfill, City of Berkeley, Stanislaus County, and Santa Cruz County). These duties included performing monthly inspections of active solid waste facilities and illegal sites, as well as quarterly inspections of closed, abandoned, and exempted sites.

- The Board initiated its first corrective action in June, when it extinguished an underground landfill fire, placed a final cover, and installed gas and groundwater monitoring systems at a problem landfill in Northern California.
- A list of 2,500+ closed, illegal, or abandoned sites was developed. The sites on the list will be ranked in 1993, using a two-phase system. The first phase will be a preliminary ranking; the second an in-depth evaluation based on various factors. Corrective actions will be pursued for those sites identified as in need.

## **IV. MATERIAL-SPECIFIC PROGRAMS**

Several materials that present a hazard in the solid waste stream deserve specific attention (e.g., household hazardous waste (HHW), used oil, and waste tires). Programs for each of these materials address multiple areas, such as funding, grant awards, standards development, and education. Each of the programs may contain activities that encourage increased source reduction, recycling, composting, or solid waste facility oversight; a complete discussion of material-specific programs is included here to better understand the integrated approach taken.

#### **Accomplishments**

- Fifty-eight non-discretionary HHW grants totaling \$3,661,171 were awarded to local governments for programs implemented in the previous year (1991) that help prevent the disposal of HHW at solid waste landfills. The Board also awarded 14 discretionary HHW grants totaling \$338,829 for new and expanded programs.
- Nineteen used oil collection demonstration grants were awarded to cities and counties totaling \$840,057 to encourage the establishment of public used oil curbside collection projects.

- The Board held workshops on the Used Oil Recycling Program to develop the most efficient procedures and regulations to govern the fee payment process. Based on feedback from participants in the workshops, emergency regulations for reporting requirements by oil manufacturers, used oil haulers, and used oil recycling facilities were filed with the Secretary of State. Nonemergency regulations were submitted to the Office of Administrative Law. Emergency regulations have also been submitted to the Office of Administrative Law for certification of used oil collection centers and grant program administration.
- The Board proposed final waste tire regulations for permitting major and minor waste tire facilities.
- The Board published the following reports: *Tires as a Fuel Supplement: Feasibility Study and Household Battery Waste Management Study*. Please see the Publications List, Appendix D, Tires and Household Hazardous Waste for further information.

## V. LOCAL IWM PLANNING

As the statewide coordinator for implementation of California's IWM priorities, the Board's role is to oversee and assist in the development of local plans to implement IWM mandates. Perhaps the single greatest achievement of the Board in 1992 was its initiative to develop legislation that would provide for a major restructuring and simplification of planning and diversion requirements. The Board initiated legislation in response to local government concerns about implementation of the IWM Act. Also, the Board initiated and published a major study of remaining landfill capacity in the state. This study provides baseline information on waste management resources and serves as a guide for both local and state planning efforts.

### Accomplishments

- The Board initiated a proposal that was the basis for AB 2494 by Assemblymember Sher (Chapter 1292, Stats. 1992). AB 2494 streamlines California's landmark waste

management law, making it less cumbersome and far less costly for local governments to develop, implement, and monitor plans for 25-percent waste diversion by 1995, and 50-percent by the year 2000.

- The Board approved the *Reaching the Limit: An Interim Report of Landfill Capacity* in April 1992 that contains capacity data received from each county local task force and compiled by Board staff. Please see the Publications List, Appendix D, Landfills for further information.
- The Board developed emergency programs for the diversion of construction and demolition debris following the Humboldt Earthquake in April.
- As of December, Board staff had reviewed 479 of the 526 required Source Reduction and Recycling Elements and 452 of the 526 required Household Hazardous Waste Elements of the Countywide Integrated Waste Management Plans (CIWMP).
- The Board adopted regulations concerning petitions from local jurisdictions for reductions in planning and diversion requirements.
- Board staff provided assistance to all of the state's 526 jurisdictions in the area of plan preparation, statutory and regulatory interpretation, and program implementation.

## VI. EDUCATION AND PUBLIC AWARENESS

In order to achieve California's ambitious IWM goals, it is essential to educate the public, businesses, and local government about the potential long-term gains of practicing source reduction. Through various public information and education programs, the Board is laying a foundation to change the public's daily habits and routines and to impact the decisionmaking processes of businesses and local government so that they reflect an awareness of the environmental consequences of excessive waste generation.

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### Accomplishments

- The Board established a communications plan to convince target audiences that recycling is not enough — that actions such as reducing waste, buying recyclable goods, and reusing materials are required. Support for the plan includes: development of marketing support kits for distribution to cities and counties; and development of an advertising and public relations market test.
- Hotline staff answered more than 50,000 telephone calls from citizens requesting information on dropoff locations for used oil, paper products, and plastics.
- Board staff developed and distributed interim educational materials that provide lessons on IWM methods to educators statewide.
- The Board sponsored school assemblies promoting source reduction and recycling activities.
- Two successful education symposia were held that brought together representatives from state and local government, business and industry, and education professionals who discussed the development of IWM education programs in California schools.
- Publishing efforts included: general information brochures; special brochures on source reduction, recycling and composting; and numerous fact sheets, resource guides, manuals, videos, and pamphlets on a variety of IWM topics. More than 60 reports and other publications were developed and distributed. Please see the Publications List, Appendix D for further information.

## THE 1992 ANNUAL REPORT

The report is organized into the following six chapters: Source Reduction, Recycling and Composting, Environmentally Safe Solid Waste Facilities, Material-Specific Programs, Local IWM Planning, and Education and Public Awareness. Each of these chapters contains a discussion on the Board's implementation of legislatively-mandated programs, including accomplishments. The chapters also contain a discussion of actions that the Board has initiated to improve or resolve key issues or concerns. These are located at the beginning of the chapter, under the heading Key Initiative.

# Estimated Average 1990 Waste Stream Composition not including Diversion of Excluded Waste Types

Extrapolation by Population of Information in Sampled Preliminary Draft Source Reduction and Recycling Elements submitted by Jurisdictions

Revised: 12-31-92

Waste Categories & Types	Tons Disposed	Disposal Rate(%)	Composition Disposal(%)	Tons Diverted	Diversion Rate(%)	Composition Diversion(%)	Tons Generated
<b>TOTAL</b>	<b>39,862,875</b>	<b>88.4</b>	<b>100.0</b>	<b>5,206,890</b>	<b>11.6</b>	<b>100.0</b>	<b>45,069,765</b>
<b>PAPER</b>	<b>11,376,727</b>	<b>81.0</b>	<b>28.5</b>	<b>2,676,597</b>	<b>19.0</b>	<b>51.4</b>	<b>14,053,324</b>
Cardboard & Bags	3,363,592	73.9	8.4	1,189,722	26.1	22.8	4,553,313
Mixed Paper	3,134,363	90.4	7.9	334,243	9.6	6.4	3,468,606
Newspaper	1,824,482	68.9	4.6	823,056	31.1	15.8	2,647,538
Hi-Grade Ledger Paper	764,579	76.3	1.9	237,311	23.7	4.6	1,001,889
Other Paper	2,289,712	96.1	5.7	92,265	3.9	1.8	2,381,977
<b>PLASTICS</b>	<b>2,740,539</b>	<b>97.3</b>	<b>6.9</b>	<b>74,861</b>	<b>2.7</b>	<b>1.4</b>	<b>2,815,401</b>
HDPE Containers	266,675	95.9	0.7	11,350	4.1	0.2	278,025
Pet Containers	66,314	81.8	0.2	14,796	18.2	0.3	81,110
Film Plastics	841,069	97.3	2.1	23,176	2.7	0.4	864,246
Other Plastics	1,566,481	98.4	3.9	25,539	1.6	0.5	1,592,020
<b>GLASS</b>	<b>1,384,983</b>	<b>72.1</b>	<b>3.5</b>	<b>537,113</b>	<b>27.9</b>	<b>10.3</b>	<b>1,922,096</b>
Refill Glass Containers	45,595	79.0	0.1	12,150	21.0	0.2	57,745
Redemption Value Glass	416,330	56.1	1.0	325,154	43.9	6.2	741,484
Other Recyclable Glass	580,318	79.0	1.5	154,230	21.0	3.0	734,549
Other Non-Recyclable Glass	342,740	88.3	0.9	45,579	11.7	0.9	388,319
<b>METALS</b>	<b>2,053,694</b>	<b>92.6</b>	<b>5.2</b>	<b>163,842</b>	<b>7.4</b>	<b>3.1</b>	<b>2,217,536</b>
Aluminum Cans	104,171	41.8	0.3	145,194	58.2	2.8	249,365
Bi-Metal Containers	54,364	74.5	0.1	18,648	25.5	0.4	73,012
Ferrous & Tin Cans	1,370,178	100.0	3.4	Excluded	0.0	0.0	1,370,178
Non Ferrous & AL Scrap	181,345	100.0	0.5	Excluded	0.0	0.0	181,345
White Goods	195,692	100.0	0.5	Excluded	0.0	0.0	195,692
Other Metals	147,943	100.0	0.4	Excluded	0.0	0.0	147,943
<b>YARD WASTE</b>	<b>5,829,928</b>	<b>91.1</b>	<b>14.6</b>	<b>566,333</b>	<b>8.9</b>	<b>10.9</b>	<b>6,396,261</b>
Yard Waste	5,829,928	91.1	14.9	566,333	8.9	10.9	6,396,261
<b>OTHER ORGANIC</b>	<b>9,459,847</b>	<b>90.7</b>	<b>23.7</b>	<b>969,540</b>	<b>9.3</b>	<b>18.6</b>	<b>10,429,386</b>
Food Waste	2,830,820	89.2	7.1	342,985	10.8	6.6	3,173,805
Tires & Rubber	462,881	89.5	1.2	54,551	10.5	1.0	517,432
Wood Wastes	3,377,178	87.6	8.5	480,044	12.4	9.2	3,857,222
Crop Residues	68,748	100.0	0.2	Excluded	0.0	0.0	68,748
Manure	459,619	100.0	1.2	Excluded	0.0	0.0	459,619
Textiles & Leather	859,124	95.7	2.2	38,787	4.3	0.7	897,911
Miscellaneous Organic	974,721	97.2	2.4	28,081	2.8	0.5	1,002,802
Disposable Diapers	426,756	94.4	1.1	25,092	5.6	0.5	451,847
<b>OTHER WASTE</b>	<b>6,535,542</b>	<b>98.5</b>	<b>16.4</b>	<b>101,996</b>	<b>1.5</b>	<b>2.0</b>	<b>6,637,538</b>
Inert Solids	3,582,066	100.0	9.0	Excluded	0.0	0.0	3,582,066
Household Hazardous & Containers	234,211	96.3	0.6	8,910	3.7	0.2	243,122
Furniture	23,478	87.9	0.1	3,227	12.1	0.1	26,704
Bulky Items	41,686	92.7	0.1	3,302	7.3	0.1	44,987
Other & Unsorted Waste	2,654,103	96.8	6.7	86,557	3.2	1.7	2,740,659
<b>SPECIAL WASTES</b>	<b>481,615</b>	<b>80.5</b>	<b>1.2</b>	<b>116,607</b>	<b>19.5</b>	<b>2.2</b>	<b>598,222</b>
Ash	177,839	74.0	0.4	62,401	26.0	1.2	240,240
Sewage Sludge	38,771	60.0	0.1	25,831	40.0	0.5	64,602
Industrial Sludge	16,717	99.4	0.0	101	0.6	0.0	16,818
Asbestos	5,269	100.0	0.0	0	0.0	0.0	5,269
Auto Shredder Waste	37,166	99.4	0.1	211	0.6	0.0	37,377
Auto Bodies	704	100.0	0.0	Excluded	0.0	0.0	704
Other Special Waste	205,148	88.0	0.5	28,064	12.0	0.5	233,212

Population of sampled jurisdictions = 25,917,471  
 Total population of state = 30,049,456  
 Percentage of population = 86.2 %  
 Number of sampled jurisdictions = 486  
 Total number of jurisdictions in state = 525  
 Percentage of jurisdictions = 92.6 %

**EXCLUDED WASTE TYPES**

Inert solids (concrete, asphalt, dirt, etc.)  
 Scrap metal (ferrous, non-ferrous, auto bodies, etc.)  
 Agricultural wastes (crop residues, manure, etc.)  
 White goods (major appliances, washers, dryers, etc.)

**PER CAPITA RATES**

Disposal (lbs/person/day) = 7.3  
 Diversion (lbs/person/day) = 0.9  
 Generation (lbs/person/day) = 8.2

Please Note: \*DIV/0! = Zero (0). Percentages may not add to 100% due to rounding.



# I. SOURCE REDUCTION

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**T**he Integrated Waste Management (IWM) Act places source reduction at the top of its waste management hierarchy because it encourages efficient use of materials and minimizes the high costs of extracting raw materials and managing solid waste. To date, most state-mandated programs and waste management efforts of local governments have been directed toward recycling, which offers a relatively quick and known form of solid waste diversion from landfills.

A key barrier to the promotion of source reduction has been a lack of information available concerning source reduction programs and activities and the savings they represent in avoided waste generation. Without this information, program administrators are not able to determine the tangible benefits of source reduction. To overcome this barrier and to direct future activities, the Board has contracted to assist staff in developing a statewide action plan for source reduction and to conduct research on source reduction quantification methodologies. This process includes:

- analyzing source reduction policies and programs being implemented in California, nationally, and internationally, including program barriers and possible state actions; and
- conducting two symposia on source reduction with participants representing a broad spectrum of interests, including: state legislators, rural and urban local governments, businesses, manufacturers, designers, educators, environmental groups, and Board members. The symposia are designed to solicit information and creative ideas to shape a statewide source reduction action plan.

The statewide action plan will be submitted to the Legislature upon Board approval [PRC 40507(f)], and will be made available after publication by the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Source Reduction for further information.

In addition, the Board will continue to develop educational materials for proven source reduction approaches. The Board also provides oversight of local governments' source reduction efforts through the review and approval of activities discussed in the Source Reduction and Recycling Element (SRRE) of the Countywide Integrated Waste Management Plans (CIWMP). For discussion of the Board's oversight role of local governments' IWM planning, see Chapter V, Local Integrated Waste Management Planning. (See figure I-1, for source reduction activities being reported by local governments.)

The following pages provide further detail and examples of the Board's efforts and accomplishments in source reduction.

## KEY INITIATIVE: PUBLIC EDUCATION OF CONSUMERS

Source reduction provides a permanent key to waste management solutions. Preventing waste in the first place represents the greatest challenge and greatest potential for bringing about meaningful change.

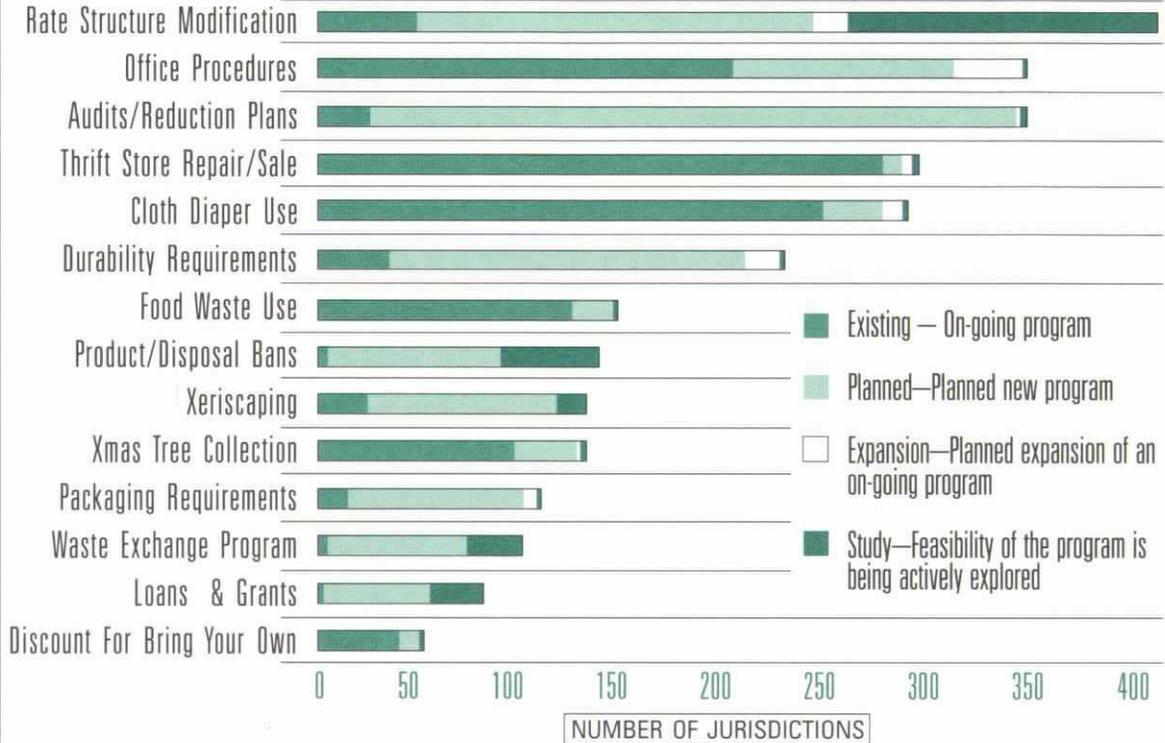
Recently, the Board analyzed consumer attitudes on the full range of IWM issues, and determined that the best opportunity to achieve behavioral change was to build upon the momentum of the recycling movement, asking consumers to take the next step — reduce waste at the source. Recognizing that this will be a long-range effort, the Board elected a two-pronged approach:

- a pilot public awareness program in two test markets; and
- development of a public awareness support kit for local governments.

Last year the Board surveyed a sampling of local governments to learn the kind of assistance desired. Among the needs expressed were sample brochures, public service announcements, and other educational tools. As a result, the Board is scheduled to provide local

## Source Reduction Programs Reported by Local Jurisdictions in the Source Reduction and Recycling Elements

(Programs designed to reduce the amount of materials being landfilled)



### Definitions\*

- Rate Structure Modification — A change in fees associated with disposal.
- Office Procedures — Activities occurring in the office in which waste is minimized.
- Audits/Reduction Plans — Waste composition and quantity surveys to determine what can be reduced or recycled.
- Thrift Store Repair/Sale — Repair and/or sale of second hand or used goods.
- Cloth Diaper Use — The use of cloth diapers instead of disposable diapers.
- Durability Requirements — Procurement or purchasing policies that require that durability be considered.
- Food Waste Use — The use of food, normally disposed of, for consumption or feedstock.
- Product/Disposal Bans — A ban on a material which cannot be reused or recycled locally.
- Xeriscaping — Landscaping practices that reduce waste and water usage.
- Xmas Tree Collection — The chipping and mulching of trees or the use of plastic trees.
- Packaging Requirements — Requiring that packaging of goods be minimized or use of recyclable packaging.
- Waste Exchange Program — Linking those needing items with items otherwise destined for the waste stream.
- Loans and Grants — Assisting in the funding of programs or activities that support diversion.
- Discount For Bring Your Own — Offered to consumers who bring their own bags, coffee cups, or other reusable items

\*The definitions used are Board Staff working definitions only and are not to be taken as regulatory or industry standards.

FIGURE I-1

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governments with kits and instructions on how to conduct an effective public education program in the first quarter of 1993. The kit includes:

- instructions on publicity;
- research findings on consumers attitudes;
- experts list;
- a calendar of public awareness events that can be disseminated to the press;
- radio public service announcements;
- television public service announcements; and
- newspaper advertisement slicks.

It is hoped that this will be the first of several kits the Board will develop for local governments.

## **A. STATEWIDE SOURCE REDUCTION PROGRAMS**

### **1. YARD WASTE SOURCE REDUCTION [PRC 42540]**

Data from the SRREs of the CIWMPs indicate that yard waste comprises more than 14 percent of the California waste stream. As one of the first source reduction programs initiated by the Board, this program provides guidance to local jurisdictions on yard waste source reduction techniques including: home composting, grasscycling, mulching, and xeriscaping. Providing yard waste source reduction assistance to cities and counties serves to decrease material handling and disposal costs and contributes to achieving the mandated waste reduction goals.

#### **Accomplishments**

- The Board produced a home composting educational video that outlines options for handling yard waste at the source of generation. The video will be provided to local governments for promotion to the public, as well as to any interested parties. Please see the Publications List, Appendix D, Composting for further information.
- The Board has developed brief written educational materials on yard waste reduction

for local governments and the public, and offers informational material prepared by local governments and interest groups.

A comprehensive package of informational brochures that explain and promote yard waste source reduction is under development. This package will be available to local jurisdictions in 1993.

### **2. RIGID PLASTIC PACKAGING CONTAINERS PROGRAM [PRC 42300 - 42340]**

Rigid plastic packaging containers (RPPC) represent a significant component of the packaging waste generated in California. In 1992, approximately 800 million lbs of RPPCs were disposed of in California landfills. To address this and other solid waste issues, California is increasing its efforts to achieve diversion goals through source reduction, recycling, and promoting markets for materials diverted from the waste stream. SB 235 by Senator Hart (Chapter 769, Stats. 1991) endeavors to achieve each of these goals for RPPCs, a very visible component of the waste stream.

The RPPC program requires that certain containers meet standards for source reduction, reuse or refilling, recycling, and postconsumer content, but also provides flexibility to help responsible entities comply with the statute. Beginning January 1, 1995, every RPPC sold or offered for sale in the state must meet one of the following criteria:

- be reduced in weight or volume by 10 percent;
- be reused or refilled by consumers at least five times;
- be made from 25 percent postconsumer material;
- have a recycling rate of 25 percent if its primary material is not polyethylene terephthalate (PET); and
- have a recycling rate of 55 percent if its primary material is PET.

The RPPC program is quite complex and is likely to impact several industries. To better determine affected parties and administrative options, staff performed an informal shelf survey to identify RPPCs and to research

# Rigid Plastic Packaging Container Product Category Sampling

Product Categories	Some Examples
Personal Care Products	Shampoo, Gels, Cosmetics, Lotions
Dairy Products	Yogurt, Milk, Margarine, Eggs
Beverage or Drink Products	Soda, Juice, Alcoholic Beverages
Household Products	Disinfectants, Drain Cleaner, Detergents
Automotive Products	Antifreeze, Oil, Windshield Wash Fluid

FIGURE I-2

container flow through several industries. (See figure I-2, for a sampling of the wide range of product categories that use potential RPPCs.)

Because of the many entities involved in the life of RPPCs, the program must be designed for the greatest efficiency and effectiveness. (See figure I-3, for a simplified view of the flow of RPPCs from their manufacture to disposal or rejuvenation as new products.) Board staff are striving to attain such a simplified program.

The Board will submit a report to the Legislature that will include program implementation plans, funding method options for program administration, and recommendations for modifying special areas of the legislation. More specifically, this conceptual implementation plan will provide clarification of which manufacturers are affected by the program, and include options for certification, compliance, program funding, and exemption criteria. The report will be submitted to the Legislature upon Board approval and will be made available after publication by the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Plastics for further information.

### Accomplishments

- The Board awarded a contract to assist in developing the conceptual plan. Completed sections of the conceptual implementation plan include: History and Description of SB 235, Definitions and Scope of RPPCs, Compliance

and Certification Requirement Options, Program Administrative and Staffing Requirements, and supplementary appendices.

- Board staff conducted two Technical Advisory Committee (TAC) meetings to assist the Board in developing the most effective and efficient program for RPPCs. The TAC is comprised of representatives from the plastics and other manufacturing industries, distributors, and retailers; local government, and the environmental community. Specific issues addressed at the meetings included: further defining RPPCs and which manufacturers are responsible for compliance; options for compliance and certification; methods for calculating recycling rates, and exemptions; and overall legislative intent.

### 3. SCHOOLSITE SOURCE REDUCTION AND RECYCLING [PRC 42620 et seq.]

Currently, there are 7,561 K-12 public schools in California, with an enrollment in excess of 5.1 million students. Source reduction and recycling programs in the schools are essential in setting an example for California's youth.

The Board is developing and implementing a source reduction and recycling program for school districts.

## Rigid Plastic Packaging Container Flow

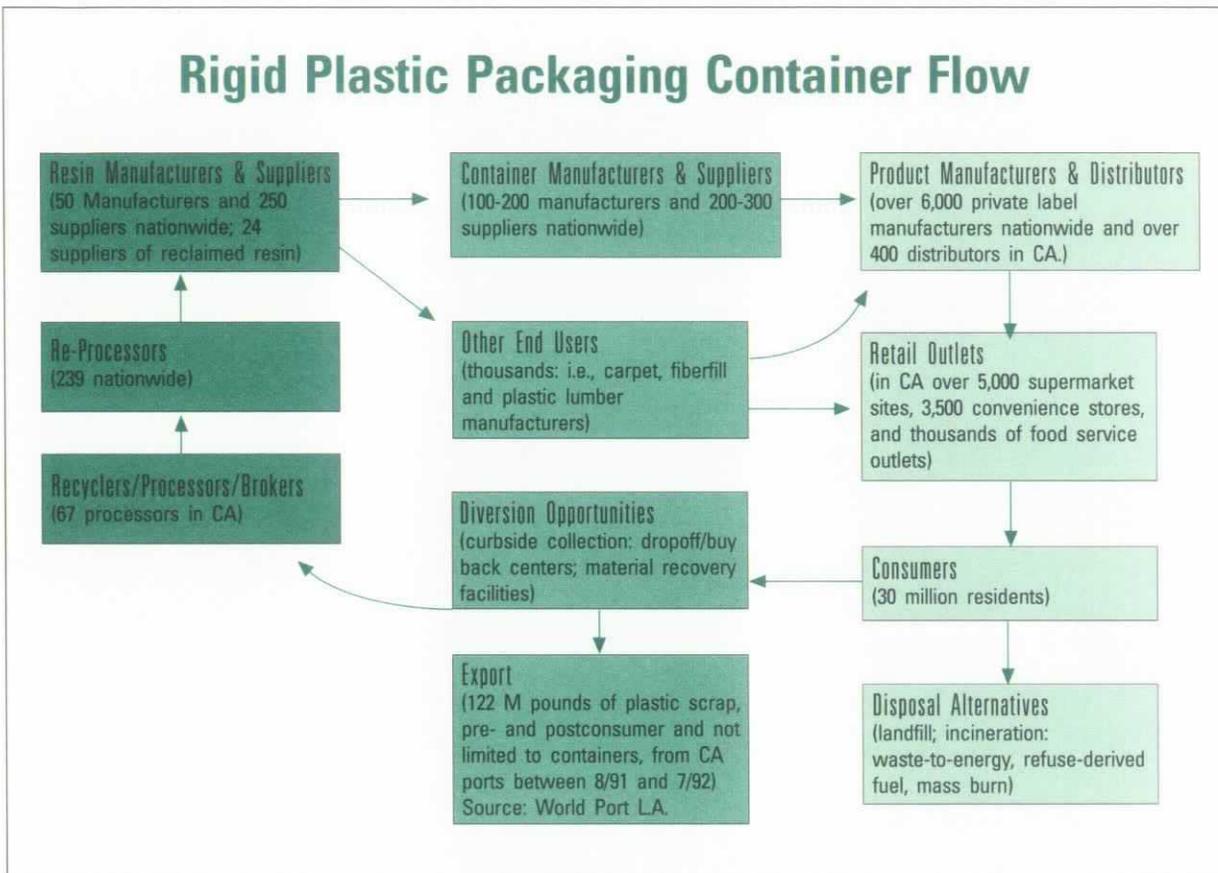


FIGURE I-3

Included in the program is a survey of school districts to identify schools with source reduction and recycling programs and those in need of such programs.

The survey and research conducted by the Board have revealed that waste generated by schools includes: large quantities of white and mixed paper, aluminum, newspaper, cardboard, plastic, milk cartons, juice boxes, polystyrene trays and utensils, and food waste. (See figure I-4, for source reduction techniques being practiced in the schools that responded to the survey.)

For discussion of this program as it relates to recycling, please refer to Chapter II, Recycling and Composting.

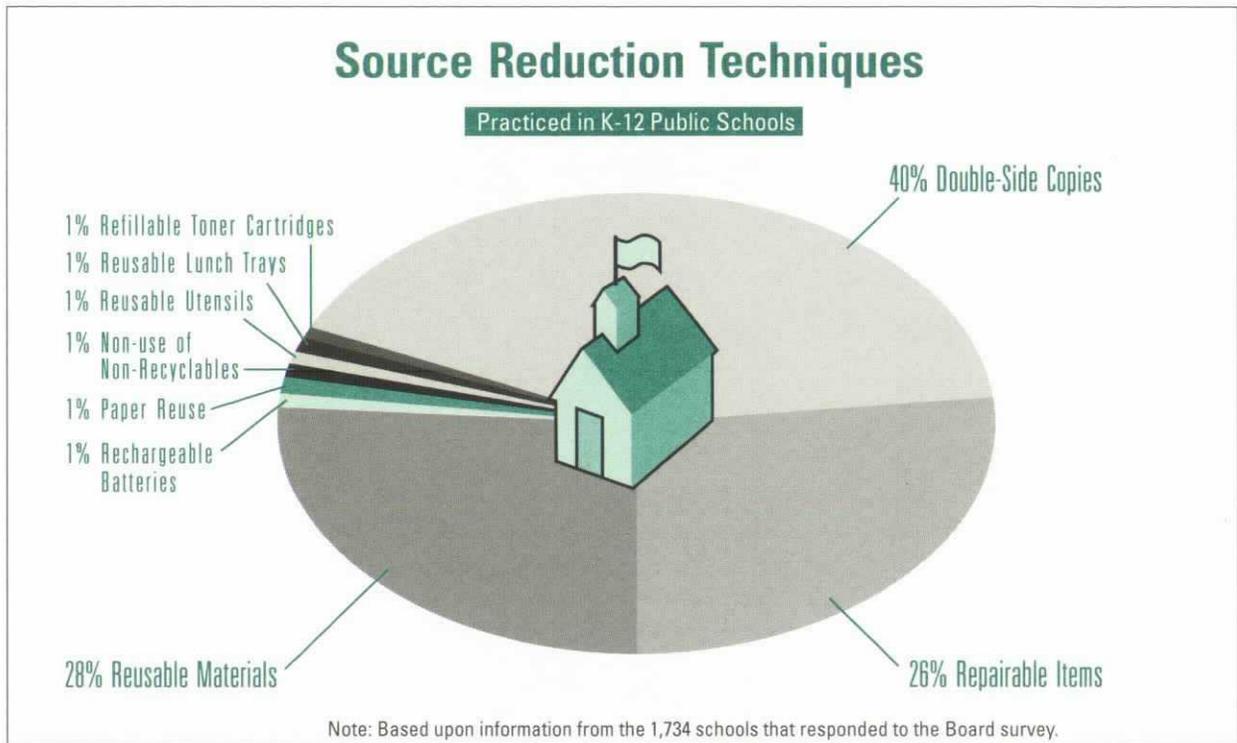
### Accomplishments

- The Board surveyed the K-12 public schools in California to identify those with source reduction and recycling programs and those in need of such programs. Surveys were sent

directly to schools because preliminary research revealed that schools were generally engaged in source reduction and recycling efforts independent of school districts. The Board received a 24-percent (1,734 schools) survey response rate. Eighty-two percent (1,414) of the responding schools reported practicing some form of source reduction.

While source reduction is practiced in those schools responding, the survey indicates these efforts could certainly be expanded. Many school programs are operated on an ad hoc basis, often dependent upon the individual initiative of teachers.

- Since June, the Board has been assisting school districts in developing districtwide pilot source reduction and recycling programs in several counties, including: Calaveras, Fresno,



**FIGURE I-4**

Monterey, Placer, Sacramento, San Bernardino, and Stanislaus. The pilot programs will enable the Board to gather information for the development of a model schoolsite waste reduction program for school districts and local government.

- A repository of literature and teaching materials from other states and institutions that have instituted source reduction and recycling programs was established. A catalog containing a listing and description of the literature and materials will be mailed to school districts and local government to assist in developing waste reduction programs.
- A networking list of appropriate school waste reduction program contacts was developed that includes: local government officials, industry contacts, and a matrix of successful school source reduction and recycling program contacts.

#### **4. IWM CURRICULUM DEVELOPMENT [PRC 42603(a)]**

In an effort to develop a student population that is aware of and concerned about IWM issues, the Board has been working with the State Department of Education to review existing IWM education materials as they relate to California educational standards. Chapter VI, Education and Public Awareness provides more detail regarding this program.

##### **Accomplishments**

- The Board developed and distributed interim educational materials.
- The Board sponsored school assemblies on IWM methods and a waste awareness exhibit at the Sacramento Science Center.

#### **5. HIGHER EDUCATION WASTE REDUCTION PROGRAMS**

There are 20 California State Universities (CSU), 9 Universities of California (UC), and 108 Community Colleges (CC). An estimated 2.5 million students at-

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tend these universities and colleges, and there are an estimated 31,000 faculty and staff employed. In many instances, these campuses are the single largest generators of waste in their communities. Currently there are no mandates requiring California's public university systems to reduce the amount of solid waste disposed. The Board recognizes there is a great potential for source reduction at these campuses, including procurement of durable goods and reduction of paper use, landscape waste, and construction demolition debris.

#### **Accomplishments**

- The Board contracted with Cal-State San Marcos, Humboldt State, San Francisco State, and the University of California at Los Angeles to provide technical assistance and funding for the development of model programs to encourage and aid campuses in developing waste reduction programs. final report guides and "how-to" videos will be made available at cost to CSUs, UCs, and CCs, as well as to independent universities and colleges.

### **6. UNIT PRICING SYSTEMS STUDY**

In most communities a fixed monthly amount is charged for solid waste collection and disposal services. However, increasing numbers of communities are turning to unit pricing to finance solid waste collection and disposal. Unit pricing means charging households for waste services based on the amount and type of waste collected. Under this system, households that generate less waste will pay less for waste collection, providing an economic incentive to reduce the amount of waste generated.

#### **Accomplishments**

- The Board contracted to conduct a unit pricing systems study. This study will analyze unit pricing systems and evaluate their applicability to California.

## **B. AWARENESS PROGRAM**

### **1. PUBLIC AWARENESS**

#### **[PRC 42600]**

The Board's major goals in source reduction are to learn more about the public's attitudes toward source reduction and to develop a creative strategy to motivate Californians to act.

In 1992, the Board embarked on a statewide public education campaign through a contract with DDB Needham Worldwide, Inc. The purpose of the contract is to conduct research on public/consumer awareness of source reduction and other waste reduction activities, and to develop a creative promotional strategy to motivate Californians to produce less waste. This program is described more fully in Chapter VI, Education and Public Awareness.

#### **Accomplishments**

- The Board compiled, reviewed and analyzed existing research on the attitudes of consumers and businesses toward waste reduction and their willingness to change.
- As a result of this research, the Board established a communications plan that targets specific audiences with the message to go beyond recycling. The plan seeks to encourage the public to consider reducing waste at the source, reusing materials where possible, and purchasing goods that come from recycled materials or goods that are recyclable.

## **C. INFORMATION SERVICES PROGRAM**

### **1. CALMAX**

#### **[PRC 42600(a)]**

The Board is promoting waste handling practices that reduce waste generation by businesses and industries through its California Materials Exchange (CALMAX) program. CALMAX publishes a free, bi-monthly catalog that contains classified listings of nonhazardous "waste" materials available for reuse or recycling. Its primary goal is source reduction through the reuse of items traditionally discarded in business and

## Top materials exchanged through CALMAX in 1992

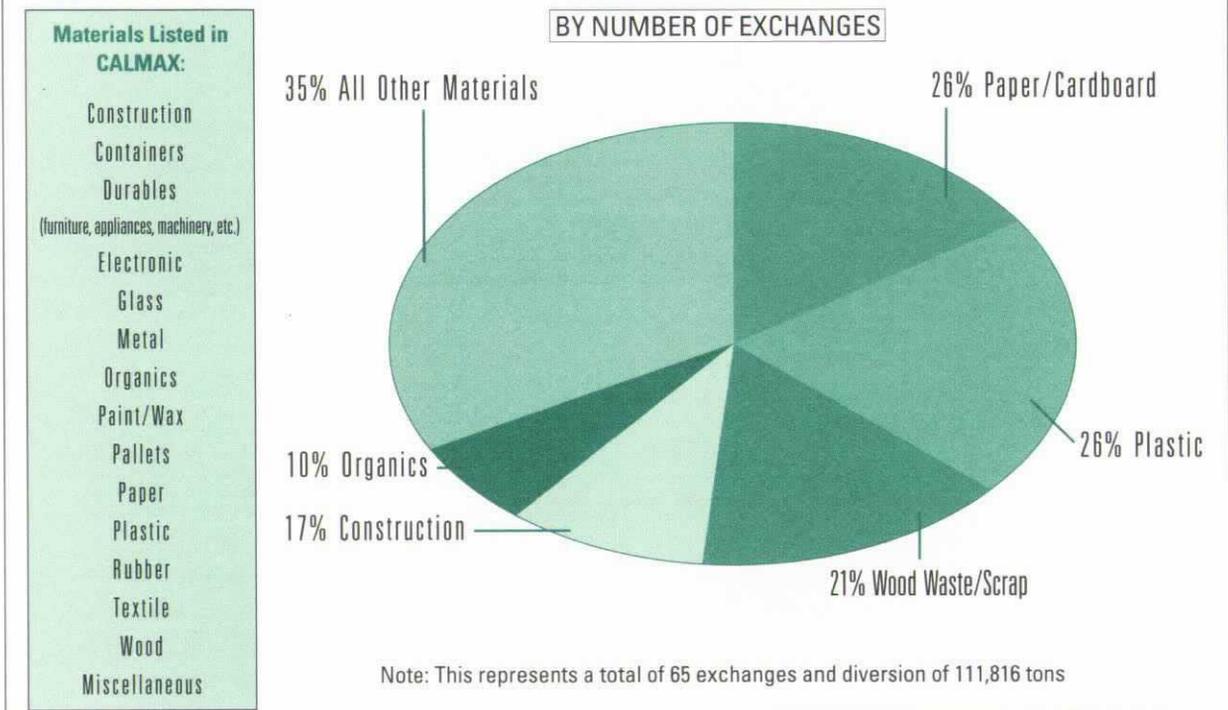


FIGURE I-5

industry; material discarded by one business is often a valuable resource to another. Please see the Publications List, Appendix D, Waste Diversion for further information.

CALMAX serves as a communications network for trading inexpensive or free materials and brings reusers, recyclers, and waste generators together to simultaneously create new markets and reduce waste. Business and industry participation to date is indicative of the start-up of a new materials exchange program. However, with more than a million businesses in California, there is a great potential for reusing significant levels of traditionally discarded waste materials. The Board is continuing its efforts to promote CALMAX via mailings, contacts with major industries, and outreach presentations at business-oriented conferences and other events attended by potential CALMAX users.

For further discussion of CALMAX and other informational services offered by the Board, see Chapter II, Recycling and Composting.

### Accomplishments

- Classified listings in the CALMAX catalog nearly doubled to 600 by the end of the year.
- The CALMAX mailing list contains more than 6,000 interested parties who receive information on reusable and recyclable items.
- Catalogs were direct mailed to 50,000 California businesses and industries to encourage participation.
- Since February 1992, 65 exchanges involving 111,816 tons of materials had been reported. (See figure I-5.)

## II. RECYCLING AND COMPOSTING

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**R**ecycling and composting programs formed the core of California's waste diversion efforts in 1992. While many source reduction alternatives remain poorly understood and difficult to quantify, recycling and composting represent effective waste diversion approaches that can be implemented immediately. They will account for most of the 25-percent waste diversion required by 1995 by the California Integrated Waste Management Act (IWM Act), as well as the 50-percent goal for 2000.

Cities and counties, however, must confront significant challenges in implementing recycling and composting programs. Recycling collection alternatives such as curbside and buyback programs have widely varying costs, and a wide range of alternatives make program development a complex task. Composting is further complicated by permitting issues, unproven technologies, and a lack of product standards.

The most important challenge facing local recycling and composting programs, however, is grappling with an underdeveloped and unstable marketplace. Recyclable waste materials such as glass bottles, paper, and yard waste are commonly referred to as secondary materials; they are a raw material resource that must compete with primary or virgin materials, such as trees and freshly-mined minerals. For local recycling and composting programs to succeed and prosper, they must be consistently successful in marketing their materials and compost products. State efforts to strengthen the recycling marketplace are referred to as market development, and are a top priority of the Board.

Market development programs also provide an important economic development opportunity for state and local governments. The new businesses required to collect, sort, process and manufacture new products from California's secondary materials create jobs, while adding to the local tax base. The Board is committed to promoting this vital linkage to statewide economic development through its loan and grant programs as well as technical assistance for recycling market development activities.

### KEY INITIATIVE: THE MARKET DEVELOPMENT PLAN

A primary change resulting from California's new focus on recycling and composting is the importance of the marketplace. While typical local waste management efforts once focused on hauling solid waste to locally-maintained disposal facilities, recycling and composting are more complicated. For recycling and composting programs to be successful, transactions must take place among a variety of entities, including collectors (e.g., curbside and buyback programs), processors (e.g., materials recovery facilities), manufacturers (e.g., paper mills), and retailers. At each stage of this cycle, recycling must compete with its alternatives. Recycling collection programs compete with forestry and mining to supply raw materials to manufacturers; recycling manufacturers compete with manufacturers of virgin products for sales; and recycling collection programs compete with landfills for secondary materials generated by individuals, businesses, and institutions.

The Board's efforts in market development focus on increasing manufacturer demand for materials collected in curbside and other recycling programs; an outlet for materials is the single most important barrier to the success of local recycling and composting programs. Ultimately, however, market development must consider all links of the chain.

The Board administers an aggressive market development program, discussed later in this chapter. Although many programs have been mandated by the Legislature, the Board is also engaged in other nonmandated activities to promote recycling and composting markets, including: research contracts; assistance to recycling businesses seeking to site manufacturing facilities in the state; and provision of information on markets to the recycling community.

Although several market development programs exist, there has never been a complete understanding of

## 1990 California Solid Waste Disposal Showing Waste Types Targeted for Market Development

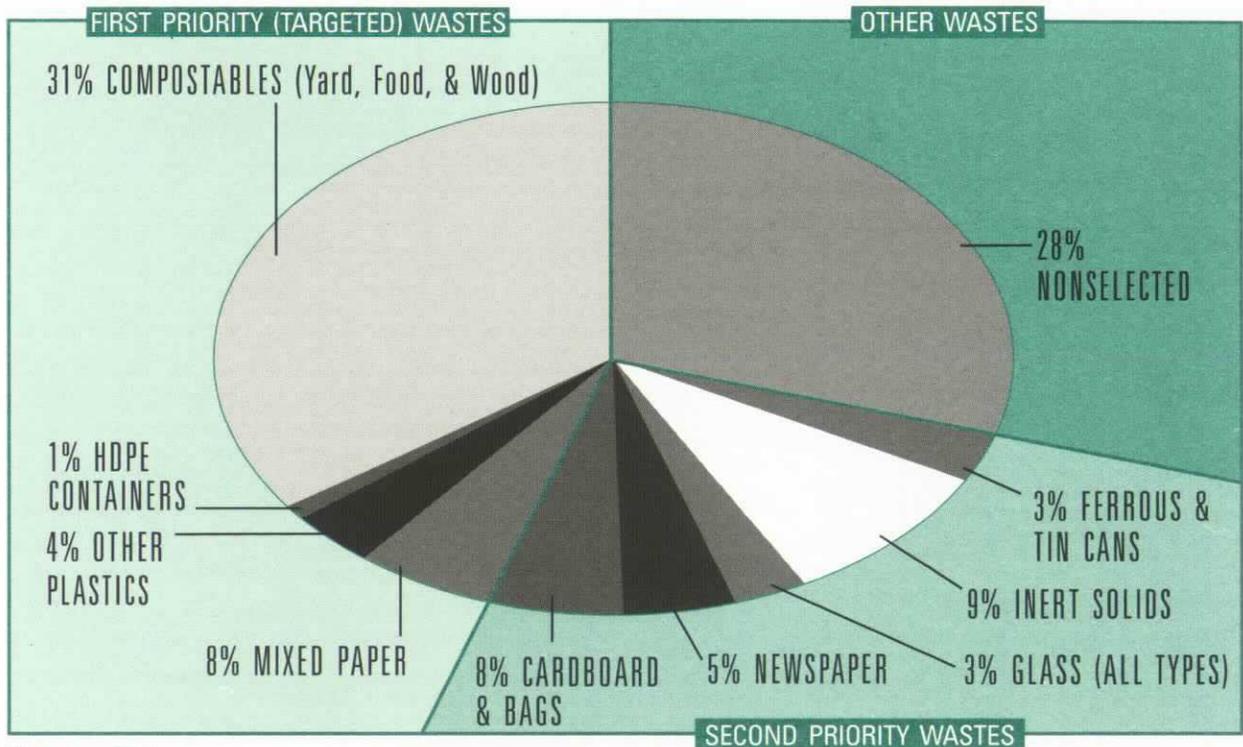


FIGURE II-1

California's recycling markets. Such an understanding is necessary to fully evaluate the effectiveness of existing programs, and to prioritize resources in future efforts. To provide such a vision, and to ensure that California's market development efforts are at the forefront of national and worldwide efforts, the Board has developed a Market Development Plan. The plan meets the requirements in PRC 40507 (d) in its review of market development activities and recommendations for administrative and legislative actions. The plan goes well beyond this mandate, however, in that it is based on a thorough analysis of key secondary material markets, and includes a comprehensive and methodical prioritization of alternative actions.

**Development of the plan:** Preparation of the plan embodied perhaps the most methodical analysis of secondary materials markets conducted to date in the United States. First, Board staff prepared market status

reports for the main secondary material types: paper, glass, plastic, compostibles, metals, tires, and pavement/inerts. (See Figure II-1, for 1990 solid waste disposal showing waste types targeted for market development.) Workshops with representatives from industry, environmental groups, local governments, and other groups were held to receive input on the staff analysis. Based on the resulting analysis, staff prepared action plans for each secondary material type. The action plans constitute a "wish list" for immediate market development actions. The actions were ranked according to criteria such as potential waste diversion, job creation, potential for attracting capital investment, and others. The top-ranked actions form the core of the market development plan and will be implemented based on the availability of resources in coming months.

Another component of the Market Development Plan is consideration and objective analysis of broad, emerging recycling policies that have long-range impli-

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cations for market development in California. Several types of broad polices exist as alternatives, and all have been tried to some degree in California, other states or other countries. They include advanced disposal fees, which may provide strong incentives for recycling or waste reduction while providing a funding source for developing recycling infrastructure and programs. Another approach, adopted in Germany, moves responsibility for recycling from local governments to industry itself, and has resulted in an aggressive new recycling program in that country. Yet another approach is the adoption of programs that reward companies for recycling, such as environmental labeling programs or other market-based incentives.

The coming years will see many dramatic developments in the recycling and composting industry. The Board intends to remain at the forefront of these efforts. Copies of Market Status Reports and the Board's Market Development Plan will be available upon Board approval and publication in early 1993, and can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Markets Development for further information.

**Mixed Waste Paper Market Development:** Complementary to the Board's Market Development Plan are two legislatively-mandated programs to assess market development and the recyclability of specific secondary material types — mixed waste paper and plastic. SB 960 by Senator Hart (Chapter 1012, Stats. 1991) and SB 1919 by Senator Hart (Chapter 1012, Stat. 1992) require the Board to submit to the Legislature by January 1, 1994, recommendations for programs to develop markets and to encourage high levels of recycling for mixed paper waste. Mixed waste paper is a mixture of paper materials, including newspaper, corrugated cardboard, office paper, computer paper, white paper, and coated paper stock.

**Plastics Market Development:** The Board is required to complete two reports on plastic. For the first, the Board is to conduct a study identifying methods that increase the utilization of recyclable plastics in the manufacture of new products [PRC 42373]. The Board submitted a survey in August to 3,000 manufacturers of plastic products to determine their use or reasons for nonuse of recycled resins. The results will be tabulated

in early 1993. This information will be available upon Board approval and publication, and can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Plastics for further information.

The Board also was required to prepare a report on plastic waste recycling [PRC 42380], which was submitted to the Legislature in November. The report, *Plastics: Waste Management Alternatives*, covers the use, disposal, and recyclability of plastic materials and containers. It includes descriptions of programs under development, barriers to recycling, and recommendations for improving programs to meet the needs of the market. This report can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Plastics for further information.

## MANDATES TO PROMOTE RECYCLING AND COMPOSTING

### A. COLLECTION PROGRAMS

The collection of secondary materials (recyclables) is the first step to recycling. Subsequent steps include: separation (either before or after collection), processing, marketing, and use in manufacturing. Collection alternatives can include the separation of the material into its various components (e.g., paper, glass, metals, plastic, cardboard, and compostibles) at the time of collection, such as in curbside and buyback programs; or, it can include the separation of material after collection, where recyclables are removed from the waste stream at material recovery facilities.

For recycling to be successful, collection programs must be cost effective — while generating a sufficient and constant supply of high-quality secondary material (feedstock) to manufacturers. To improve the collection of secondary materials in California, the Board oversees programs operated by state agencies (Project Recycle), local government, private enterprise, and public schools. The Board is also studying recycling options for special wastes (e.g., metallic discards and sludge).

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## 1. STATE AGENCIES

### PROJECT RECYCLE

[PCC 12164.5-12165, PRC 42560-42563,  
EXECUTIVE ORDER W-7-91]

State government's commitment to recycling in the work place is an effective way of promoting recycling. The Board is required to set up recycling programs for all recyclable materials in all state facilities, including offices, prisons, developmental centers, universities, community colleges, and parks. The goal is to divert as large a quantity of material as possible from California's waste stream while setting an example for other public and private institutions.

In 1991, the Governor signed Executive Order W-7-91, which requires the diversion of as great a quantity of recyclable materials as possible from California's waste stream; it also calls for promotion of increased use of recycled products by state agencies. All agencies are required to print documents on recycled-content paper to the maximum extent feasible. In addition, the Board is required to conduct waste audits at work sites to determine the presence of other wastes that could be recycled.

Through Project Recycle, the Board coordinates nearly 500 waste reduction programs statewide, providing for the collection of all recyclable materials, implementing source reduction techniques, conducting waste audits, assisting in the procurement of supplies made with recycled-content, and training staff from state facilities on the importance of recycling and source reduction. The Board is working on several graphic arts projects, including a video, brochure, and posters, to train recycling coordinators and to promote the program. (See Figure II-2 for a graph showing tons of Project Recycle materials recycled 1987-1992.)

#### Accomplishments

- The amount of recyclable materials collected from state agencies increased from 2,123 tons in 1991 to 6,207 tons in 1992.
- 132,000 lbs of telephone directories and 25,000 lbs of state directories were collected from state-owned and leased buildings in Sacramento and Los Angeles.

- The number of state agencies (facilities) with recycling programs increased from 324 to 480.
- 1,238 20-gallon metal containers and 12,835 desktop containers were provided to state facilities for collection of recyclables.
- Contracts were awarded to provide \$25,000 each to four universities (UCLA, CSU San Francisco, CSU Humboldt, and CSU San Marcos) to implement Model Waste Reduction Programs.
- An Advisory Report on the Executive Task Force on Waste Reduction and Recycling was written. This is an annual progress report summarizing the achievements that the task force and its member agencies have made toward implementing the Executive Order. The task force was formed in June 1991, to plan for the implementation of the Executive Order, and consists of the Board, Cal/EPA, the State Department of General Services, and the State Department of Conservation.
- A Concept Proposal was developed for training of agency recycling coordinators and implementing Executive Order W-7-91; materials for training the coordinators were completed.
- A Progress Report was written on the implementation of Executive Order W-7-91.

## 2. SCHOOL DISTRICTS

[PRC 42620-42623]

California has 7,561 K-12 public schools in 1,009 school districts, with an enrollment of approximately 5.1 million students. Source reduction and recycling programs in the schools will help cities and counties meet the solid waste diversion goals set for 1995 and the year 2000. More importantly, these programs will teach children good waste management skills for the future.

The Board is developing and implementing a source reduction and recycling program for school districts that includes:

- a survey of school districts to determine the status of recycling programs statewide;

## Project Recycle Materials Recycled 1987-1992

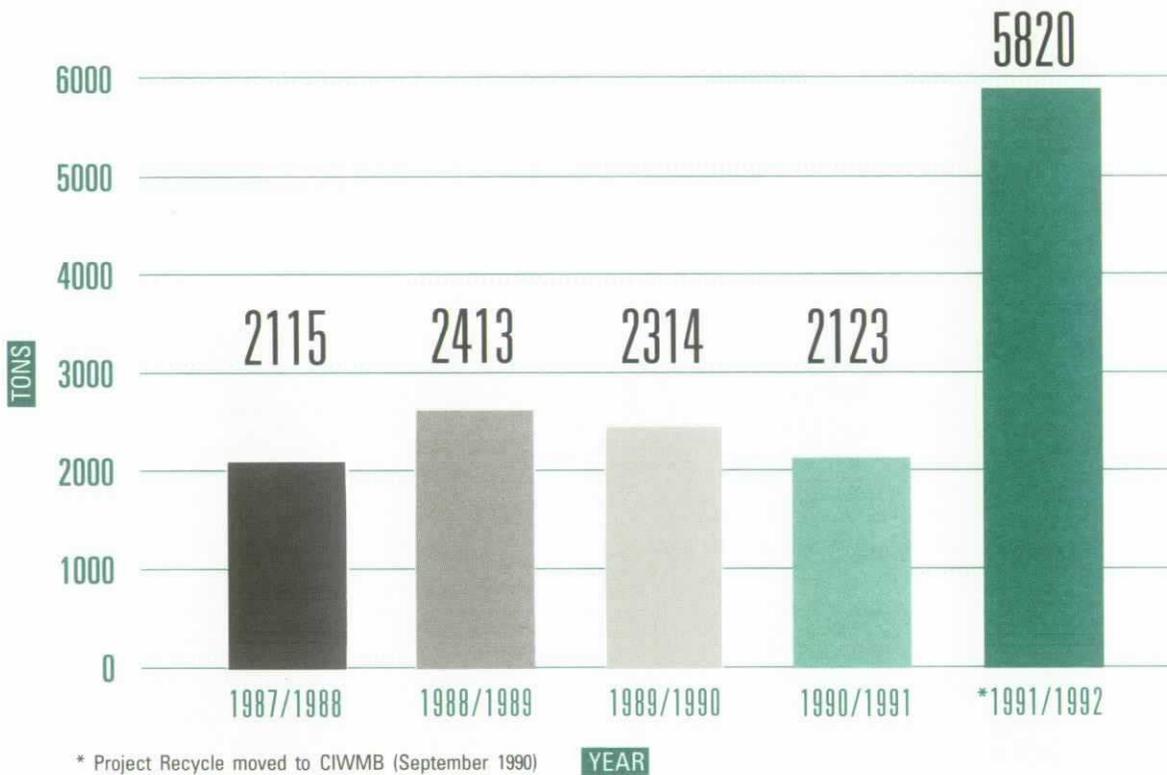


FIGURE II-2

- a model waste reduction and recycling program for school districts;
- training for school districts on how to implement recycling programs;
- ongoing technical and information assistance for school districts;
- a repository of literature and teaching materials from other states and institutions;
- a list of the types of equipment needed by school districts;
- assistance to school districts in locating markets for their recyclable materials;
- a tracking system to determine the amount of materials collected and recycled; and

- dissemination of information to school districts on office equipment and items made from recycled materials.

The Board's source reduction and recycling program for school districts is further discussed in Chapter I, Source Reduction.

### Accomplishments

- A survey on recycling programs was sent to K-12 public schools in California. For those schools that responded (24 percent of the schools or 1,734 schools), 82 percent reported having recycling programs and 43 percent reported they purchased products with recycled content. While the recycling rate reported was fairly high, recycling was practiced in only half of the classrooms and involved only a few of the potentially recyclable materials schools use.

- Technical assistance was provided to local governments, school districts, and schools statewide on how to implement recycling programs.
- Board staff assisted in developing districtwide pilot source reduction and recycling programs in several counties, including Fresno, Monterey, Sacramento, San Bernardino, Calaveras, Stanislaus, and Placer. The Board is helping these districts by conducting waste audits and assisting with implementation plans.
- The Board established a repository of literature and teaching materials from other states and institutions. A catalog containing this information will be distributed to school districts and local government.
- A networking list of appropriate school waste diversion program contacts was developed that will assist schools in locating markets for their recyclables. The list of contacts includes local government officials, industry, and a matrix of successful school recycling programs.

### 3. COMMERCIAL SECTOR

#### WASTE GENERATOR ASSISTANCE/ BUSINESS AWARDS PROGRAM

[PRC 42600 (a)]

The Board is in the process of establishing a statewide public information and education program to encourage business and industry to:

- reduce excess packaging of consumer products,
- eliminate nonrecyclable contaminants from consumer goods, and
- increase product durability.

The Board also promotes waste handling practices that reduce waste generation by business and industry.

The Board has created two programs designed to help industry achieve greater waste diversion. Through the Waste Generator Assistance Program the Board provides ongoing assistance to the commercial sector, including general technical assistance, hands-on problem solving, the distribution of self-help publications, and secondary materials market location. In conjunction with this program, the Board promotes increased

use of recycled feedstock in the manufacturing process through the development of more direct liaisons with private manufacturing industries in the state. For example, the Board made a series of contacts with manufacturers to use regionally-generated secondary material in their manufacturing processes, such as drywall in the manufacture of cement. Workshops and meetings also are used to facilitate networking and interagency coordination.

The second program is the Business Awards Program, wherein California businesses compete for recognition of outstanding achievement in commercial integrated waste management (IWM). This program will help identify innovative approaches and increase corporate awareness and interest in IWM methods. Promotion of the program will begin in early 1993, with award presentations held later in the year.

#### Accomplishments

- Five workshops were conducted on waste reduction and recycling issues for business and local government representatives. Significant concerns included: the need for more technical assistance and more self-help publications for business; the cost of implementing commercial waste reduction and recycling programs; and the lack of markets for recyclable materials.
- Problem-solving assistance was provided to California businesses. The majority of the requests were for: printed materials and publications on commercial source reduction and recycling; information on markets for recyclable materials generated; and local government assistance.

### 4. PUBLIC SECTOR

#### MODEL ORDINANCE [PRC 42910]

A major impediment to diverting solid waste is the lack of adequate areas for collecting and loading recyclable materials. To address this problem, the Board is developing a model ordinance for adoption by any local agency. The ordinance will apply to development projects where a building permit is required (e.g., a commercial building, industrial, or institutional building, marina, residential building having five or more living units, or a public building).

## Uses For Wood Waste

Reuse	Recycling/ Composting	Energy Recovery
Playground Equipment	Soil Amendments	Biomass fuel
Parking "Bumpers"	Particle Board	
Trail Demarcation	Composting	
Landscaping	Fireplace Logs	
Decking	Mulching	
Building Projects		
Planters		
Fencing		

FIGURE II-3

Each local agency is required to adopt an ordinance relating to adequate areas for collecting and loading recyclable materials by September 1, 1993. If an agency fails to adopt an ordinance, the Board's model ordinance will take effect on that date.

### Accomplishments

- Informational meetings were conducted with representatives of the League of California Cities, the County Supervisors Association of California, the American Planning Association, the American Institute of Architects, private and public waste services, building construction and management, and retail businesses to discuss basic issues relative to the development of the model ordinance.

### NONYARD WOOD WASTE

[PRC 42510-42512]

The Board assists cities and counties in diverting nonyard wood wastes that cannot feasibly be reduced, recycled, or composted—for processing and utilization as a fuel resource. The facilities using the wood waste as a fuel resource are required to obtain any necessary permits, and diversion must be consistent with the waste management hierarchy.

The Board, in consultation with the State Air Resources Board, is required to report on the amount of

wood waste being diverted and to include an assessment of the environmental and economic implications of promoting or discouraging nonyard wood waste from permitted disposal facilities. Before the Board can report on this information, it must first develop a standardized definition for nonyard wood waste to provide consistency in assessing the amount of wood waste being diverted. Toward this end, the Board has assessed available information on the quantity and character of wood waste; reviewed and evaluated existing reports; and identified information needs for future investigations. (See Figure II-3 for a list on the uses for wood waste.)

### Accomplishments

- A wood waste diversion resource guide was developed which: 1) outlines options for recovering wood from the waste stream, 2) provides the most comprehensive listing of California wood processors available, 3) analyzes an existing city's program through case study, and 4) lists biomass facilities permitted to accept wood waste. It will be updated annually to accommodate changes in the industry. This guide is available from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Wood Waste for further information.

## Uses for Compost

### Agriculture and Horticultural Uses

#### As mulch for:

- Soil amendment
- Productivity enhancement
- Water retention
- Soil aeration
- Weed control
- Erosion control

#### As soil for:

- Turf seeding and reseeded
- Tree planting
- Greenhouse / nursery use

#### For manufacture of:

- Potting mix
- Topsoil blends
- Compost tea fertilizer

### Land Restoration and Reclamation Uses

Absorbant for toxins  
Medium for bioremediation  
Reclamation of mining sites  
Erosion control

### Other Potential Uses:

Landfill cover  
Packing / insulation

opment projects that relate to compost (the Prison Industry Authority's Resource Recovery Program with the City of Folsom and the Santa Barbara County Compost Project). For a discussion of these projects, please see within this chapter, the section, D. Research and Development Program.

Recognizing the significant role that home composting can play in an overall waste reduction program, the Board has actively promoted the home management of organic wastes through the development of written material, the production of educational home composting videos, and the distribution of existing books on the subject. A composting video will be distributed to local governments for their use and will be available from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Composting for further information.

FIGURE II-4

### COMPOST [PRC 42540]

Compost is the product resulting from the controlled biological decomposition of organic wastes separated from the municipal solid waste stream. Potentially compostible organic materials constitute about two-thirds of the California waste stream. The percentage of compostibles in the total municipal waste stream is approximately: 28 percent paper; 15 percent yard trimmings; 9 percent wood waste; 7 percent food; and 7 percent other organic material. (See Figure II-4 for a list of different recycling uses of compost.)

The Board provides large-scale composting implementation assistance to cities and counties, including: facility location analysis; technology review; regulatory advice; market information; and general industry networking. The Board also has several research and devel-

### Accomplishments

- Guidance was provided to hundreds of concerned and interested parties pursuing the development of composting programs in California. Additionally, the Board has developed listings and case studies on current composting activities, and staff have participated in numerous outreach events and seminars.

### CHRISTMAS TREE DIVERSION ASSISTANCE

Each holiday season, it is estimated that nearly 43,000 tons of Christmas trees are discarded in California. In response, the Board has developed a resource guidebook, Christmas Tree Recycling Guidebook, on Christmas tree recycling opportunities for distribution to local government and interested parties. The book contains case studies of select programs conducted after

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Christmas 1991. In addition, a case study supplement is available that briefly describes the programs conducted in more than 100 communities. This report is available from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Recycling for further information.

### **VIDEO CONFERENCE ON COMMERCIAL SECTOR WASTE**

To reach mandated diversion goals, local governments must encourage the commercial sector to participate in waste diversion programs; approximately 45 percent of all waste in the state is generated by this sector. The Board sponsored a statewide video conference in 1992 that focused on various diversion strategies for local governments. Topics included an overview of program options, various mechanisms to implement, and case studies highlighting successes in a restaurant, retail store, school, and private companies. A companion resource manual, *Encouraging Commercial Sector Participation in Waste Diversion Programs, An Interactive Half-Day Videoconference, Resource Manual*, was also published to assist governments through the process. Please see the Publications List, Appendix D, Waste Diversion for further information.

## **5. SPECIAL WASTES**

### **METALLIC DISCARDS [PRC 42160-42176]**

After January 1, 1994, no solid waste facility may accept for disposal any major appliance, vehicle, or other metallic discard containing enough metal to be economically feasible to salvage, as determined by the solid waste facility operator. A metallic discard is any large metal article or product, or any part thereof, including metal furniture, machinery, major appliances, electronic products, and wood-burning stoves. The purpose of the legislation is to divert large, recyclable materials from landfills, preserving scarce landfill capacity as well as natural resources.

To ensure that the processing of metallic discards, and the special materials within them, is accomplished in an economical and environmentally safe manner, the Board is developing a management plan. The plan is to specify how the removal of special materials requiring special handling (e.g., CFCs, PCBs, and sodium azide,

and other materials regulated by the State Department of Toxic Substances Control) should be financed and administered.

The Board will also evaluate the use of the nonhazardous residue resulting from the metals recovery operations for use as solid waste landfill cover material or as extenders for currently used cover material. The Board has been actively pursuing a demonstration project at an existing landfill; however, to date, no landfill operator has applied to participate in a demonstration project.

### **Accomplishments**

- A working team was formed to identify the management processes of the current infrastructure for salvaging metallic discards and to solicit comments for program development. The Board entered into a consulting contract with Science Applications International Corporation (SAIC) to prepare the management plan, which is due in early 1993. It will be available upon Board approval and publication, and can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Special Wastes for further information.

### **SLUDGE [PRC 41781 AND 41781.1]**

Nearly two-thirds of the 375,000 dry tons of non-hazardous municipal sewage sludge generated annually in California is disposed of in landfills. Initially, the IWM Act stipulated that sludge diverted from landfills could not be credited toward waste diversion goals. However, the status of sludge was changed by AB 1520 by Assemblymember Sher (Chapter 718, Stats. 1991), effective July 1, 1992, based on a report by the Board.

The immediate task facing the Board is to evaluate applications for diversion involving sludge and determine if the proposals are in compliance with state and federal regulations and policies, and if so, approve them. Prior to making its determination, the Board is required to: 1) make a finding at a public hearing that the sludge has been adequately analyzed and will not pose a threat to public health or the environment; and 2) consult with, and obtain the concurrence of, the following agencies: the State Water Resources Control Board, the California Regional Water Quality Control Board, the State Department of Health Services, the State Air

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Resources Board, and the State Department of Toxic Substances Control.

For further discussion on the diversion of sludge, please see Chapter V, Local IWM Planning.

### **Accomplishments**

- The Board contracted to collect data on sludge being produced at 35 publicly-operated treatment works in California; the quality of the sludge will be evaluated for potential beneficial uses and a database will be created. The goal of the data collection effort is to gather information in order to evaluate sludge management alternatives to landfilling.
- The Board contracted to evaluate the State's current and proposed sludge regulations and their consistency with federal regulations; this information will provide a basis for making decisions in the development of the state Sludge Management Program.

## **B. MARKET DEVELOPMENT PROGRAMS**

Market development programs are designed to strengthen the market for materials collected in recycling and composting programs. Materials collected in recycling programs are not truly recycled until they have been used by a manufacturer to produce new products.

The Board's market development programs are divided into three categories:

- economic development programs,
- state agency procurement of recycled products programs, and
- minimum recycled-content programs.

## **1. ECONOMIC DEVELOPMENT**

### **RECYCLING MARKET DEVELOPMENT ZONES [PRC 42140-42158]**

Recycling Market Development Zones are tools to help communities meet the waste diversion goals set by the IWM Act by combining recycling with economic development. The goal of the Zone Program is to help communities turn their waste streams into resource streams by developing markets for recycled products and developing secondary material business enterprises. The zones are modeled, in part, after the California Department of Commerce's Enterprise Zones, and consist of specific geographic areas. By 1996, 40 zones will be established statewide.

In concert with local governments, the Board develops economic development strategies and provides incentives to recycling businesses, who, in turn, provide the community with economic development opportunities, such as increased employment, an increased tax base, and a diversified economic base. This program marks the first effort of the State in the direct development of recycling-oriented businesses. Among the state incentives are low-interest loans and technical assistance in business financing and product marketing. Other incentives, to be offered by each local government, include:

- relaxing or suspending local building codes, zoning laws, and general plans;
- eliminating or reducing fees for applications, permits, and local government services to establish a streamlined local permit process;
- eliminating or reducing construction or business licensing taxes;
- expanding the infrastructure to serve recycling businesses; and
- increasing the amounts of recyclable feedstock available for industry and/or providing industry with a steady supply of consistent quality recyclables.

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The Recycling Market Development Zone Revolving Loan Fund Program provides direct loans to recycling businesses and local governments located in designated zone areas. Private businesses and not-for-profit organizations may borrow funds to create or convert manufacturing processes to use recyclable materials. Local governments may borrow funds to expand infrastructure necessary to support recycling industries. The maximum loan amount is 50 percent of the cost of any project, or up to \$1 million, whichever is greater. The Board may loan less than 50 percent of the cost of a project. The loans are made directly from the Recycling Market Development Revolving Loan Account, funded at \$5 million annually. The Board has also committed \$1 million from the California Tire Recycling Management Fund to be administered through the Zone Program for tire-related projects.

#### **Accomplishments**

- Twelve Recycling Market Development Zones, regionally dispersed throughout the state, were designated and workshops were held to assist with implementation. The 12 zones designated are: the Cities of Long Beach, Los Angeles, Merced/Atwater, Oakland/Berkeley, Oroville, and Porterville; the Counties of Contra Costa, Glenn, San Bernardino/Riverside, and Ventura; the City and County of Sacramento; and the City and County of San Diego. (See Figure II-5 for a map showing the 12 designated zones.)
- A second cycle of zone designations was initiated, and four regional workshops were held for prospective applicants.
- An interim database of recycling industries seeking to site in zones was developed.
- The Board adopted regulations for disbursing Recycling Market Development Zone Revolving Loan funds and approved the timeline for submittal and review of loan applications, as well as the annual interest rate for the loan program's first year. The first cycle of loan applications were due in January 1993. Qualified loans are scheduled for Board approval in March.

#### **RECYCLING EQUIPMENT TAX CREDIT PROGRAM** **[RTC 17052.14 AND 23612.5]**

California offers a 40-percent tax credit — up to \$250,000 — for equipment that is used in the manufacture of finished products that meet the following conditions: 1) at least 50 percent of the product is composed of secondary waste discarded in California, and 2) at least 10 percent of the secondary waste is postconsumer waste, also from California. The credit is intended to increase the number of manufacturers processing secondary materials into new products.

Any individual, business, or corporation that incurs a tax liability to the State of California is eligible for the tax credit. Qualified equipment must be purchased and in operation on or after January 1, 1989, and before January 1, 1994. The Board reviews applications from taxpayers and certifies to the State Franchise Tax Board when all provisions of statutes and regulations have been met. The Board is required to submit a report to the Legislature by March 1, 1994, evaluating the impact of the tax credit and its effectiveness in encouraging recycling.

Applicants and potential applicants for the tax credit have indicated to Board staff that the program may not be an effective incentive. Many manufacturers in the industry need capital funds for start-up costs and for research and development, and may not have a high equipment tax liability in the early stages of their business. In addition, businesses cannot invest with certainty that a tax credit application will be approved because there are no pre-approvals.

#### **Accomplishments**

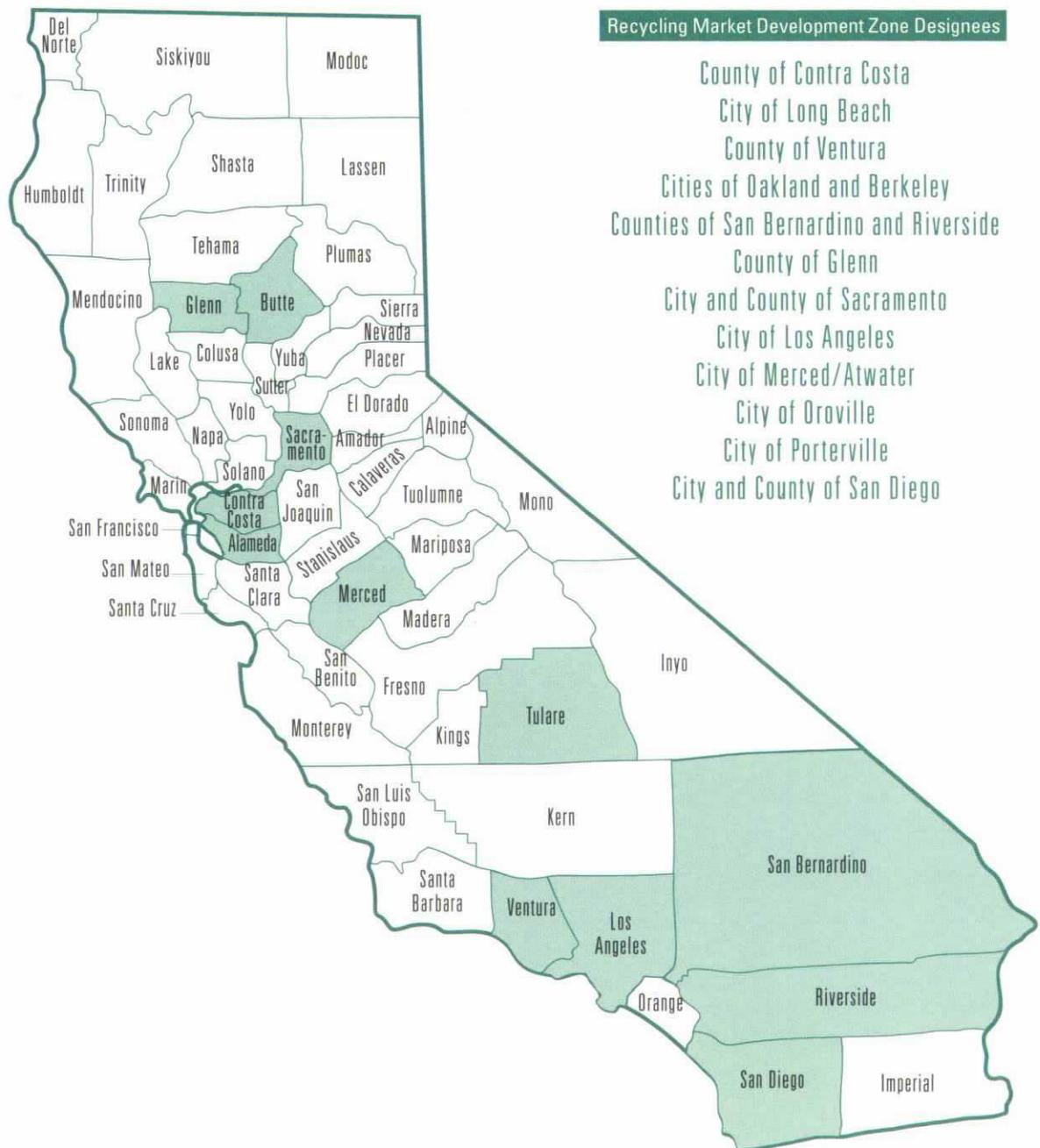
- The Board received 60 applications for the year and issued 23 certifications; of the remaining 37 applications, three were denied and 34 are in the review process.

## **2. STATE AGENCY PROCUREMENT**

AB 4 by Assemblymember Eastin (Chapter 1094, Stats. 1989) and SB 1322 by Senator Bergeson (Chapter 1096, Stats. 1989) established a broad program to increase state and local government procurement of products with recycled content. This mandate was designed to stimulate industry to expand its capacity to

FIGURE II-5

## California Recycling Market Development Zones



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use recyclable materials by providing a sizeable and consistent demand; state and local government purchases account for approximately eight percent of California's gross product.

At the same time, goals were set for state purchases of recycled products as well as for specific products, such as paper. The general goal requires that recycled products account for 10 percent of all state purchases by 1991, increasing to 20 percent by 1993, and to 40 percent by 1995 [PCC 12205 and 12320]. The recycled paper products goal requires that at least 35 percent of the total dollar amount spent for paper be for recycled paper products by 1992, increasing to 40 percent by 1994, and to 50 percent by 1996 [PCC 10860, 12162, and 12310].

To achieve the mandated recycled product procurement goals, the State is pursuing several methods, including:

- a purchase preference for recycled products over nonrecycled counterparts when performance, applicability, and price are equal;
- revising specifications to eliminate previous biases toward products with nonrecycled-content; and
- a 5-percent price preference for recycled paper products and retreaded tires.

The Department of General Services (DGS), in consultation with the Board, is required to report annually to the Legislature on the procurement of recycled products by state agencies [PCC 12225]. In October 1992, the Board distributed a survey to state procurement officers to determine the amount of recycled products purchased.

The Board is also finalizing a State Recycled Procurement Report, which will provide recommendations for the procurement program and address the effectiveness of the State's procurement preferences in encouraging recycling and expanding the markets for recycled goods and materials. This report will be available upon Board approval and publication, and can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Recycling for further information.

The Board is continually expanding the State's role in recycled products procurement through assistance to state agencies; it also will offer technical assistance to encourage recycled product procurement by state-funded hospitals, universities, prisons, local governments, and their subcontractors.

Other specific goals for recycled products procurement set by legislation include: lead-acid batteries, high-grade printing and writing paper, retreaded tires, plastic products, and compost.

#### **LEAD-ACID BATTERIES** **[PRC 42440-42443]**

All lead-acid batteries purchased by any state agency on or before January 1, 1991, for use in automobiles and light trucks owned or operated by the State are required to be recycled lead-acid batteries. DGS is required to tabulate and forward annually to the Board the number of recycled lead-acid batteries purchased.

##### **Accomplishments**

- DGS was successful in awarding a one-year contract to purchase recycled lead-acid batteries in Northern California. DGS is continuing its research to locate a manufacturer of recycled lead-acid batteries in Southern California.

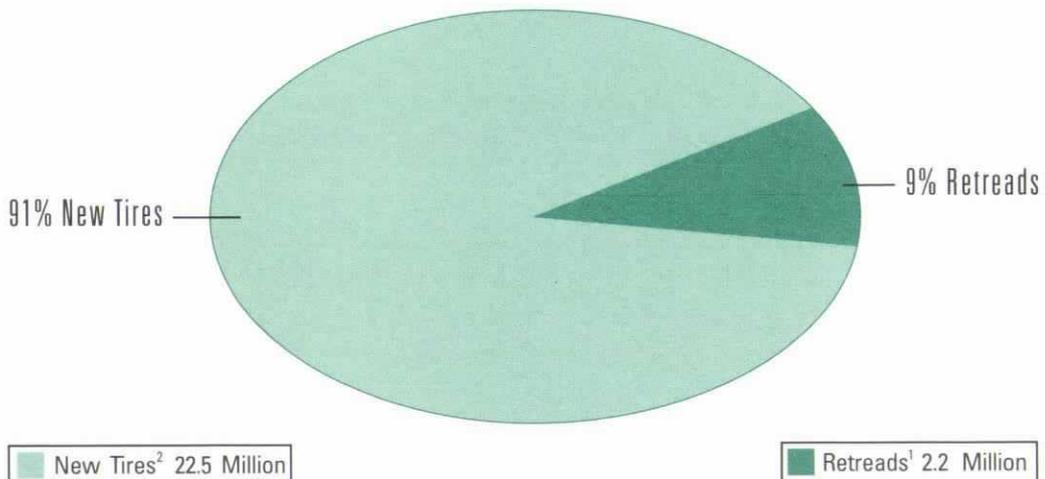
#### **HIGH-GRADE PRINTING AND WRITING PAPER** **[PRC 42200-42222]**

DGS is required to ensure that at least 25 percent of all high-grade, bleached printing and writing papers purchased for state agencies is made from recycled-content high-grade, bleached printing and writing papers, as defined. The percentage of this paper purchased for state agencies is to increase to 30 percent by 1994, to 35 percent by 1997, and to 40 percent by the year 2000. DGS is required to report to the Board annually on the number of reams of recycled-content high-grade paper used.

##### **Accomplishments**

- The Board initiated a survey of state procurement officers requesting information on the amounts of recycled products purchased.

## California 1991 Retreaded Tire Sales (In relationship to total tire sales)



**References:**

1. Retread Survey conducted by the CIWMB of the 132 California tire dealers and manufacturers provided by the Tire Retread Information Bureau, July 1992.
2. CIWMB Tires as a Fuel Supplement Feasibility Study, January 1992.

**FIGURE II-6**

### RETREADED TIRES [PRC 42400-42416]

All tires for use on state passenger vehicles issued for short-term use through the Fleet Administration are required to be equipped with retreaded tires at the next required tire installation. DGS is then required to tabulate the number of retreaded tires it purchases annually and forward this information to the Board. On or before July 1, 1993, the Board, in consultation with DGS, is required to determine if the retreads purchased by DGS have met the quality and performance criteria of a new tire.

The State will not purchase any retreaded tires until its testing of retreaded tires is successfully completed. The tires being tested are retreaded from scrap tires collected from the DGS Fleet and the California Highway Patrol. DGS will determine how well rubber blend retreads on automobiles meet quality and performance criteria.

### Accomplishments

- The Board consulted with the California Tire Dealers and Retreaders Association and the Tire Retread Information Bureau to estimate through a survey the California retread sales for passenger vehicles and light and medium trucks in 1991. Results showed the number of retreaded tires sold to be at approximately 9 percent of the total sold — 2,219,151 tires (106,966 passenger tires, 726,434 light truck tires, and 1,385,751 medium truck tires). (See Figure II-6 for California 1991 retreaded tire sales.)

### PLASTICS [PRC 42370-42372]

The Office of Procurement (OP) in DGS, in cooperation with the Board, is required to develop and adopt specifications for the procurement of recycled secondary and postconsumer plastic products.

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Whenever the price is competitive for the purpose intended, OP is mandated to purchase recycled secondary and postconsumer plastic products rather than plastic products made from virgin material.

#### **Accomplishments**

- The Board contracted to learn what recycled material products are available and what manufacturers are using recycled material in production of plastic products. This included learning what collection techniques facilitated the use of recycled material by manufacturers. The result was the Plastic Product Survey and Sample Collection Survey. A list of 85 recycled plastic products gathered through the survey was provided to state and local procurement officers. (See Figure II-7 for examples of recycled plastic products available for purchase.)

#### **COMPOST [PRC 42240-42243]**

DGS and the Board, in consultation with other state agencies, were required to adopt specifications for the purchase of compost by the State by January 1, 1991. However, development of the specifications has been delayed because of the need to address the tremendous diversity of compost products available for use. In March the Board submitted proposed procurement specifications for compost products to DGS. DGS is incorporating this information in drafting the specifications, and anticipates their adoption in 1993. The specifications are designed to maximize the use of compost without jeopardizing the safety and health of the public or the environment.

The California Department of Forestry and Fire Protection (CDF), the State Department of Parks and Recreation (DPR), and DGS, in cooperation with the Board, are required to identify and evaluate uses for compost, co-compost, and chemically-fixed sewage sludge in public land restoration projects, state landscaping projects, and park and recreational area maintenance programs. These departments are required to initiate programs that use compost, co-compost, and chemically-fixed sewage sludge after January 1, 1993.

The Board entered into interagency agreements with CDF, DPR, and the Department of Transportation (Caltrans) for compost use evaluation. The results of their evaluations have been delayed until June 1993, because of additional time needed to agree upon the scope of work for each department, and the need to start the evaluations at the beginning of the growing season. The Board also contracted with the California State Polytechnic University, Pomona (CalPoly) to evaluate the use of compost as a soil amendment in the production of field and greenhouse crops and ornamentals.

Caltrans is required to use compost in place of, or to supplement, petroleum-based commercial fertilizers in the State's highway landscape maintenance program.

#### **Accomplishments**

- CalPoly completed its evaluation of compost as a soil amendment in the production of field and greenhouse crops and ornamentals. Researchers reported that compost can improve water retention and permeability, improve soil aeration and root development, and aid in the retention of nutrients in the soil. It was suggested that the following issues be addressed: development of product standards from the diversity of materials in the waste stream; residual pesticides and potential phytotoxicity problems; development of new markets; and costs.
- Caltrans, CDF, and DPR are proceeding with compost evaluations, which are to be completed by June 1993.
- The Board provided ongoing cooperation with DGS on the development of specifications. In March, the Board submitted to DGS progress reports on compost evaluations made by CDF, DPR, and CalPoly. The Board also submitted proposed procurement specifications for compost products.

## Examples of Recycled Plastic Products Available for Purchase

<p><b>Office Products</b></p> <ul style="list-style-type: none"> <li>Letter Tray</li> <li>Desk Set</li> <li>Envelope Mailers</li> <li>Night Deposit Bag</li> </ul>	<p><b>Durables/Outdoor Products</b></p> <ul style="list-style-type: none"> <li>Nursery Pots</li> <li>Landscape Timber</li> <li>Landscape Forms</li> <li>Park Benches</li> <li>Picnic Tables</li> </ul>	<p><b>Containers/Packaging</b></p> <ul style="list-style-type: none"> <li>Food Containers</li> <li>Detergent Product Bottles</li> <li>Curbside Recycling Containers</li> <li>Package Cushioning</li> </ul>
	<p><b>Building Materials</b></p> <ul style="list-style-type: none"> <li>Plastic Lumber</li> <li>Foundation Vent</li> <li>Carpet</li> <li>Modular Cushion Tiles</li> </ul>	<p><b>Miscellaneous</b></p> <ul style="list-style-type: none"> <li>Bed Pillow</li> <li>35mm Camera</li> <li>Landfill Liners</li> </ul>

FIGURE II-7

### 3. MINIMUM RECYCLED-CONTENT NEWSPRINT [PRC 42750-42791]

California newsprint consumers (commercial printers and publishers) are required to:

- use recycled-content newsprint — newsprint in which not less than 40 percent of its fiber consists of postconsumer waste paper;
- ensure that at least 25 percent of all newsprint used is made from recycled-content newsprint; and
- certify to the Board the number of tons of newsprint and recycled-content newsprint used during the preceding calendar year.

The purchasing requirement for newsprint consumers increases to 30 percent in 1994, to 35 percent in 1996, to 40 percent in 1998, and to 50 percent in the year 2000.

The Board estimates that 1.75 million tons of newsprint were disposed of in landfills in 1990. The Ameri-

can Newspaper Institute estimates the maximum recovery rate for newsprint at between 50 and 55 percent. It is likely the rate will grow considerably in the next few years.

California, with its minimum recycled-content requirement was one of the first states in the nation to mandate private sector use of secondary materials. The requirement has been credited with encouraging paper manufacturers to expand industrial capacity to use secondary materials in California and throughout North America.

#### Accomplishments

- The Board received and processed the first certifications from consumers of newsprint. The majority of California commercial printers and publishers exceeded the 25-percent individual goal. As a group, California commercial printers and publishers used 40-percent recycled-content newsprint in their operations. Eight of the top 10 daily newspapers reported meeting the 25-percent

## California Newsprint Consumers 1991 Recycled-Content Newsprint Use

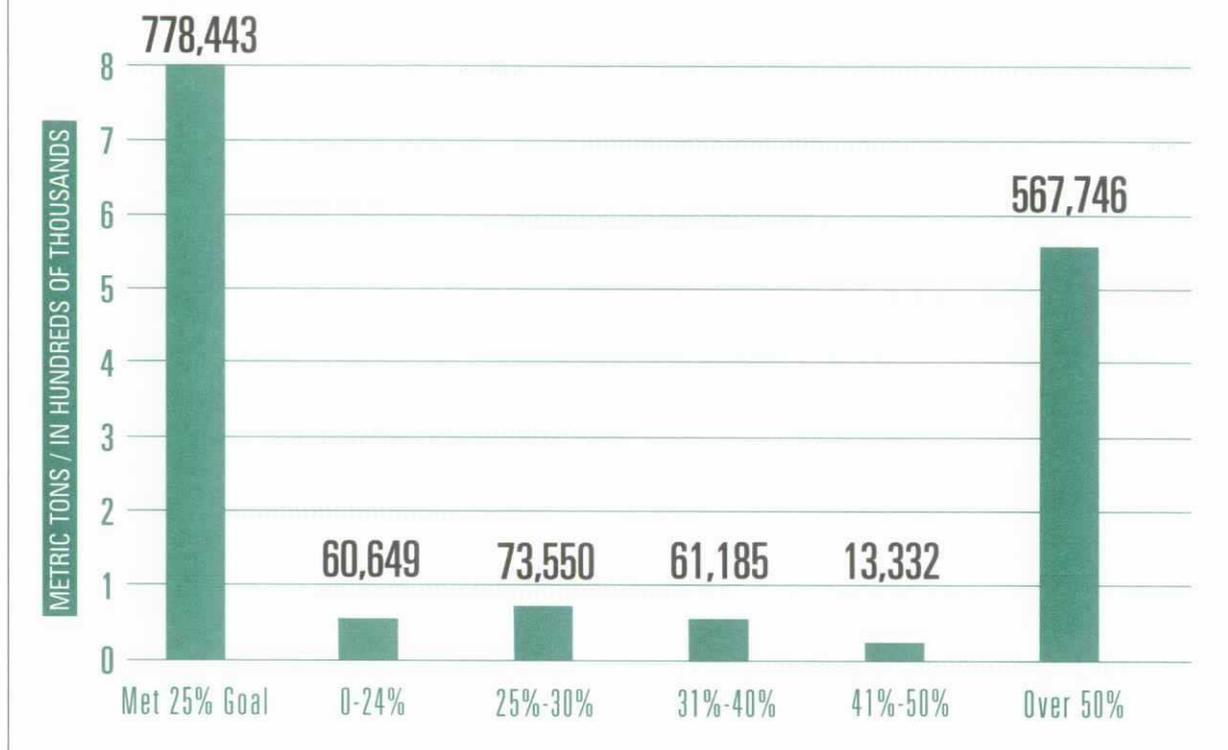


FIGURE II-8

recycled-content newsprint requirement. (See Figure II-8 for 1991 recycled-content newsprint use.)

- The Board adopted newsprint comparable-quality standards to determine the comparable quality of recycled-content newsprint with virgin material.

### TRASH BAGS [PRC 41970-41977]

Approximately 4 billion plastic trash bags are sold in California annually; more than 300 million pounds of film plastic bags are dumped into the state's landfills every year. If these bags contained 30-percent recycled postconsumer plastic material, a market would be created for approximately 100 million lbs of secondary material annually in California.

To increase the demand for secondary material, every seller of trash bags of 1.0 mil or greater thickness sold in California is required to ensure that at least 10 percent of the material used in the bags is recycled postconsumer material by January 1, 1993. Beginning in 1995, every seller of trash bags of 0.75 mil or greater thickness is required to ensure that at least 30 percent of the material is recycled postconsumer material.

Each seller of trash bags is also required to certify to the Board that it has complied with the requirements. Each seller of recycled postconsumer material to a manufacturer of trash bags is required to certify to the Board the percentage of recycled postconsumer materials it sells.

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### Accomplishments

- Two staff workshops on trash bag recycling and disposal were attended by more than 70 members of the public and industry representatives. Input was received on proposed certification regulations from manufacturers who sell postconsumer content trash bags in California.
- The Board drafted proposed regulations and expects approval from the Office of Administrative Law in mid 1993. First certifications are due to the Board beginning in March 1994. Audits of certifications will begin in late 1994.

### RIGID PLASTIC PACKAGING CONTAINERS PROGRAM [PRC 42300-42340]

Rigid plastic packaging containers (RPPC) represent a significant component of packaging waste generated in the state. In 1992, approximately 800 million lbs of RPPCs were generated and disposed of in landfills. To promote collection and use of waste plastic, as well as promote source reduction, beginning January 1, 1995, all RPPCs sold or offered for sale in California are required to meet one of the following criteria: 1) be made from 25-percent postconsumer material; 2) have a recycling rate of 25 percent if its primary material is not polyethylene terephthalate (PET); 3) have a recycling rate of 55 percent if its primary material is PET; 4) be reused or refilled by consumers at least five times; and 5) be reduced in weight or volume by 10 percent.

The Board is developing a study that includes program implementation plans, funding method options for program administration, and recommendations for modifying special areas of the legislation that will be

provided as a report to the Legislature. This conceptual implementation plan will clarify which manufacturers are affected by the program. It will also include options for certification, compliance, program funding, and exemption criteria. This report will be available upon Board approval and publication, and can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Plastic for further information.

For discussion of the RPPC program as it relates to source reduction, please see Chapter 1, Source Reduction.

### Accomplishments

- The Board contracted with a consulting firm to assist in developing a conceptual program for RPPC.
- Two issues papers were prepared and two Technical Advisory Committee (TAC) meetings were held. The TAC is comprised of representatives from the plastics and other manufacturing industries, local government, and the environmental community. The primary purpose of this group is to provide a forum for informal exchange on certain aspects of program implementation.
- Sections of the conceptual implementation plan were completed, including definitions and scope of RPPCs, compliance and certification requirement options, program administrative and staffing requirements, and all supplementary appendices.

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## C. INFORMATION SERVICES PROGRAMS

Information services are a key component in promoting the purchase and use of recycled products by private industry, local government, and the public. These programs provide readily accessible information on the availability and quality of recycled products.

### 1. CALMAX [PRC 42600 (a)]

The Board is required to establish a statewide public information and education program to promote waste handling practices that reduce waste generation by business and industry. To address this need — the Board created CALMAX, a free, bi-monthly classified listings catalog to help businesses develop markets for/ or exchange materials traditionally discarded.

CALMAX has been increasing in popularity since the first catalog (January/February 1992) was distributed. The latest catalog contains approximately 600 listings, nearly double the number at the beginning of the year. At the same time, the number of people requesting to be on the CALMAX mailing list has nearly tripled to 6,000. An additional 50,000 catalogs were distributed by direct mail to solicit business and industry participation.

For discussion of CALMAX as it relates to source reduction please see Chapter I, Source Reduction.

#### Accomplishments

- Bi-monthly catalogs were published for the entire 1992 year. The latest catalog is available from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Waste Diversion for further information.
- More than 65 exchanges and diversion of almost 112,000 tons of materials were reported for 1992.

### 2. HOTLINE [PRC 3472, 42600]

The Board has established a toll-free hotline (1-800-553-2962) to respond to individuals requesting information on reducing, reusing, recycling, and composting waste. The hotline database contains the location of approximately 2,600 recycling centers accepting a variety of materials from the public, including aluminum, glass, newspaper, cardboard, other paper products, plastics, metals, and used motor oil. The database also contains information on upcoming household toxic "roundups" and collection facilities. Recycling information is coordinated with other state departments, including the Department of Toxic Substances Control for hazardous waste and the Department of Conservation for curbside recycling information and certified redemption centers. County contact names and their telephone numbers are included in the database.

The hotline number is listed in California telephone directories, newspaper recycling ads, and recycling guides throughout the state. It operates five days a week, from 7:30 a.m. to 5:30 p.m.

#### Accomplishments

- More than 50,000 calls were answered in 1992, averaging 4,000 calls per month. (See Figure II-9 for the number of calls received and the types of calls.)
- The Board contracted to evaluate the present hotline system and help develop an alternative to improve service to callers.

### 3. PLASTICS RECYCLING INFORMATION CLEARINGHOUSE [PRC 42520]

The Board is establishing a Plastics Recycling Information Clearinghouse to provide information on programs for collection of postconsumer plastics, availability of postconsumer plastics, and recent advances in postconsumer plastics recycling technology. The clearinghouse will: help those interested learn how to start a plastic recycling business; assist students and researchers with information for research projects and publishing of articles; facilitate communication between buyers and sellers of recycled plastic products; and develop public interest for recycling plastics.

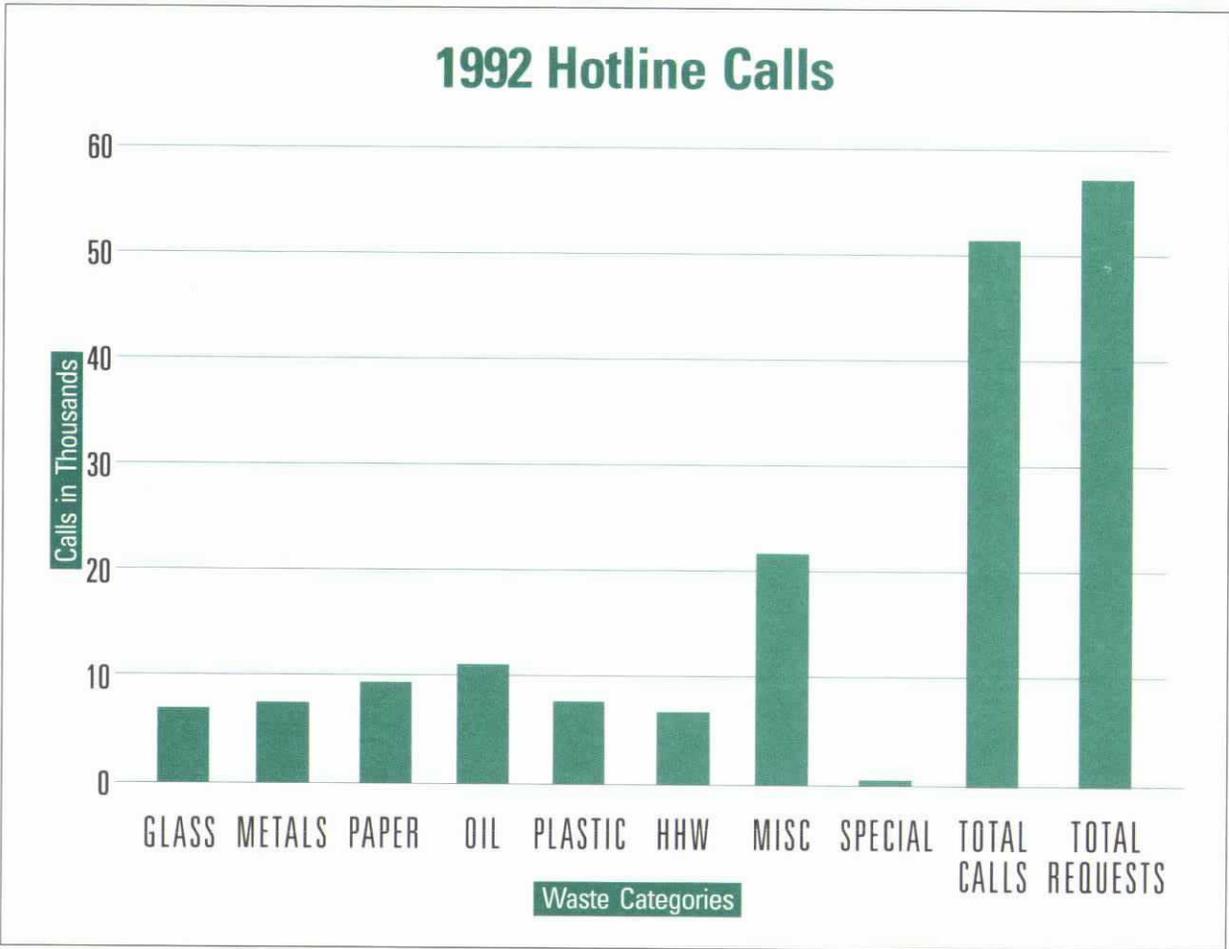


FIGURE II-9

**Accomplishments**

- The Plastics Recycling Information Clearinghouse was established as part of the Informational Clearinghouse.
- Board staff attended workshops, displaying literature and plastic recycled products as part of the Clearinghouse effort.

**D. RESEARCH AND DEVELOPMENT PROGRAM [PRC 42650]**

The Board is authorized to establish a comprehensive research and development program designed to identify, develop, and refine processes and technologies to assist in implementing innovative resource management and waste reduction programs.

**1. PRISON INDUSTRY AUTHORITY'S RESOURCE RECOVERY PROGRAM**

The Board has contracted with the Prison Industry Authority (PIA) to research and develop a program to process 100 tons/day of the City of Folsom's waste stream using convict labor. This program features inno-

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vative material collection and processing techniques, including methods to compost the organic portion of the waste stream.

The research program will be used to evaluate municipal solid waste collection and processing techniques, and to research the operation and design issues of anaerobic digestion and aerobic composting. The results will be used to assist local communities or other interested parties in meeting their waste diversion goals.

The research and development phase of the PIA program is due for completion by July 1993. The next phase, currently being explored by Board staff, may involve the design, construction, and testing of a full-scale anaerobic digestion vessel and development of a technology transfer program.

#### **Accomplishments**

- The Board contracted with the PIA to research and develop a program to use innovative material collection and processing techniques.

## **2. SANTA BARBARA COUNTY COMPOST PROJECT**

The Board contracted with the County of Santa Barbara to co-fund a three-year compost market research and development project. One phase of the project will assess potential markets for compost generated from a variety of municipal solid waste feedstocks. This phase is anticipated to be completed by the end of 1993. The research will focus on market capacity in the Santa Barbara County area, and will assess the environmental and economic benefits of composting. A second phase of the project will involve testing to evaluate the utility of various product specifications and standards necessary to ensure the safety and marketability of municipal solid waste compost.

The information gathered will be used directly in the development of a model recycling and composting facility, and a report for statewide dissemination. The project will help to minimize the duplication of effort by local governments by resolving the uncertainties surrounding the marketability of compost products. It will also provide a compost market map for the Santa Barbara area, as well as technical data on the performance of compost types for different purposes under varying conditions.

#### **Accomplishments**

- The Board contracted with the County of Santa Barbara Public Works Department in August for a market-assessment research project on composting.

## **3. ASH RECYCLING PROGRAM**

The 68 solid waste combustion facilities operating in the state generate about 2,200 tons of ash/day. The solid waste includes agricultural waste, municipal solid waste, tires, and wood waste. The Board has contracted to determine the quantities and examine characteristics of the ash. Samples were obtained from biomass, waste-to-energy, and medical waste incinerators, and they are being tested to determine suitability for construction or soil amendment use. Results may be used to establish standards for the environmentally safe handling, treatment, disposal, testing, and reuse of ash.

#### **Accomplishments**

- The first facility survey stage of the ash project was completed — a summation of data on the amount of ash generated in the state for all known existing, operational waste-to-energy combustion facilities.

## **4. PAPER FIBER STUDY**

In order to ensure maximum recycling of paper products, it is important to understand how siting and development of paper recycling facilities, or expansion of existing facilities, can be accomplished in accordance with California environmental laws and regulations. Fiber processing facilities require large amounts of water and generate significant emissions to air, water, and land.

The Board has contracted for a study to determine the complete range of environmental impacts associated with recycling different types of paper fibers. The final report will address the issues of: solid waste, waste water, air emissions, resource demands, siting issues, and economics for facilities that process recycled postconsumer fiber materials.

#### **Accomplishments**

- The Board contracted to determine the complete range of environmental impacts associated with recycling paper fibers.



# III. ENVIRONMENTALLY SAFE SOLID WASTE FACILITIES

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**S**tatutorily mandated as the lead agency for solid waste in California, the Board must ensure that local enforcement agencies (LEA) enforce and solid waste facility operators comply with state standards for the protection of public health, safety, and the environment.

The Board and local governments are facing several significant challenges in managing the state's solid waste, including: diminishing landfill capacity; the need to evaluate viable alternatives that meet California's environmental standards; the permitting of new types of solid waste facilities that sort and process recyclable material (e.g., materials recovery and compost facilities); and review of proposed development projects on old landfill sites that pose many unique threats to public health, safety, and the environment.

The size of California's waste stream is continuing to grow while its landfill capacity is diminishing. Ten counties containing almost 40 percent of the state's population indicated as of January 1, 1990, that they will be facing a landfill capacity shortage within five years; at the same time, counties representing approximately 70 percent of the state's population report they will be facing a landfill capacity shortage within the next 13 years. Several alternatives are being proposed to deal with the diminishing landfill capacity, including:

- vertical expansion of existing landfills, which provides additional space with fewer of the difficulties associated with the siting of a new landfill;
- the development of large, regional landfills, spreading the development costs among several local jurisdictions; and
- an increase in waste diverted from landfills through source reduction, recycling, and composting.

Current solid waste management challenges have increased the complexity of the Board's review and approval process for solid waste facilities. Specific types of solid waste facilities, such as compost facilities, have

required new regulations. Streamlining of the permitting process for solid waste facilities is being studied and training to help LEAs in the permit process has been implemented. The larger, more complex, regional facilities now being proposed require extensive review for environmental and health impacts. The multi-municipal nature of the larger, regional landfills, also requires more attention if the state is to meet its waste diversion goals.

## KEY INITIATIVE: REGULATORY IMPROVEMENTS

The Board has initiated several regulatory improvements to streamline the existing regulatory process and provide solid waste facility operators with predictable, straightforward standards. The Board is pursuing improvements in the following regulatory areas: Federal Subtitle D Regulations, Solid Waste Facilities Permit (SWFP) Regulations, Composting Regulations, and Asbestos Regulations.

### FEDERAL SUBTITLE D REGULATIONS

The federal Resource Conservation and Recovery Act (RCRA) governs the manner in which both solid and hazardous wastes are managed; solid waste is governed by the requirements contained in Subtitle D of RCRA. Many state programs regulating solid wastes grew out of the federal requirements. In 1984, RCRA was amended, and as a result of ensuing court action, the United States Environmental Protection Agency (U.S. EPA) was required to revise the criteria for solid waste landfills. In response to the court action, U.S. EPA published the final version of RCRA's Subtitle D regulations in the Federal Register on October 9, 1991. These rules apply to household solid waste disposal sites and include: location restrictions, facility design and operating criteria, groundwater monitoring requirements, corrective action requirements, financial assurance requirements, and closure and postclosure requirements.

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The rules are self-implementing, allowing for citizen lawsuits as an enforcement mechanism. Additional flexibility in the requirements will be given to states with solid waste facility permitting and enforcement programs approved by U.S. EPA. In order to receive approval, states must demonstrate "functional equivalency" with Subtitle D standards to the U.S. EPA Regional Administrator.

The Board, working as lead agency for California, has coordinated activities with other state agencies, including the State Water Resources Control Board (SWRCB), to receive approval for Subtitle D implementation by U.S. EPA Region IX. The Board is negotiating changes in existing California regulations to allow U.S. EPA Region IX to make an "adequacy determination." The Board submitted a draft application for approval in February 1992, which U.S. EPA completed reviewing in April 1992. The Board anticipates partial Subtitle D approval early in 1993 and complete program approval by 1995.

## SOLID WASTE FACILITIES PERMIT REGULATIONS

The Board has initiated improvements in the current regulations relating to the SWFP application process. Currently, two major problems are encountered in the permit process. First, the period of review for the LEA is too short for a thorough review. Second, under the current permit process the package is not sent to the Board until late in the review process, giving Board staff insufficient time for a thorough review.

The improvements facilitate the current permit process by allowing the completeness of the application package to be determined prior to its acceptance and a longer review period by the LEA. The improvements include: 1) extending the LEA review period from 5 to 30 days; 2) providing the owner/operator of the solid waste facility a comprehensive list of the items necessary for a complete and correct application package; and 3) clarifying the timeframe for the five-year permit review process by restating language from the Public Resources Code.

## COMPOSTING REGULATIONS

To encourage composting as a means of meeting the 1995 and 2000 waste diversion goals, the Board is developing regulations that simplify the permit process for composting facilities by establishing standards specific to composting operations (siting, permitting, and operation). Existing law requires composting facilities to obtain SWFPs in order to operate. The proposed regulations will establish minimum standards for the design and operation of composting facilities and allow the Board or enforcement agency to grant green materials composting facilities a permit when the operator has met the minimum standards. In addition, the proposed regulations will simplify and clarify the Board's current solid waste facilities permitting process.

The regulations are set forth for: 1) green waste facilities, and 2) all other forms of composting. The Board anticipates that both phases of the regulations will be approved by the Office of Administrative Law by early 1993.

## ASBESTOS REGULATIONS

Currently, friable asbestos disposal at nonhazardous landfills is not being adequately regulated because the Board does not have authority over hazardous wastes, which include asbestos containing waste (ACW). However, much of the disposal of ACW is at landfill sites regulated by the Board. The State Department of Toxic Substances Control (DTSC) does not regulate nonhazardous waste facilities accepting ACW. These conditions have left a regulatory void.

To correct this deficiency, the Board has initiated regulations for ACW to protect human health, safety, and the environment, while allowing disposal of ACW at nonhazardous landfills. The Board and DTSC signed a Memorandum of Understanding in June to allow the Board's permit and enforcement program to regulate ACW disposal on behalf of the DTSC until permanent regulations are adopted by DTSC into Title 22 of the California Code of Regulations. The regulations are being developed jointly by the Board and DTSC, and will provide for the permitting, siting, and operation of friable asbestos disposal at nonhazardous landfills. The regulatory procedures may include: disposal in

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specified places mapped out for future reference; proper safety attire for workers; fencing to prevent unauthorized entry; security measures; and maintenance of equipment.

## **MANDATES TO PROMOTE ENVIRONMENTALLY SAFE SOLID WASTE FACILITIES**

To ensure environmentally safe solid waste facilities, the Board implements the following 10 major mandated programs:

1. local enforcement agency (LEA) certification and performance evaluation;
2. permitting solid waste facilities;
3. review of environmental documents;
4. inspections of solid waste facilities;
5. closure/postclosure maintenance plans;
6. operating liability for solid waste landfills;
7. corrective action;
8. closed, illegal, and abandoned sites;
9. hazardous waste; and
10. a research and development program.

In the implementation of these programs, the Board works closely with local government, other state agencies, and the federal government. The Board has initiated a joint study with the SWRCB to remove regulatory overlap, duplication, and conflict between the two agencies. This report is required as a result of AB 3348 by Assemblymember Eastin (Chapter 1218, Stats. 1992) and is due to the Legislature by March 1, 1993. The study will assess the regulatory responsibilities and activities related to solid waste disposal of the SWRCB, Regional Water Quality Control Boards, and the Board. When appropriate, it will also discuss the regulatory responsibilities and activities related to solid waste disposal of DTSC, the Air Resources Board, local air quality management districts, and LEAs. The study will assess the costs to state and local agencies for regulating solid waste and any savings that could be accrued by eliminating duplication and overlap between agencies.

### **1. LEA CERTIFICATION AND PERFORMANCE EVALUATION [PRC 43200 et seq., 43214, 44800-44801]**

LEAs are agents of the State that help to enforce laws and regulations and implement Board policies for the correct operation and closure of California's solid waste facilities. LEAs also enforce local ordinances adopted pursuant to solid waste statutes and regulations. (See Figure III-1 for a comparison of Board and LEA responsibilities.)

LEAs are designated by their local governing body. To ensure that they are implementing local programs pursuant to statute and regulations for the protection of public health, safety, and the environment, all LEAs must now be Board-certified. The certification requirement enhances the previous local designation/Board approval process by requiring certain commitments from the local governing body.

The Board adopted designation and certification regulations for LEAs, based on the following considerations.

- Strong local government enforcement in solid waste management is desirable for California.
- Direct state enforcement and regulation of solid waste management is not desirable, except when there is no LEA. (Local control has always been the desired method for solid waste management because of California's great diversity. Local decisions can address differences in geography, population, etc., while meeting broader state standards.)
- Enforcement agencies, to be effective, must have adequate autonomy from local politics.
- Conflicts of interest between solid waste regulation and solid waste handling and disposal operations are unacceptable. (Previous statute allowed LEAs to be designated who also performed operator roles. This created the potential for unequal enforcement by LEAs over operator competitors; occasionally standards were stringently enforced on

## Board and Local Enforcement Agency Responsibilities

Responsibility	The Board	Local Enforcement Agency
Conduct inspections of active permitted facilities	Annually and when Pre-permit inspections are required	Monthly
Conduct inspections of closed, exempted and abandoned facilities	As needed	Quarterly
Conduct inspections of illegal facilities	As needed	Monthly
Conduct inspections of waste tire facilities	Pre-permit	Major facility - Annually Minor facility - 30 months
Conduct inspections of solid waste handling collection equipment	Only when serving as Enforcement Agency	Schedule determined by LEA
Maintain an Inventory of Solid Waste Facilities Violating State Minimum Standards	On-going	May make recommendations
Coordinate multi-media inspections	As needed	Participate in
Take appropriate enforcement action	When serving as Enforcement Agency or under extenuating circumstances	As needed
Provide training, technical assistance, and guidance	To LEAs and operators as needed	To operators as needed

FIGURE III-1

- competitors and not enforced on their own operators.)
- A comprehensive LEA program should include: provisions for the inspection and enforcement of solid waste storage and collection requirements; and permitting, inspection, and enforcement of requirements for active, inactive, closed, illegal, abandoned, exempt, and planned facilities.
  - LEA staff should have the education and technical expertise to make engineering, public health, environmental health, and financial decisions.

- In order to be effective, agencies designated as LEAs must have adequate training, equipment, personnel, technical expertise, legal assistance, and budget.

As of August 1, 1992, designated local agencies in 61 jurisdictions had been reviewed and approved by the Board. More enforcement agencies may be designated if they meet the minimum certification requirements. However, some jurisdictions will either not seek certification or will not be able to meet the requirements. In those cases, the Board is required to become the enforcement agency until the local jurisdiction can support a certified LEA [PRC 43202, 43205]. Please see Appendix C for a List of Certified LEAs and Contacts.

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To ensure that LEAs are kept abreast of current statutes, regulations, Board policies, and current technologies, the Board provides ongoing training, technical assistance, and guidance [PRC 42500-42501, 43217]. The Board also provides grants to LEAs to help in the cost of landfill permitting and inspection [PRC 46400-46402, 46504].

The Board periodically evaluates LEA performance for enforcement agency compliance with solid waste collection, handling, and disposal statutes and regulations [PRC 43214]. If the enforcement program is found to be deficient, the Board is required to withdraw local designation. The local governing body has 90 days to designate another LEA and receive Board approval before the Board assumes enforcement authority [PRC 43216]. If the Board assumes enforcement authority, it is authorized to charge the local governing body with reasonable fees to recover state costs [PRC 43212].

#### **Accomplishments**

- The Board reviewed and certified 61 jurisdictions as LEAs for the 1992 calendar year.
- LEA training was provided at several locations statewide in the following: designation and certification processes and requirements, permitting procedures and regulations, closure/postclosure procedures and regulations, and financial assurance mechanisms.
- The Board established quarterly roundtable meetings with staff and LEAs to provide a forum for the resolution of issues and concerns affecting the solid waste facilities program.
- Quarterly meetings were held with the Board's Enforcement Advisory Council (EAC). The EAC was established by the Board to: 1) achieve a coordinated, consistent statewide enforcement program by ongoing communication among all LEAs and the Board; and 2) assure that LEA interests and viewpoints on legislation, policies, programs and training needs are considered at the state level. Members represent the various regions of the state and the disciplines engaged in solid waste enforcement.

- The Board awarded \$1.5 million in grants in 1992 to all jurisdictions meeting the minimum statutory requirement of one permitted solid waste landfill to help with the cost of landfill permitting and inspection.

## **2. PERMITTING SOLID WASTE FACILITIES [PRC 44002, 44009]**

Every operating solid waste facility is required to have a permit. The SWFP serves as the basis for site monitoring and evaluation. (See Figure III-2 for the number of different types of solid waste facilities.)

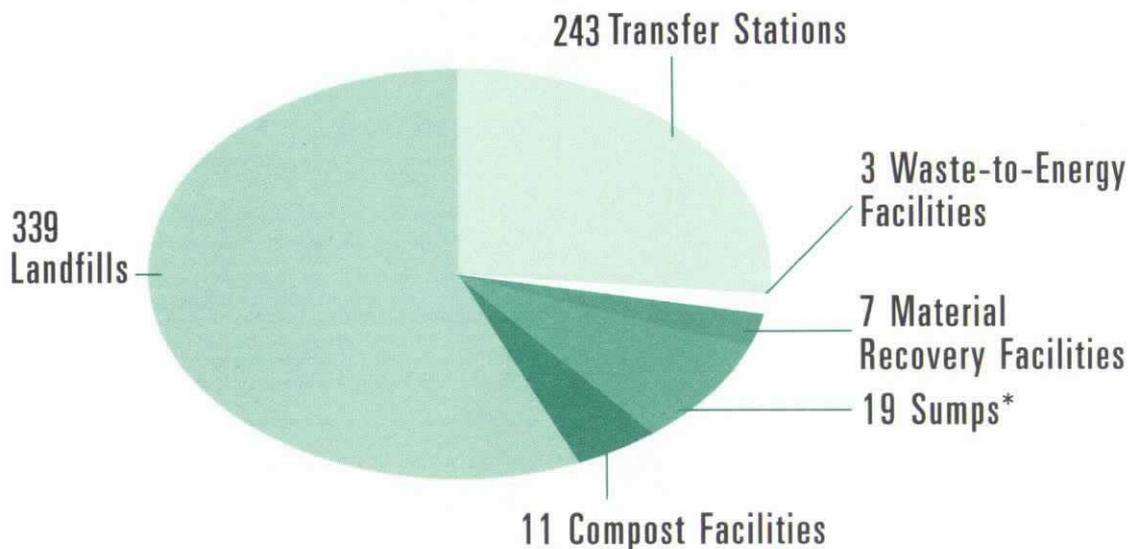
The permit is initiated at the local level, with the project proponent submitting an application for a new or revised SWFP to the LEA, which consists of: an application form, a Report of Facility Information, conditional use permits, a certified environmental document, permits required by other agencies, and, for landfills, a Closure and Postclosure Maintenance Plan.

The issuance of a SWFP is the last step in the process. The Board concurs in the issuance of the permit if it finds it to be consistent with standards mandated by the California Integrated Waste Management Act (IWM Act). No facility can be expanded or sited that is not found: to be in conformance with the Countywide Integrated Waste Management Plan (CIWMP); consistent with the General Plan; or approved by the local governing body through a recognized process [PRC 44009, 50000-50001]. Each SWFP is also evaluated to determine its potential to prevent or significantly impair a jurisdiction's ability to successfully implement its diversion programs and meet the mandated waste diversion goals.

During 1992, the Board proposed regulatory changes that would streamline the permitting process for the project proponent while ensuring that stringent environmental standards are met [PRC 40052]. Once a solid waste facility is permitted, it must be reviewed by the LEA at least once every five years to determine if the permit needs to be modified or revised [PRC 44015]. All documents are reviewed for compatibility with state policies and standards, and to ensure that changes to the design or operation of a solid waste facility have not occurred without prior revision of the SWFP.

## Number of Different Types of Solid Waste Facilities Currently Operating

As of November 1992



\*Surface impoundments for Geothermal Drilling Wastes

FIGURE III-2

### Accomplishments

- The Board concurred in 21 new SWFPs in the 1992 calendar year.
- Board staff developed a Permit Desk Manual, a guide to LEAs in evaluating, writing, and processing SWFPs. The manual also provides guidance to existing and future facility operators in the preparation of permit applications and includes the primary documents required in support of an application for a new, revised, or modified permit.
- The Board provided workshops on the scope of the Permit Desk Manual for LEAs to ensure a consistent application of statutory and regulatory requirements.

- The Board concurred in 31 revised SWFPs; 24 modified SWFPs; and 32 SWFP reviews in the 1992 calendar year.

### 3. BOARD REVIEW OF ENVIRONMENTAL DOCUMENTS [PRC 21069]

Every solid waste facility must be in full compliance with the California Environmental Quality Act (CEQA) before it may be approved by the Board.

The Board provides technical and interpretive guidance to ensure full understanding of the requirements for CEQA compliance for solid waste projects, including the siting, building, and expansion of landfills and transfer stations, waste processing facilities, materials recovery facilities, recycling centers, composting facili-

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ties, sewage sludge management facilities, and waste-to-energy plants.

The Board is responsible for commenting on draft and final CEQA documents related to SWFPs and for enforcement activities during the public review period to ensure CEQA compliance. All documents are reviewed to ensure that the proposed plans, programs, and projects do not significantly harm the environment. When mitigation measures are incorporated in a project, they are reviewed for compatibility with state policy and standards. Generally, Board comments on draft CEQA documents are considered by the lead agency for a project and addressed within the final CEQA document. The Board has, depending on the degree to which a final CEQA document addresses the Board's comments, taken additional actions, ranging from commenting on environmental documents as a responsible agency, up to declaring the Board's intent to become lead agency and prepare a subsequent environmental impact report on a project.

The Board has discretionary approval authority over Closure and Postclosure Maintenance Plans and the issuance of a new or revised SWFP.

The Board also assists local agencies in preparing environmental documents for CIWMPs and reviews local jurisdiction planning documents, commercial and residential development, and Community Redevelopment Plans. Please see Chapter V, Local Integrated Waste Management Planning for a complete discussion of the Board's role in environmental review of local projects and programs.

#### **Accomplishments**

- The Board reviewed 76 SWFPs for CEQA compliance during the 1992 calendar year and 175 CEQA documents that related to SWFPs.

#### **4. INSPECTIONS OF SOLID WASTE FACILITIES [PRC 43214, 44105 (a), 43219 (b)]**

Every solid waste facility in the state must be inspected monthly by an LEA. The LEA is required to take appropriate enforcement actions when violations of minimum standards or permit conditions are noted. Board staff, in conjunction with the LEA, are required

to perform an annual inspection of each solid waste facility, including facilities that accept ACW, to ensure compliance with minimum standards and permit conditions. An integral part of the Board's annual inspections and monthly inspections, when the Board serves as enforcement agency, are the monitoring of landfill gas and testing for possible off-site migration by Board staff [PRC 43030]. A facility has 90 days to correct a minimum standard violation. If the violation is not corrected within that time, the facility is listed on the Inventory of Facilities Which Violate State Minimum Standards [PRC 44104 (a)(b)]. Currently, the facility has one year to correct the violation before the process to revoke the facility's operating permit is initiated.

Board staff serve as the "first point of contact" for solid waste handling and disposal issues brought forth by LEAs, providing guidance, technical assistance and training to ensure the consistent application of laws and regulations at all solid waste facilities. Board staff also assist the LEA by assessing the remaining active facilities that do not have or need permits. Board staff and the LEA determine the best course of action to attain or maintain a safe environment at these sites.

#### **Accomplishments**

- Board staff conducted approximately 800 inspections of solid waste facilities in 1992, including annual and other permit-related inspections.
- Guidelines were established and implemented to carry out the 90-day intent to list a solid waste facility on the Inventory of Facilities Which Violate State Minimum Standards.
- The Board served as the enforcement agency (EA) in five jurisdictions in 1992 (Del Norte County, Nevada County's McCourtney Landfill, City of Berkeley, Stanislaus County, and Santa Cruz County). These duties included performing monthly inspections of active solid waste facilities and illegal sites, as well as quarterly inspections of closed, abandoned, and exempted sites. Board staff also served as the primary contact for all jurisdictional solid waste handling and disposal issues and coordinated enforcement action follow-up at two facilities.

- Board staff conducted approximately 90 inspections in 1992, acting in the capacity of an EA.
- The Board acted as project manager of the multi-agency California Environmental Protection Agency (Cal/EPA) inspection of Sacramento City Landfill, and will continue to coordinate all multi-agency Cal/EPA landfill inspections in the future.
- A Memorandum of Understanding was secured between the Board and DTSC for the regulation of ACW.

## 5. CLOSURE/POSTCLOSURE MAINTENANCE PLANS [PRC 43500, 43501, 43503]

Every owner or operator of a solid waste landfill that is required to be permitted and was operating on or after January 1, 1988, must submit a Closure Plan (CP) and Postclosure Maintenance Plan (PMP) to the Board, the LEA, and the Regional Water Quality Control Board (RWQCB) for approval. The PMP is to provide for a minimum of 30 years of maintenance. At the same time, the owner or operator is required to provide and demonstrate to the Board and the LEA financial assurances to cover the costs of properly closing and maintaining a solid waste landfill for a 15-year period. The primary considerations for the plans are: 1) to ensure that there is sufficient technical and financial capability to properly close the landfill; and 2) to minimize postclosure maintenance while ensuring protection of public health and safety and the environment.

Preliminary CPs and PMPs for existing landfills are required to be submitted over a five-year period starting July 1, 1990, depending on the permit review due date. Plans are also due upon application for a new SWFP. Final CPs and PMPs are submitted two years prior to closure; preliminary plans are reviewed and amended and/or revised as necessary as part of each permit review.

Board staff reviews cost estimates for closure and postclosure maintenance for those facilities for which CPs and PMPs are not yet due. Board staff also evaluate requests for exemptions from the submittal requirements for the plans. Exemptions (alternative certifica-

tions) are approved for those facilities that meet the criteria contained in statute and regulations.

### Accomplishments

- The Board reviewed and approved 13 CPs and PMPs, 20 Postclosure Land Use Plans, and 11 Alternative Certifications for Non-Operation or Applicability of Requirements for Solid Waste Landfills. An additional 83 plans were reviewed and additional data requested.
- A Postclosure Land Use Workshop was held in June in which technical and regulatory experts spoke on postclosure development issues. Background information was provided on specific concerns about development on closed landfills and on case histories of existing developments on closed landfills. A second workshop was held in November in Southern California because of the outstanding response to the June workshop.
- The Board worked with SWRCB to coordinate financial assurance requirements for closure and corrective action.

## 6. OPERATING LIABILITY FOR SOLID WASTE LANDFILLS [PRC 43040]

Every operator of a disposal facility is required to provide assurance of financial responsibility for operating liability claims as a condition for the issuance, modification, revision, or review of a SWFP. Operating liability claims can be filed by a third party against an operator as a result of an accident that occurs at a solid waste disposal facility. These claims include compensation for bodily injury and/or property damage to the third party. The minimum assurance level is \$1 million/occurrence, \$1 million annual aggregate for one facility, up to \$5 million/operator for five facilities or more.

### Accomplishments

- After significant public comment and hearing, the Board adopted operating liability regulations in December 1991, that became effective July 1, 1992. The Board adopted emergency regulations amending the regulation package, and finalized these regulations in October. The emergency regulations lowered the required operating liability coverage for one

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facility from a \$2-million annual aggregate to a \$1-million annual aggregate. Costs were minimized so that tipping fees would not have to be increased to cover the additional burden. An increase in tipping fees would have resulted in illegal dumping, posing a threat to public health and safety and to the environment.

## **7. CORRECTIVE ACTION**

### **[PRC 45400-45403]**

The LEA and the Board are authorized to order the owners and operators of solid waste disposal facilities to undertake corrective action when the operation of the facility is causing or threatens to cause a hazard, a nuisance, or pollution. Examples of problems that could trigger corrective action include migration of methane gas and groundwater contamination.

If the owner/operator fails to take action, the Board may expend funds from the Solid Waste Disposal Site Cleanup and Maintenance Account to complete the corrective action. This account was created to deal with landfill and household hazardous waste issues [PRC 46001, 46800]. Any funds expended from the account for corrective actions are required to be repaid by the owner/operator. The Board is also authorized to take action in the event of an emergency or imminent threat.

Corrective actions are conducted by the Board in concert with the LEA. Once corrective actions are completed, the LEA is responsible for conducting inspections to ensure compliance with minimum standards and permit requirements, and may issue a Notice and Order when a site is out of compliance. The Board may act separately if the situation warrants it.

#### **Accomplishments**

- The Board initiated its first corrective action in June when it extinguished an underground landfill fire, placed a final cover, and installed gas and groundwater monitoring systems at a problem landfill in Northern California.
- Contracts were awarded for engineering and environmental services so that services would be available to Board staff on an "as needed" basis.
- A two-phase ranking system was developed to evaluate the need for corrective action. The first

phase uses a brief evaluation of the sites to assess the urgency for corrective action. The second phase employs a more elaborate evaluation for sites ranked highest in the first phase, with each site receiving a numerical score based on various factors.

- Board staff worked with Cal/EPA, member boards, and departments to coordinate corrective actions at several closed, illegal, or abandoned sites.

## **8. CLOSED, ILLEGAL, AND ABANDONED SITES**

### **[PRC 44105 (b)]**

The Board is required to investigate closed, illegal, and abandoned solid waste disposal sites to determine if they pose a threat to human health or the environment. The objectives of this program are 1) to identify all closed, illegal, and abandoned (CIA) sites, and determine whether any of these sites require administrative or corrective action; and 2) to judge whether proposals for development on closed landfills are consistent with postclosure land use regulations.

Implementation priority is based on a ranking system that was developed as part of the CIA site investigation. If a site is not within the Board's jurisdiction, it will be referred to the appropriate public agency. If evaluation of a site indicates a problem, the Board can require remediation by the owner/operator, or funding of remediation under the Corrective Action Program.

The Board coordinates with LEAs and local building and planning departments to evaluate land use development proposals on closed landfills. To facilitate the review and approval of these proposals, the Board is studying problems common to postclosure projects, such as uneven settlement of the land and the need to control landfill gas.

#### **Accomplishments**

- The Board identified and developed a list of 2,500+ closed, illegal, or abandoned sites. The sites on the list will be ranked in 1993, using a two-phase system. Corrective actions will be pursued for those sites identified as high in need.

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## 9. HAZARDOUS WASTE

Each LEA is required to compile annually a list of all solid waste disposal facilities known to have shown migration of hazardous waste [GC 65962.5]. The lists are submitted to the Board, where staff compiles the local lists into a statewide list that is submitted to Cal/EPA. Cal/EPA consolidates the list with lists on hazardous waste sites from other boards and departments, and distributes the revised list to cities and counties in which sites on the lists are located. The information is used for planning purposes and serves as an identifier for possible corrective action.

### Accomplishments

- The 1992 CIWMB Hazardous Waste and Substances Site List was submitted to Cal/EPA.

## 10. RESEARCH AND DEVELOPMENT PROGRAM [PRC 42650]

The Board's research and development program currently focuses on landfills and special waste management technologies. In July, at the request of the Board, the California Council of Science and Technology convened a panel of experts to make specific recommendations on future science and research priorities. The panel's membership is diverse and represents the broad range of IWM disciplines. The Board will consider the focus and recommendations of the panel in establishing its 1993/94 research priorities.

### LANDFILL GAS [PRC 43030]

Landfill gas is a mixture of nonhazardous and hazardous gases generated as a result of the biological and chemical decomposition of organic solid wastes disposed of in landfills. Landfill gas typically is comprised of methane, carbon dioxide, water vapor, hydrogen sulfide, carbon monoxide, nitrogen, and trace contaminants such as benzene, toluene, and vinyl chloride.

Current Board regulations for operating facilities require monitoring and control of landfill gas when a hazard or nuisance may be created. If a hazard or nuisance is identified from the presence or movement of landfill gas, the operator must monitor the gas and take action to control the problem. The Board is required to report annually on the progress in implementing the

monitoring and control program for the subsurface migration of landfill gas.

The Board will be amending its regulations to conform with the Subtitle D federal rules, which require operators of municipal solid waste landfills to implement a routine methane gas monitoring program. If the concentration of methane gas exceeds 25 percent of the lower explosive limit of methane, the operator must take immediate action to protect the public health and devise a correction plan.

### ALTERNATIVE LANDFILL COVER MATERIALS [PRC 42244-42245]

The Board is required to evaluate compost, co-compost, and chemically-fixed sewage sludge for use as solid waste landfill cover materials or as extenders for currently-used cover material. The Board is authorized to approve, on a case-by-case basis, the use of compost, co-compost, and chemically-fixed sewage sludge that meet the performance standards for cover materials as landfill cover materials or landfill cover extenders.

Demonstration projects are being conducted and new ones will be considered at cooperating landfills. Demonstration projects are authorized by the Board and the LEA following a request from a landfill operator. Once authorized, the demonstration lasts up to one year, at which time the Board, in collaboration with the other state environmental boards, will evaluate the feasibility of alternative cover materials. To date, no landfill operator has requested a demonstration study to evaluate compost or co-compost as a daily landfill cover material. The Board will be examining compost and co-compost in conjunction with a contract to devise landfill cover performance standards.

With increasing concern over California's rapidly decreasing landfill capacity, numerous landfill operators are seeking alternatives to soil as daily cover; alternative daily cover increases the life of landfills by not using the required six inches of soil on a daily basis. Current alternative daily cover demonstrations include use of the following materials: chemically-fixed sewage sludge, treated oil field drilling muds, green waste, synthetic blankets, water treatment sludge, and foam. The Board is evaluating the results from the demonstrations to determine if these types of alternative cover are

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feasible. If so, alternative cover could possibly be used on an ongoing basis at each of these landfills. The Board is also continuing to develop performance standards for suitable materials for daily, intermediate, and final landfill cover.

#### **Accomplishments**

- Two alternative landfill cover demonstration projects using water treatment sludge and "Soil Seal" (a special manufactured material) were completed, evaluated as successful, and authorized by the Board and the LEA to be used on an ongoing basis at the landfill demonstration sites.

#### **RISK ASSESSMENTS**

The Board is developing a risk assessment program to identify, assess, and quantify public health and environmental risks from landfilling, composting, materials recovery, transformation, and other solid waste management activities. Human health risks may result from exposure to toxic or hazardous substances contained in incinerator ash, special wastes, household hazardous waste, landfill leachate, landfill gasses, or emissions from incinerators.

The Board's program includes reviewing health risk assessments (HRA) and arranging for the preparation of HRAs, as well as other health risk related work for:

- special waste and other staff-specified waste types;
- landfill gas emissions and groundwater problems;
- solid waste facilities that pose significant health risks; and
- proposed new technologies or processes for the handling, treatment, recycling, or disposal of solid wastes.

A HRA report defines the likelihood (or probability) that a certain chemical exposure or series of exposures may damage human health.

#### **Accomplishments**

- The Board negotiated an interagency agreement with the Office of Environmental Health Hazard Assessment (OEHHA) to

provide toxicological and HRA services on an as-needed basis. The Board is working with OEHHA to identify topics to be studied.

#### **SPECIAL WASTES**

Special solid wastes are components of the mixed municipal solid waste stream which, because of their quantity, location, or other special characteristics, may pose a lesser or greater threat to public health, safety, or the environment than typical municipal solid waste. Examples of these wastes include: asbestos, incinerator ash, sewage sludge, wood waste, auto shredder waste, oil field wastes, street sweepings, and petroleum-contaminated soils. A component of the mixed municipal solid waste stream may also become special waste when it is segregated, concentrated, and stockpiled.

The Board is conducting research that will identify the disposal and other handling requirements for special categories of wastes, which due to their physical or chemical properties may pose a threat to the human health and the environment. Based on the findings, steps can then be taken to mitigate these hazards.

#### **Accomplishments**

- The Board is currently identifying special wastes and existing disposal and handling requirements for them.

#### **LABORATORY SERVICES**

Each year the Board allocates funds for comprehensive laboratory services to support technical activities. The Laboratory Services Program is capable of analyzing all environmental samples and diverse consumer products, providing numerous services to several Board programs, including: Corrective Action, Special Waste, Closure and Postclosure, Markets Development, and research activities.

In addition to filling Board staff's analytical needs, the program also provides testing of landfill gas, leachate, soils, solid waste, and condensate samples collected during facility compliance investigations.

One research activity was the testing of plastic bags. PRC Section 41970-41977 mandates that 10 percent of the material used to make plastic trash bags sold in California be postconsumer recycled material by 1993 (bags under 1.0 mil are exempted), and 30 percent be

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postconsumer recycled material by 1995 (bags under 0.75 mil are exempted). Trash bag manufacturers and processors who produce the postconsumer material used in trash bags are required to annually certify compliance to the Board, beginning March 1994. Many plastic trash bag manufacturers are claiming that it is difficult or impossible to manufacture quality trash bags with postconsumer materials. These claims have been difficult to evaluate because there have not been accepted standards for trash bag performance.

Several trash bags currently on the market that contain postconsumer content levels meeting or exceeding the mandated content requirements were tested to determine how closely they matched the functional performance of bags made exclusively from virgin resins. The test results showed that the quality and functionality of manufacturers' trash bags containing recycled plastics is in some cases comparable to virgin plastic bags.

#### **Accomplishments**

- The functional performance of several brands of plastic trash bags was tested and comparisons made between trash bags containing postconsumer recycled material and bags made exclusively from virgin polymers.
- Board staff tested 30 soil samples for leachable metals from three different landfills, and landfill gas and soil samples from other landfills in support of Corrective Action investigations and Closure and Postclosure activities.

#### **MEDICAL WASTE**

Medical waste, as defined in Health and Safety Code Section 25023.1 (Medical Waste Management Act of 1990), is waste generated as a consequence of providing health care to humans or animals, or related research, or production or testing of biologicals, and is either biohazardous waste, "sharps waste," or both. It is expressly not a hazardous waste [PRC 25023.8(d)]. Medical waste poses a potential public health and occupational hazard because of pathogens and sharp instruments (e.g., hypodermic needles) contained in the waste.

The statute specifies that medical waste once treated becomes solid waste, and may be disposed at any solid waste facility. A difficulty arises when treatment fails to eliminate all hazardous potential of the waste. Needles present in treated medical waste arriving at solid waste facilities are of particular concern. Although some local or facility policies have been effective in quelling the tide of unwanted waste, the statute is preemptive, and local ordinances to enhance controls are forbidden.

Currently, a significant proportion of medical waste is disposed of by incineration. However, in May 1990, the Air Resources Board (ARB) found the incineration of medical waste to be producing unacceptable levels of dioxin emissions; as a result a dioxin control measure for medical waste incineration was adopted. This measure may result in the closure of many of the state's existing 146 medical waste incinerators because retrofitting them to clean their stack gases of dioxin is cost prohibitive. This in turn could increase the amount of waste being disposed of in landfills by 9,000 tons annually—3,000 tons of regulated medical waste first sent to alternative treatment (primarily steam sterilization) and 6,000 tons of associated municipal solid waste.

In response, the Board has initiated a study to identify, quantify, and characterize the solid waste treatment residues associated with the health care industry. The study will provide the Board with information on the potential local, regional, and statewide waste management impact that would result from the redirection of the medical wastes to other treatment. It also will help the Board assess the adequacy of treatment for disposal in solid waste landfills by identifying the environmental impacts and health risks associated with each treatment and disposal method. The purpose of these efforts is to determine if treated medical waste requires special handling criteria to protect the environment, and public and worker health and safety.

#### **Accomplishments**

- The Board contracted to survey health care facility waste generation, treatment, and disposal practices within California.

# IV. MATERIAL-SPECIFIC PROGRAMS

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**T**he vast majority of the Board's programs address management options for solid waste. However, the Legislature has determined that several detrimental materials present in the waste stream deserve specific attention (e.g., household hazardous waste, used oil, and waste tires). Programs for each of these materials address multiple areas, such as funding, grant awards, standards development, and education. Each of the programs may contain activities that encourage increased source reduction, recycling, composting, or environmentally safe solid waste facilities; a complete discussion of them is included in this chapter to better understand the integrated approach taken.

## HOUSEHOLD HAZARDOUS WASTE PROGRAMS

Household hazardous waste (HHW) is generated by homeowners from products containing hazardous materials. The State Department of Toxic Substances Control (DTSC) is responsible for identifying what is hazardous for all products.

While the federal government has traditionally excluded HHW from regulation, California does require specific procedures for its collection, storage, treatment, and disposal. The Board's programs provide important education and public information resources and tools for local jurisdictions to use in eliminating HHW from the waste stream, and are the most acceptable means to ensure that solid waste landfills are not adversely impacted by hazardous waste. (See figure IV-1 for HHW program types available in the 1990/1991 fiscal year.)

### HHW GRANTS [PRC 46400-46401]

The most successful program in encouraging the establishment or expansion of HHW efforts is the grants program. Through this program, established by AB 2448 by Assemblymember Eastin (Chapter 1319, Stats. 1987), the Board awards grants to cities, counties,

and local agencies for programs that help prevent the disposal at solid waste landfills of hazardous waste, including HHW.

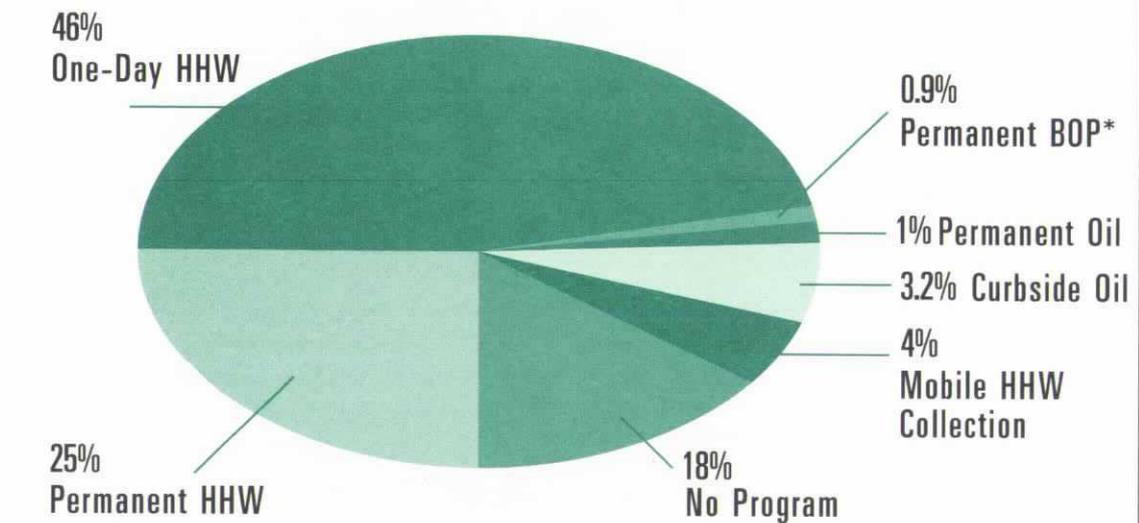
This 1987 statute established the Solid Waste Disposal Site Cleanup and Maintenance Account (Account) to be used, in part, to fund the HHW grant program. The State Board of Equalization deposits into this account an annual fee collected from every solid waste landfill operator required to have a solid waste permit in California. The annual total collected is approximately \$20 million. Recent amendments to this law (AB 3448 by Assemblymember Eastin, Chapter 1218, Stats. 1992) increased the proportion of funds available for grants from 20 percent to 35 percent of the fees generated — approximately \$7 million each year (depending upon the annual total appropriated through the budget process). The Board is mandated to give funding priority to:

- new programs for rural areas, under-served areas, and small cities;
- expansion of existing programs to provide for the collection of additional waste types and innovative or more cost-effective collection methods, and;
- regional HHW programs.

Grants are used to reimburse existing HHW program costs, and to support new and expanded programs. Non-discretionary grants reimburse applicants for HHW programs implemented in the fiscal year prior to the grant application. The grant recipient is eligible to obtain reimbursement for the cost of the local program or for an amount based upon the proportion that the population of a city, county or local agency bears to the statewide population, whichever is less.

Discretionary grants are awarded on a competitive basis for new and expanded HHW programs. A discretionary grant recipient is eligible to receive up to \$120,000 for a proposed program. In each grant year, grants are awarded in two phases. Of the \$7 million available, the

## HHW Program Types Available in the 1990/1991 Fiscal Year



\* Lead-Acid Batteries, Oil, Paint

Total number of programs: 58 (based upon information extracted from the non-discretionary grant applications which were awarded for programs implemented in the 1990/91 fiscal year)

FIGURE IV-1

Board will award \$4 million for non-discretionary grants and \$3 million for discretionary grants.

### Accomplishments

- The Board awarded 58 non-discretionary grants totaling \$3,661,171 to local governments for programs implemented in the previous year that help prevent the disposal of HHW at solid waste landfills. The Board also awarded 14 discretionary HHW grants totaling \$338,829 for new and expanded programs.
- The Board responded to a request for emergency funding from Humboldt County for damage incurred as a result of a major earthquake, and also funded two hazardous waste events.
- HHW regulations were amended to clarify existing regulations.

- Sixty applications for non-discretionary grant programs conducted in fiscal Year 1992/93 were received by the September deadline.

### HHW TECHNICAL ASSISTANCE [PRC 47103]

The HHW Technical Assistance program helps local governments in preparing and implementing mandated HHW elements and HHW collection programs to decrease the amount of HHW going to the landfills. Technical assistance is provided in three ways: responses to inquiries, on-site visits with local governments, and task force participation.

Technical assistance staff respond to inquiries regarding the proper disposal of HHW. In addition, technical assistance is expanding to target cities and counties that have not established a HHW collection

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program. A clearinghouse of data for local governments conducting or planning to conduct HHW collection programs is under development.

The Board serves as the liaison between local HHW management programs and DTSC, to keep local jurisdictions informed on current policies. Board staff reviewed DTSC regulations concerning permit-by-rule for HHW programs, and based on Board staff comments as well as others, DTSC rewrote the regulations.

As an example of assisting local jurisdictions and industry in reducing the amount of HHW generated, the Board participates in the Paint Task Force with DTSC, cities, counties, and the paint industry. The primary purpose of this task force is to encourage the paint industry to provide recycling opportunities for unused paint.

#### **Accomplishments**

- The CalPoly San Luis Obispo Recycled Latex Paint Study was initiated with Board funding and staff assistance. This three-year study will: determine whether paint collected at HHW collection programs contains hazardous waste; test the quality of recycled paint; and, develop a color-sorting protocol for local governments to increase the marketability of the recycled paint. The Board received the first quarterly report on the study and has completed the second quarter sampling.
- *Recommendations for Developing Permanent HHW Collection Facilities*, a guidebook for local government was updated. This guidebook can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Household Hazardous Waste for further information.

#### **HOUSEHOLD HAZARDOUS WASTE PUBLIC INFORMATION [PRC 47050-47052]**

Both written and visual material are available to the public and local government from the Board's public information program on the safe handling and disposal of hazardous substances found in the home, as well as safe alternatives to these substances. The Board also helps local governments and private groups to develop public information programs; all materials are pre-

sent in English and Spanish and disseminated to local governments and the general public.

#### **Accomplishments**

- Board staff surveyed 633 local governments to determine their HHW public information needs and received 215 responses. The most identified information need was for written materials that are easily distributed (e.g., brochures, fact sheets, and mailers for utility bills). More than half of the respondents indicated a need for information in other languages, primarily Spanish and Southeast Asian.
- Seven fact sheets in English and Spanish are available and can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix E, Household Hazardous Waste for further information.

#### **HOUSEHOLD BATTERY WASTE MANAGEMENT STUDY [PRC 15010]**

The Board conducted a study of the disposal and potential recyclability of household batteries. This study defines household batteries; identifies hazardous chemicals and characteristics of batteries; discusses safety issues concerning household batteries; discusses marketing trends regarding household batteries; reports recycling opportunities for different types of batteries; and, provides recommendations for new legislation regarding battery management.

The study, which explores the potential environmental and human health risks related to the illegal disposal of all types of household batteries in the solid waste stream, will serve to inform the public of the dangers of illegal disposal and the benefits of collecting and recycling household batteries. A press release on the report's findings is being disseminated statewide and to trade publications. (See figure IV-2 for sales of household batteries in California by type.)

#### **Accomplishments**

- *The Household Battery Waste Management Study* was adopted by the Board in June and approved by the Governor in September. This report can be obtained from the Board's Office

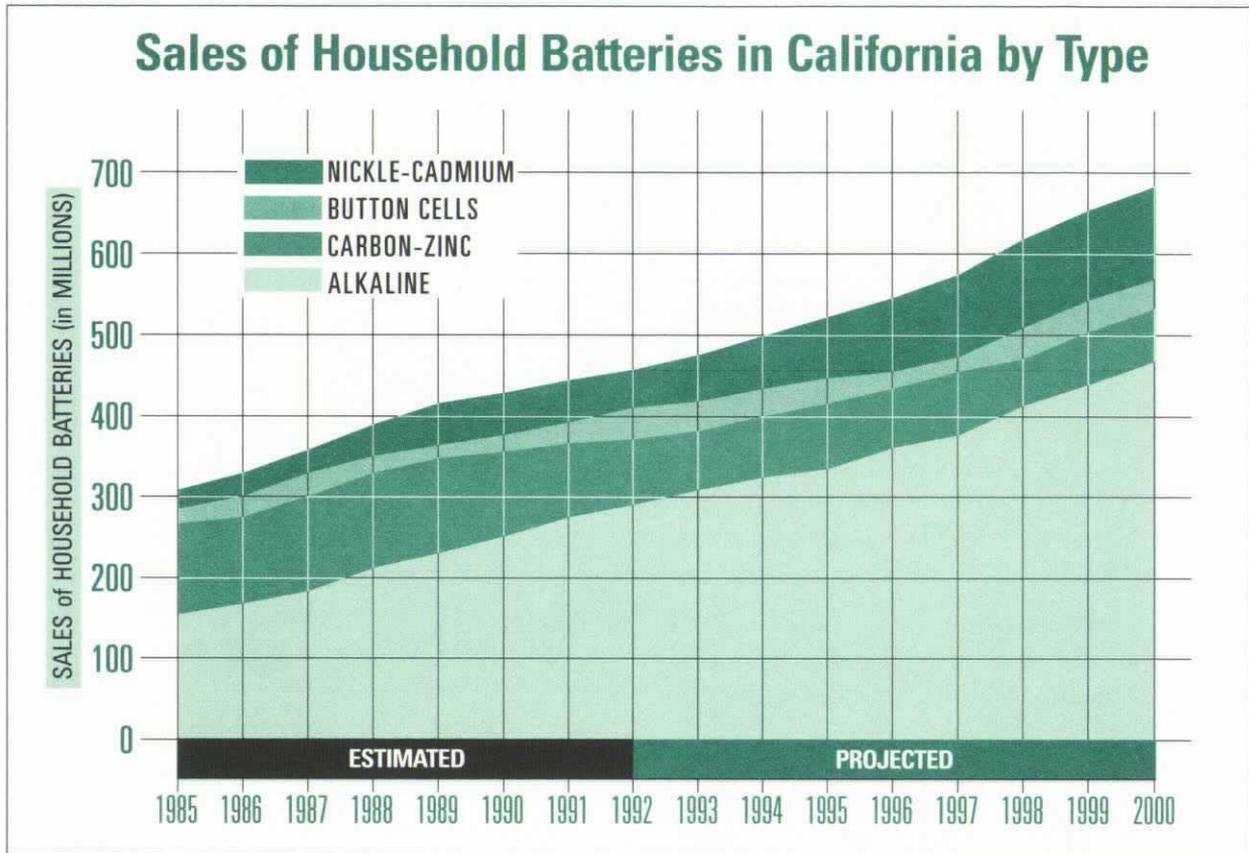


FIGURE IV-2

of Public Affairs and Education. Please see the Publications List, Appendix D, Household Hazardous Waste for further information.

## USED OIL MANAGEMENT PROGRAM

California currently generates approximately 165 million gallons of used lubricating and industrial oil each year; an estimated 64 percent of that oil is recycled. The remaining 36 percent is either illegally disposed of in solid waste landfills or is dumped into storm drains, which in most cases bypass waste water treatment facilities, discharging into California waterways. Solid waste landfills are prohibited from accepting used oil for disposal because the facilities are neither designed nor operated to manage hazardous wastes. (See figure IV-3 for a summary of used oil processed in oil recycling facilities in 1990.)

## USED OIL COLLECTION DEMONSTRATION GRANTS [PRC 3480]

In 1991, the Board received funding to administer a used oil demonstration grant program designed to encourage the establishment of public used oil curbside collection projects. The funding provides capital outlay on a matching basis to local agencies that offer households the opportunity to recycle or otherwise dispose of used oil.

The grant program is funded by fees from the Petroleum Violation Escrow Account. One million dollars is being allocated to the Board for the grant program. A grant to any local agency cannot exceed \$75,000.

The used oil demonstration grant program has a completion date of October 1, 1993. The Board will be monitoring each grant program during the grant year period for compliance with the requirements. Reports from the grant recipients are due to the Board by

## Summary of Used Oil Processed in Used Oil Recycling Facilities in California for 1990 as Reported to Cal/EPA by Department of Toxic Substances Control

(Approximately 105 million gallons, out of 165 million gallons of used oil generated, were received by these facilities)

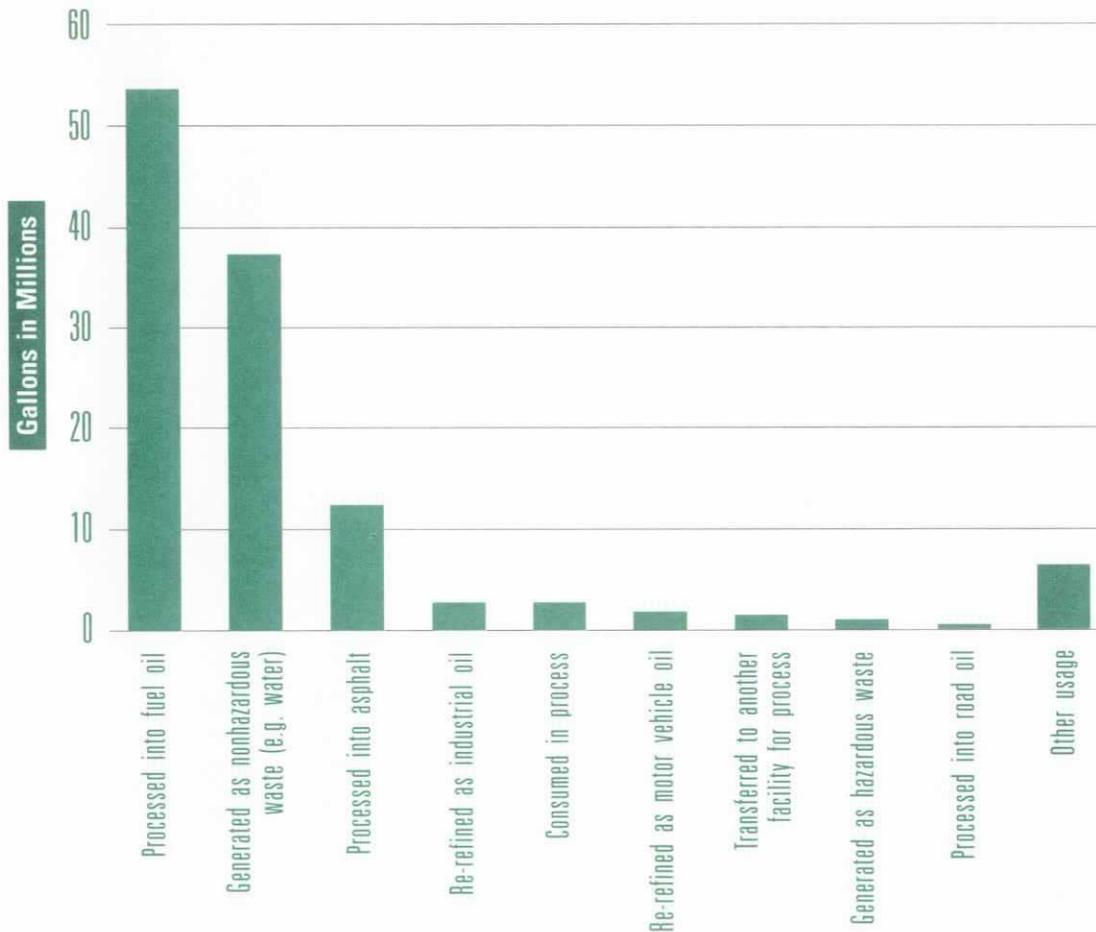


FIGURE IV-3

December 1, 1993. At that time, the Board will present to the Legislature a final report with oil amount statistics and statewide use recommendations.

### Accomplishments

- Emergency regulations for the administration of a one-time used oil grant program were approved and filed with the Secretary of State.

- The Board awarded 19 grants to cities and counties for a total of \$840,057 in 1992.

### USED OIL RECYCLING PROGRAM [PRC 48600-48691]

To address the long-term problems associated with used oil, the California Oil Recycling Enhancement Act (ORE Act) was passed by the Legislature and became effective January 1, 1992. The primary purpose of the

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ORE Act is to discourage the illegal disposal of used oil through recycling.

The Board administers the program, which must at a minimum include: a recycling incentive system; grants or loans; development and implementation of an information and education program for the promotion of alternatives to the illegal disposal; and, a reporting, monitoring, and enforcement program to ensure compliance with statutes and regulations relating to used oil.

Beginning October 1, 1992, oil manufacturers are required to pay to the Board four cents for every quart of lubricating oil sold, transferred, or imported into the state. Beginning April 1, 1993, the Board may then pay a recycling incentive fee of four cents for every quart of lubricating oil recycled to certified used oil collection centers, industrial generators, curbside collection programs, and electric utilities.

The Board is also authorized to issue grants and loans to:

- city and county governments in the form of block grants, totaling a minimum of \$10 million annually, for the implementation of used oil collections programs;
- non-profit entities to implement used oil recycling programs; and
- any qualified applicant for research, testing, and demonstration projects to develop uses for used or recycled oil.

The Board is developing an educational campaign to inform the public that certified centers will accept used oil free of charge beginning April 1, 1993; included in the campaign are fact sheets, training workshops, and a library of materials on used oil recycling. The Board anticipates certifying approximately 1,000 used oil collection centers.

Oil manufacturers were required to report their sales to the Board on January 31, 1993. In March, the Board will annually summarize industrial and lubricating oil sales and recycling rates, the results of programs funded pursuant to the ORE Act, and recommendations for legislative changes. This information will be reported in the Board's subsequent Annual Reports.

### Accomplishments

- The Board entered into an interagency agreement with the State Board of Equalization, which has identified and registered oil manufacturers for payment of the four cents/quart fee payment.
- Workshops were held with potential incentive fee recipients to develop efficient procedures and regulations to govern the fee payment process. Based on feedback from participants, emergency regulations for reporting requirements by oil manufacturers, used oil haulers, and used oil recycling facilities were filed with the Secretary of State. Non-emergency regulations were submitted to the Office of Administrative Law. Emergency regulations have also been submitted to the Office of Administrative Law for certification of used oil collection centers and grant program administration.

## WASTE TIRE PROGRAM

It is estimated that more than 28 million used tires were generated in 1992 in California, amounting to nearly one tire for every person in the state. Based upon current survey information, approximately 11.6 million tires were diverted for varying alternatives, including reuse, retreading, and combustion. The remaining 16.6 million tires were either disposed of in solid waste landfills or stored, indefinitely, in tire piles around the state. Please see Appendix E, Tire Recycling Program Annual Report, for a full explanation of used tire recycling and disposal rates for 1992.

California's total waste tire inventory is at least 25 million tires found in at least 143 waste tire piles in the state. These figures represent years of accumulation of stockpiled tires. Although tires constitute only about one-half of one percent, by weight, of the total municipal waste stream, their size, shape, and physical and chemical properties present an unusually challenging disposal problem; storage and disposal require a comprehensive, statewide response, including:

- reducing landfill disposal of used whole tires;
- recycling of tires into secondary uses;

- source material development and promotion of secondary markets for used tire by-products;
- tire shredding; and
- energy recovery.

Tire piles present a significant public health and safety issue for local vector control agencies and firefighting personnel. Tire piles can become a breeding ground for mosquitos and small rodents, which may transmit serious diseases directly to humans or indirectly through other animal populations. Several spectacular tire pile fires have been reported nationwide in recent years, releasing noxious and toxic emissions into the air and contamination of soil.

Whole tire disposal in landfills may adversely affect the integrity of the landfill cap or cover, with tires “floating” upward through the layers of fill. Only tires that have been reduced in volume by shredding or other Board-approved methods can be properly managed in solid waste landfills. Market development efforts for used tires require considerable attention if diversion levels are to increase.

#### **WASTE TIRE FACILITY PERMITS** [PRC 42800 et seq.]

In 1990, the Legislature enacted comprehensive requirements for the storage and disposal of waste tires. These new requirements were intended to address potential fire and health risks posed by the growing number of tire piles in California. Development of regulations to implement these broad, new requirements has met with significant public comment.

The statute defines “major” and “minor” waste tire facilities. A Major Waste Tire Facility Permit (MWTFP) is now required to be issued by the Board before any new major waste tire facility can be established (stockpile of 5,000 or more waste tires), or before any existing minor waste tire facility can be expanded (stockpile of from 500 to 5,000 waste tires). On or after July 1, 1994, no waste tires can be directed to or accepted by a minor waste tire facility without a permit, and no waste tires can be directed to or accepted by a major waste tire facility without a permit on or after September 1, 1994.

The objectives of regulations to implement these provisions are to: 1) clean up stockpiles of improperly disposed or abandoned waste tires; and, 2) establish financial assurance requirements and operating standards for the management of stockpiles.

The Board adopted draft emergency regulations for permitting major and minor waste tire facilities in 1991. The Board also worked in cooperation with other regulatory agencies and experts in the field to develop technical standards for the safe storage of whole and shredded waste tires.

Board staff continues to provide advice and support to several local enforcement agencies, planning, and fire jurisdictions who initiated enforcement and cleanup action on illegal waste tire stockpiles under the technical standards in the emergency regulations; technical standards in the proposed final regulations remain essentially unchanged from those in the emergency regulations.

#### **Accomplishments**

- The Board held a well-attended public workshop on the development of the final waste tire facility regulations.
- The Board proposed final waste tire regulations for permitting major and minor waste tire facilities.

#### **TIRE RECYCLING PROGRAM** [PRC 42860-42895]

The California Tire Recycling Act requires the Board to initiate a tire recycling program to promote and develop alternatives to the landfill disposal of used whole tires. The primary objectives of the program are to reduce the disposal and stockpiling of used tires by 25 percent within four years, and to recycle and reuse tires to the greatest extent possible. The program may provide funds in the form of grants, loans, and subsidies to both private and public entities. Funds can also be used by the Board for research, public information activities, and to clean up tire stockpiles. Funding for the program comes from a 25-cent fee that every person leaving a tire for disposal is required to pay to the seller of new or used tires. The Board is currently developing regulations for the administration of the grant and loan program. Plans are for the first grants to be awarded in early 1993; grant

## Used Tires Recycling and Disposal 1992

NUMBERS IN MILLIONS

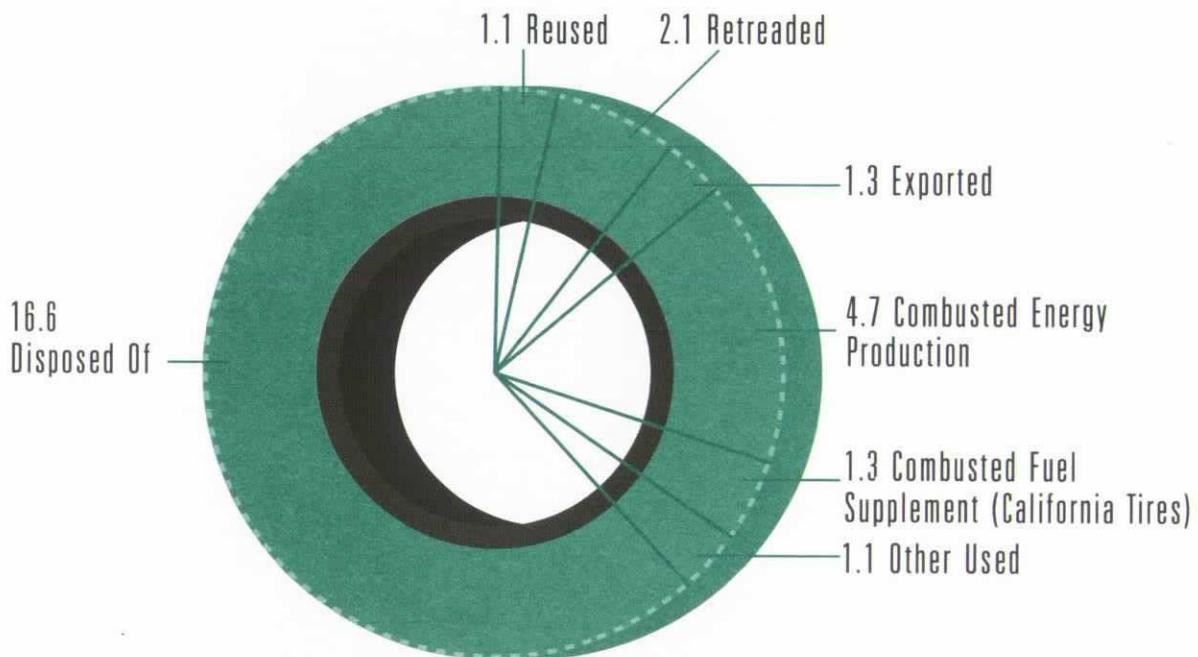


FIGURE IV-4

funding of up to \$50,000 may be available for individual tire-related business development projects, and up to \$100,000 for individual innovative research projects. Loans for tire-related projects will be administered through the Recycling Market Development Zone Program.

An element of the tire recycling program establishes procurement requirements for state purchase of retreaded tires. State agency procurement programs are discussed as a diversion program in Chapter II, Recycling and Composting.

The Board is required to report to the Legislature on the number of tires recycled or otherwise diverted from disposal in landfills or stockpiles and the comparative

costs and benefits of the recycling or conversion processes funded under the program. (See Appendix E for the report and figure IV-4 for a graph showing used tire recycling and disposal in 1992.)

### Accomplishments

- A workshop was conducted to receive public comments on proposed grant and loan regulations. Applications for tire grants will be available in early 1993.
- The Board entered into an interagency agreement with Caltrans in October to evaluate the use of asphalt concrete containing recycled rubber. This use of tires has the potential of utilizing all scrap tires generated in the state

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each year. The evaluation by Caltrans may lead to the development of construction specifications. Emissions testing will also be performed during the recycling of asphalt concrete containing recycled rubber.

- Board staff completed the 1992 Tire Recycling Program Annual Report, included as Appendix E to this report.
- The Board contracted to plan and conduct a conference aimed at promoting alternatives to landfill disposal of used whole tires; the conference is scheduled to be held in Los Angeles April 1-2, 1993.

#### **TIRES AS A FUEL SUPPLEMENT [PRC 42859]**

To more thoroughly evaluate alternative management methods for used tires, the Board studied the feasibility of using tires as a fuel supplement. The resulting report explored the technical, environmental, economic, geographical, regulatory, and institutional factors affecting tires as a fuel supplement.

The report concluded that, under the right conditions, tires can be safely burned as a fuel supplement. The use of tires in cement kilns displaces coal. That means that the coal does not have to be mined or transported and, if the emissions are equivalent, an overall environmental benefit is realized because the tires are consumed in a manner that leaves no residue. The Board supported these findings and recommended that support be provided for the use of tires as fuel in cement kilns.

The report, *Tires as a Fuel Supplement: A Feasibility Study*, was published in January 1992, and can be obtained from the Board's Office of Public Affairs and Education. Please see the Publications List, Appendix D, Tires for further information.

#### **TIRE-DERIVED FUEL AND REFUSE-DERIVED FUEL DEMONSTRATION STUDY**

The Board has entered into an interagency agreement with the Air Resources Board (ARB) to provide air emissions testing at designated facilities. The results may be used to determine the environmental impacts and health risks associated with using tire-derived fuel and refuse-derived fuel as supplemental fuels at existing biomass combustion facilities.

The information resulting from the study also may be used by facility operators of biomass combustion facilities as a first step toward utilizing more waste fuels.

#### **Accomplishments**

- The Board entered into an interagency agreement with the ARB in August to provide air emissions testing on fuels derived from tires and refuse.



# V. LOCAL INTEGRATED WASTE MANAGEMENT PLANNING

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**T**he past year has been a significant one for the Board in its role as statewide coordinator for local implementation of integrated waste management (IWM) priorities. In the oversight of local government IWM planning, the Board expanded its review of Countywide Integrated Waste Management Plans (CIWMP) to ensure compliance with existing IWM planning regulations and environmental quality guidelines.

CIWMPs must demonstrate how cities and counties will meet the mandated diversion goals of 25 percent of solid waste from landfills or transformation facilities through source reduction, recycling, and composting by January 1995, and 50-percent diversion by the year 2000 (transformation may account for up to 10 percent of the mandated 50 percent).

Each CIWMP must include specified planning elements for source reduction and recycling, household hazardous waste, siting of solid waste facilities, and non-disposal facilities. Each element must be submitted for Board review and approval on a stated schedule. The Non-Disposal Facility Element is additionally required, based on passage of new legislation (AB 3001) that became effective January 1, 1993.

In the review of CIWMPs and other local planning documents, the Board recognizes California's diversity of population, topography, climates and industries and how these factors affect local governments' ability to plan and implement IWM strategies. This recognition of a local jurisdiction's need to tailor CIWMPs to specific conditions was the impetus behind major Board-initiated legislative refinements to the planning process that provide a more equitable and cost-effective approach for local government. The Board also initiated legislation that changed how and what waste materials may count toward the mandated diversion goals.

Local government's ability to plan, manage, and maintain municipal solid waste services is affected by the lack of remaining landfill disposal capacity and the immediate need to develop plans and finance waste

diversion activities. To provide further baseline information on waste management resources, the Board published a major study of remaining landfill capacity in the state. Please see the Publications List, Appendix D for further information.

Technical assistance to local governments for IWM planning was expanded through workshops, development of new planning regulations, and development of model plans for recycling and reuse. New and expanded efforts are underway to prepare model planning documents and technical planning assistance materials for use by all jurisdictions, particularly those located in rural areas.

## **KEY INITIATIVE: MAJOR RESTRUCTURING AND SIMPLIFICATION OF PLANNING AND DIVERSION REQUIREMENTS**

Perhaps the single greatest achievement of the Board in 1992 was its contribution to and involvement in a major restructuring and simplification of planning and diversion requirements. The changes were effected through adoption of two pieces of legislation — AB 2494 by Assemblymember Sher (Chapter 1292, Stats. 1992) and AB 3001 by Assemblymember Cortese (Chapter 1291, Stats. 1992).

### **AB 2494**

With implementation of AB 2494, the Board has helped to accomplish major relief for local governments by reducing costs for cities and counties in developing their mandated CIWMPs. This legislation has amended AB 939 by Assemblymember Sher (Chapter 1095, Stats. 1989) to simplify the diversion requirements by going to a "disposal-based" method to determine compliance. In addition, the bill provides regional implementation of the planning mandates (for populations

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up to 250,000), and requires the Board to provide local governments with increased assistance in the areas of source reduction, market development, and public education.

The result is significant cost savings to local governments. For example, the financial burden for cities and counties will be reduced by the sharing of administrative costs by state and local governments and within local regions, reducing the need for private consultants to prepare individual waste management planning documents. Other changes include: easier waste diversion reporting requirements and requirements for the formation of regional planning groups; help for local governments in preparing CIWMPs; and assistance in establishing model programs in market development for recycled materials, source reduction programs, and public education and information.

Implementation of some of the legislative changes will require the amendment of existing regulations, the writing of new regulations, and the holding of statewide workshops and meetings to allow for public input. Other requirements will mandate the development of model programs and documents that may also include forums for public input.

### **AB 3001**

AB 3001 became effective on January 1, 1993. It requires cities and counties to prepare a Non-Disposal Facility Element (NDFE) for facilities used for other than land disposal or transformation. The NDFE, a new requirement of the CIWMP, must be consistent with the implementation of the Source Reduction and Recycling Element (SRRE).

New regulations are needed to guide cities and counties as they prepare and adopt an NDFE. The NDFE is intended to provide a means for linking the planning process with the infrastructure necessary to implement the contents of the CIWMPs. The NDFE will describe all non-disposal or transformation facilities including those that recover for reuse or recycling at least 5 percent of the total volume of material received by the facility (e.g., composting, transfer, and processing facilities). Facilities that recover less than 5 percent will also be described in the NDFE but will not be subject to Board approval in the CIWMP. While the other ele-

ments of the CIWMP require approval at the local level, the NDFE is neither subject to county approval nor is it subject to CEQA review. Board staff anticipate completion of the regulation rulemaking process by the end of 1993.

## **KEY INITIATIVE: LANDFILL DISPOSAL CAPACITY STUDY**

Many areas of California are running out of permitted landfill space. The IWM Act mandates that each county convene a Local Task Force (LTF) to identify remaining permitted landfill capacity and submit its findings to the Board. The membership of the LTFs is determined by each county and may include representatives of the solid waste industry, environmental organizations, general public, special districts, and affected governmental agencies. A LTF's responsibility is to:

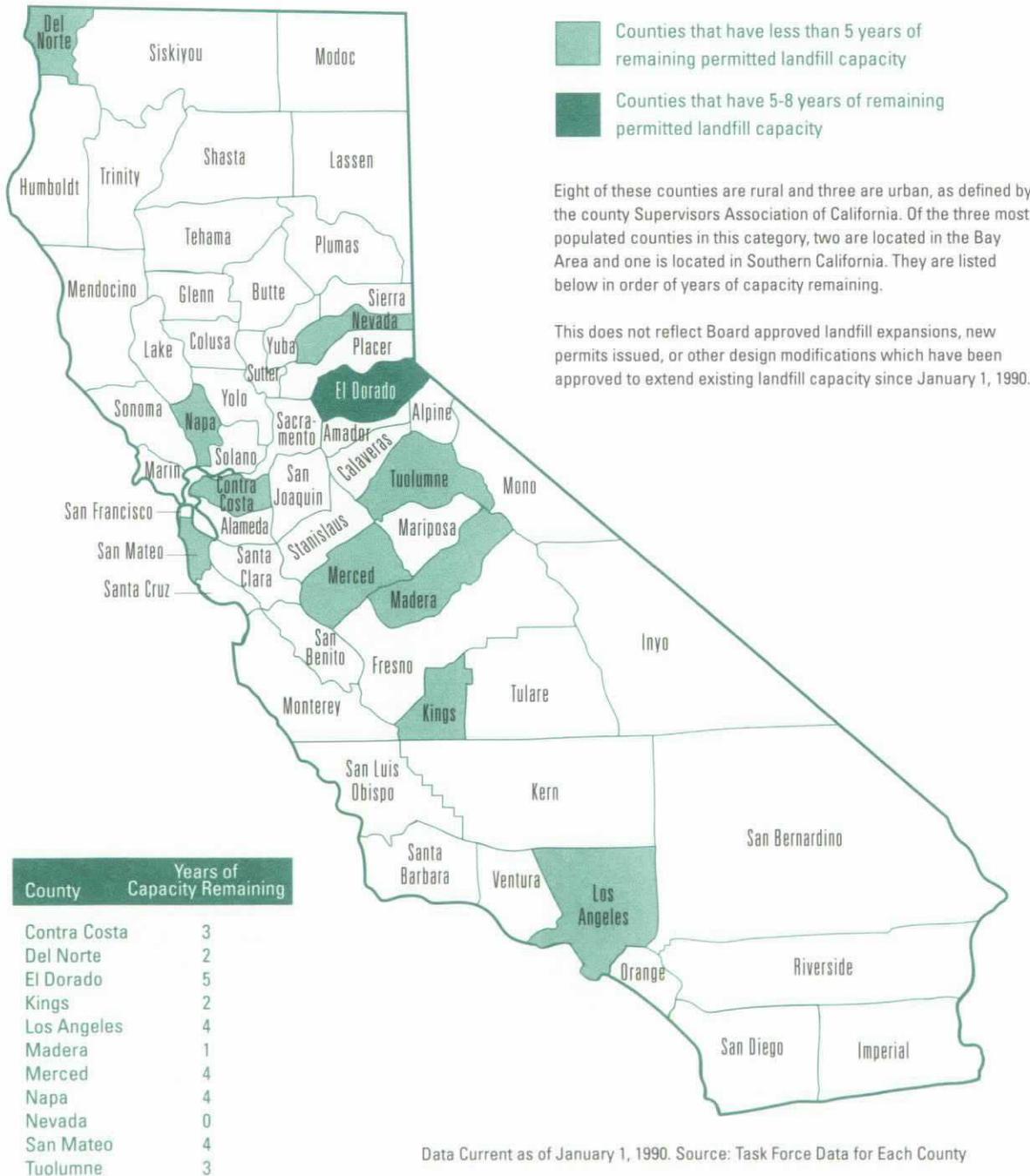
- 1) ensure close coordination between cities and the county during the preparation of the individual SRRE and Household Hazardous Waste Element (HHWE);
- 2) identify solid waste issues of countywide or regional concern; and
- 3) develop goals, policies, and objectives for the Countywide Siting Element (CSE) [PRC 40950].

To determine countywide and statewide remaining landfill capacities, and to plan for ensuing shortages, the Board initiated a study to verify the remaining capacities and to develop methods for counties to use in determining their remaining years and volumes of capacity. Board staff compiled all of the capacity data received from the LTFs and produced, *Reaching the Limit: An Interim Report on Landfill Capacity in California*, approved by the Board in April 1992. Please see the Publications List, Appendix D for further information.

Preliminary conclusions of the report revealed that counties representing approximately 70 percent of the state's population expect to be facing a landfill capacity shortage within the next 15 years, if conditions as of January 1, 1990, remain the same. More importantly, almost 40 percent of the state's population resides in 10 counties that indicated less than five years remaining landfill disposal capacity. (See figure V-1.)

FIGURE V-1

## Counties with Less than Five Years Remaining Landfill Capacity and Counties with Five to Eight Years Remaining Landfill Capacity



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An updated, verified, and facility-specific report on disposal capacity for the entire state is scheduled for completion by September 1993. It will contain specific recommendations to overcome capacity shortages.

## A. PLAN REVIEW AND ENFORCEMENT

### 1. COUNTYWIDE INTEGRATED WASTE MANAGEMENT PLAN [PRC 41000, 41300, 41500, 41510, 41700, 41780]

California's goal under the IWM Act is to conserve its resources and extend the lives of its landfills by generating less waste. Cities and counties must help achieve this goal through the development of CIWMPs.

A CIWMP includes a Summary Plan, a SRRE, a HHWE, a CSE, and a NDFE. The Summary Plan and CSE must be approved by county governments and a majority of the incorporated city governments in the county representing a majority of the incorporated population. All remaining elements require adoption by the local jurisdictions and incorporation into the CIWMP. Once the CIWMP is adopted at the local level, it is submitted to the Board for review to assure compliance with statutes and regulations, and for final approval.

The CIWMPs are required to be submitted to the Board for approval 12 to 18 months after the amended and new waste management planning regulations are approved by the State Office of Administrative Law. Some CIWMPs may be due before the initial 1995 milestone. Board staff initiated a program to review and provide comments on individual elements well in advance of the 1995 milestone to assist local governments and avoid possible complications.

#### Accomplishments

- The Board reviewed a preliminary draft CIWMP from Contra Costa County.
- The Board approved *Reaching the Limit: An Interim Report on Landfill Capacity in California* that contains capacity data compiled by Board staff received from each county LTF.

- Based upon the preliminary conclusions reported in *Reaching the Limit: An Interim Report on Landfill Capacity in California*, the Board contracted to complete a landfill capacity study to assist local governments in their responsibilities, as listed in PRC 40051. A database is currently under development that will provide information on the remaining disposal capacity of landfills throughout California.
- Board staff provided a status report of AB 2494 and AB 3001 to the Board; the report discussed amendments to existing regulations and possible new regulations as a result of AB 2494 and AB 3001.
- Board staff initiated the preparation of regulations in response to new waste management legislation: AB 2092 by Assemblymember Sher (Chapter 105, Stats. 1992), AB 2494, and AB 3001.
- The Board contracted with the League of California Cities to produce statewide workshops on financial strategies for IWM Programs.
- Board staff developed emergency diversion programs construction and demolition debris after the Humboldt County earthquake.

### 2. REVIEW OF CIWMP ELEMENTS [PRC 41782, 41821, 41825]

In order to meet the aggressive goals of the IWM Act, cities and counties must implement programs to effectively manage their solid waste. Jurisdictions may petition the Board for a reduction in the mandated diversion goals due to both small geographic size or low population density, and small quantity of solid waste generated. Most cities are projecting in their draft SRREs that they will be able to meet the 1995 diversion goal of 25 percent and the year 2000 goal of 50 percent.

The Board must ensure that the elements and CIWMPs prepared by local jurisdictions comply with statutes and regulations; local jurisdictions must prepare and submit an annual report detailing progress made on their SRRE and HHWE programs.

## Category Totals in the 1990 California Waste Stream

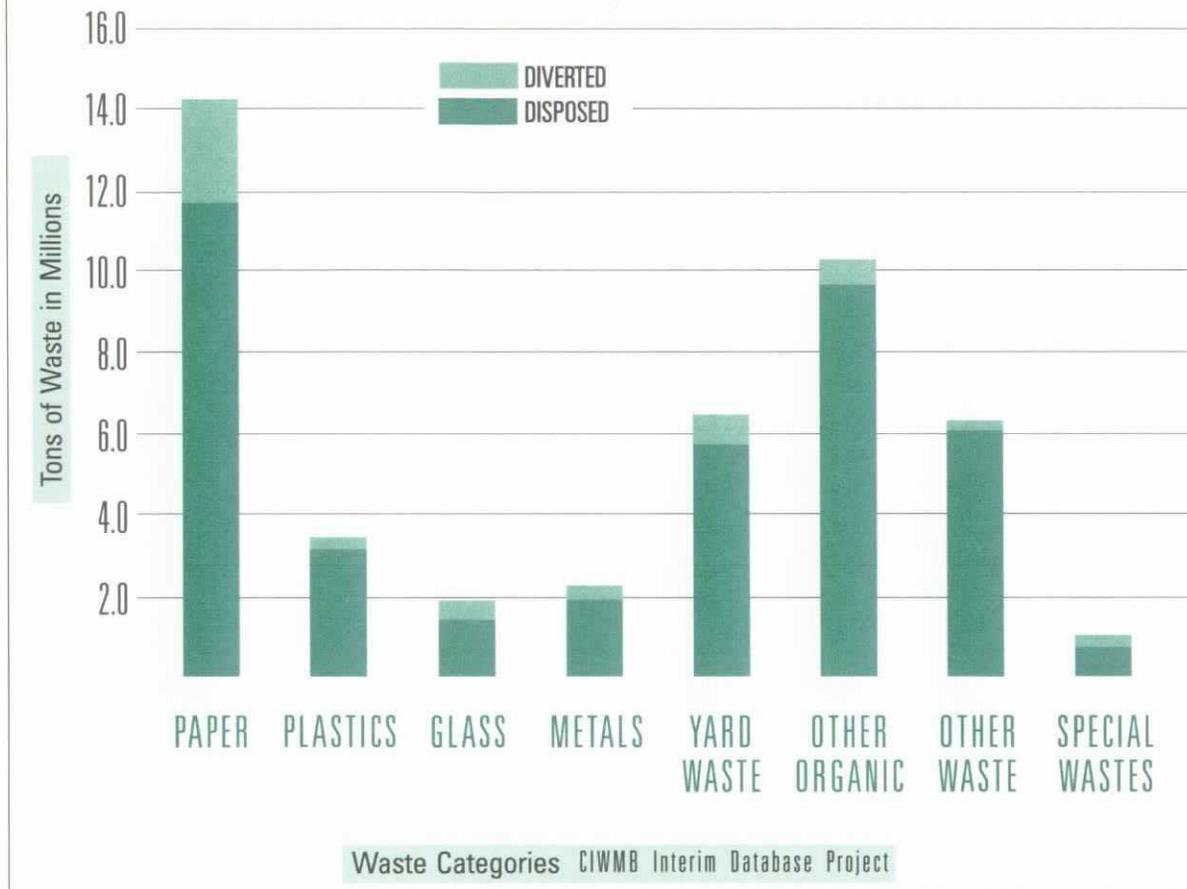


FIGURE V-2

A key element of the Board's mandate in reviewing SRREs and annual reports is to analyze programs for the purpose of assisting cities, counties, and regional agencies in implementing source reduction ideas, recycling market development strategies, and other programs or activities.

Board staff tracks the implementation of local and regional diversion programs by collecting information that will be a part of a larger integrated information system. (See figure V-2.) As program-tracking data is collected, staff analyze and compare the effectiveness of programs statewide and disseminate the information as needed. Program tracking and analysis provides infor-

mation that can be used to help the Board develop effective policies, provide technical assistance, coordinate and disseminate accurate data, and establish programs to assist jurisdictions in meeting the mandated diversion goals.

Not less frequently than every two years, the Board must review the implementation of each SRRE and HHWE for each city and county [PRC 41825]. The Board will begin its biennial review in 1994. Through its review of the elements, the Board can determine if local jurisdictions are experiencing difficulties in implementing their diversion programs and provide technical assistance in overcoming hurdles or barriers.

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### Accomplishments

- Board staff reviewed 479 of the 526 required SRREs and 452 of the 526 required HHWEs. Board staff expect to receive the remaining elements by the first quarter of 1993.
- The Board approved reductions in the planning and diversion requirements for seven jurisdictions that demonstrated, based on the nature of their population density and/or geographic size and quantity of solid waste generated, the inability to achieve a 25-percent reduction in waste generation.
- More than 470 SRREs were reviewed for diversion programs and the information was coded into an interim database.
- Board staff developed fact sheets from information provided in draft SRREs that summarized diversion and education programs.

### 3. REVIEW OF SOLID WASTE GENERATION STUDIES [PRC 41790]

All California jurisdictions are required to include in their SRREs a Solid Waste Generation Study (SWGS) and a Waste Characterization Component (WCC). The studies are developed to better understand current waste streams and predict future waste streams within those jurisdictions. Information in SWGSs enables jurisdictions to target potential waste types for waste diversion purposes, and to monitor changes in the waste stream resulting from implementation of these programs. The WCC identifies waste materials generated within a jurisdiction.

Board staff reviews the SWGS and uses the information gathered from all jurisdictions to assist in a better, more informed decisionmaking process for management of solid wastes within California — potentially saving money, landfill space, and helping develop secondary markets for materials. The Board will review all final SWGS received beginning in the fall of 1993. Final SWGSs will be submitted with each SRRE. Data from the final studies will enable the Board to update its statewide waste stream database.

### Accomplishments

- Data from the initial SWGSs has been entered into the statewide waste stream database. It is estimated that nearly 40 million tons of waste (88 percent of the total waste generated) has been disposed of and more than 5 million tons (12 percent of the total waste generated) has been diverted from California landfills, excluding inerts.
- From data supplied in the SRREs, Board staff were able to develop a database of waste generation information.

### 4. SLUDGE DIVERSION [PRC 41781.1]

As of July 1992, the diversion of sludge from landfills became countable toward the diversion goals established under PRC 41780. Prior to determining whether sludge diversion may be credited toward diversion requirements, the Board must make a finding at a public hearing that such diversion will not pose a threat to public health or the environment for the reuse proposed. To facilitate implementation of PRC 41781.1, the Board is in the process of developing regulations and guidelines identifying specific procedures and criteria for obtaining approval of diversion credit for sludge. This program will not impose additional requirements for sludge management. As required by statute, the program will establish a process for obtaining the concurrence in Board findings by the State Water Resources Control Board and the California Regional Water Quality Control Boards, the State Department of Health Services, the State Air Resources Board, and the Department of Toxic Substances Control.

During 1992, the Board contracted to collect data on sludge being produced at 35 publicly-operated treatment works in California and to evaluate the quality of the sludge for potential benefit uses. The collection of data revealed that 375,000 dry tons of sludge are generated annually in California, and nearly two-thirds of the sludge (250,000 tons) is disposed of in landfills. For further discussion of the Board's contract to collect data on sludge, please refer to Special Wastes in Chapter II, Recycling and Composting.

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### **Accomplishments**

- Board staff held in-house scoping meetings to facilitate the development of draft regulations and guidance to assist local jurisdictions in the development of requests for diversion credit for sludge reuse activities. The draft regulations are expected to be complete during the first quarter of 1993.

## **B. TECHNICAL ASSISTANCE**

### **1. LOCAL PLAN DEVELOPMENT ASSISTANCE [PRC 42540]**

The CIWMP and its elements provide the framework for local governments to evaluate and implement cost-effective programs for diverting waste from landfills. Assisting local governments in their plan development and providing technical assistance for their programs ensures that local plans and programs are adequate in meeting the diversion goals mandated by the IWM Act.

The Board has undertaken several activities to ensure that local governments understand the statutory and regulatory requirements for preparing and locally adopting the CIWMP and its elements. Board staff will develop guidelines and/or regulations and provide assistance in meeting the reporting requirements in 1993. These assistance efforts include conducting workshops and providing "user-friendly" software to facilitate reporting on local program implementation.

### **Accomplishments**

- Board staff provided assistance to the state's 526 local jurisdictions in the area of plan preparation, statutory and regulatory interpretation, and program implementation.
- The Board held eight workshops to discuss and receive public comment on regulations for the CIWMP and the CSE.
- The Board adopted regulations concerning the procedures for reviewing and revising HHWEs.

- The Board adopted regulations concerning petitions from local jurisdictions for reductions in the planning and diversion requirements.
- Board staff evaluated seven petitions requesting reduced planning requirements and diversion goals (PRC 41782).
- Board staff extensively analyzed existing problems and needs of the waste management planning process and prepared a staff proposal, adopted by the Board, to assist local jurisdictions in performing many of the waste planning functions required by the IWM Act. This proposal was the basis for AB 2494.
- Board staff held five informational workshops statewide to present changes made to the IWM Act as a result of AB 2494 and AB 3001.

## **C. PLAN-RELATED CEQA REVIEW**

### **1. ENVIRONMENTAL DOCUMENT REVIEW OF THE CIWMP AND OTHER DOCUMENTS [PRC 21083, 21087]**

The basic purposes of the California Environmental Quality Act (CEQA) are:

- 1) to inform government decisionmakers and the public about potential environmental effects of proposed activities;
- 2) to identify ways that environmental damage can be avoided or significantly reduced;
- 3) to prevent significant, avoidable environmental damage by requiring changes in projects, either by the adoption of alternatives or imposition of mitigation measures; and
- 4) to disclose to the public why a project was approved if that project would have significant environmental effects.

The Board has discretionary approval authority over the CIWMPs and provides assistance to local agencies in preparing environmental documents for CIWMPs. Board staff reviews, analyzes, and prepares comments to

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these environmental documents to determine if any of the programs planned by the jurisdiction may have detrimental environmental effects.

Board staff also reviews and analyzes environmental documents for other projects, including new developments with regard to potential solid waste generation, handling, and disposal issues. Please refer to Chapter III, Environmentally Safe Solid Waste Facilities for discussion of CEQA review of solid waste facilities.

#### **Accomplishments**

- Board staff reviewed 422 CEQA documents.

## **D. REGIONAL COORDINATION**

There have been two simultaneous revolutions in waste management in recent years. The first is the move towards IWM, which focuses on source reduction, recycling, and composting to reduce the quantity of waste requiring disposal in landfills or incinerators. Cities and counties throughout California are devoting considerable resources to planning and developing new programs to achieve the IWM Act's diversion goals. The second revolution is the dramatic increase in environmental standards, financial responsibility, and state regulation of solid waste facilities. While the planning and implementation of waste diversion programs has received most attention in recent years, changes in facility management have had dramatic impacts on many local waste management systems as well.

Many jurisdictions have found that their waste management systems, developed in a bygone era, are no longer economically feasible. Although these changes have been acknowledged throughout the state, many rural areas have experienced especially dramatic cost rises leading to noncompliance with regulations. Particularly in counties with many small, unattended landfills, the fixed costs associated with water quality monitoring and advanced funding requirements for closure and postclosure are causing dramatic increases in unit waste management costs. In other counties, landfills sited long ago, without regard for environmental issues, have led to chronic regulatory noncompliance.

Although it is true that solid waste management costs are rising as local systems adapt to new environmental and financial requirements, it is possible that costs can be minimized by phasing out old facilities and developing more efficient, cost-effective systems. One strategy for doing so is regional cooperation.

Opportunities for regional cooperation among jurisdictions span a wide spectrum, including: shared trucks and other equipment; common collection and hauling programs; cooperative marketing of recyclables; and the siting of regional transfer stations, processing facilities; and landfills. The legal arrangements to support such cooperation include: joint powers agreements; memoranda of understanding; and formation of special districts. In the extreme, regionalization can entail a complete restructuring of waste management programs, allowing for state-of-the-art facilities and diversion programs otherwise not economically feasible.

But while improved systems can be envisioned, transforming existing programs involves identifying and overcoming many barriers. Perhaps most importantly, the costs and benefits of regionalization must be clearly known. Other potential barriers include: state and local regulation; geography; poor transportation routes; loss of complete jurisdictional control over programs; the inertia of existing programs; and the need for a neutral organizing body to evaluate and oversee the transition.

To fully evaluate the potential for regional cooperation to address important IWM needs, and to support local governments in their efforts to implement regional programs, the Board has contracted a major two-part study. The first part will provide a broad overview of regional cooperation throughout California, including:

- literature review of existing regional efforts nationwide and within the state;
- review of local IWM programs to determine the need for, and barriers to, cities and counties working together on a regional basis;
- identification and evaluation of the alternatives for regional cooperation, including: cooperative marketing of secondary materials, equipment sharing, joint planning studies, and development of regional processing facilities and landfills;

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- legal structures to support regional cooperation, including: memoranda of understanding; joint powers agreements; and special districts; and
  - evaluation of the costs, benefits, and barriers to each alternative for regional cooperation.

In the second part of the study, a model will be developed and used in a selected case study region. In this region, Board consultants will assist officials in the selected case study area to evaluate the potential for regional cooperation to reduce costs and improve the local IWM system. The final result will be a feasibility study that identifies recommended approaches to regional cooperation.

## **E. RESEARCH AND DEVELOPMENT PROGRAM**

### **1. HUMBOLDT EARTHQUAKE DISASTER RELIEF [PRC 42650]**

On April 25, 1992, Humboldt County sustained an earthquake. In response to this disaster, the Board entered into an interagency agreement with Humboldt County to report on the salvage of building materials from the demolished structures. This report may provide background information useful for the development of an IWM disaster plan and for the preparation of guidance documents designed to address specific materials.

#### **Accomplishments**

- The Board received a final report from Humboldt County in November. The report included a description of the methodology for salvaging the building materials, results of how much material was diverted and how much more material could have been diverted, and a discussion of costs to perform these salvage operations.



# VI. EDUCATION AND PUBLIC AWARENESS

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**M**inimizing waste generation at the beginning of the waste management process through source reduction activities is the top priority in the Board's integrated waste management (IWM) strategy. Under current conditions, the amount of source reduction will be small in comparison to its real potential. A preventative approach to waste generation and disposal, source reduction requires the re-education of the public, business, and government. Board research has revealed that private sector and business concern for environmental issues is subject to vested economic interests and personal convenience. In 1992, traditional attitudes that centered on the depressed California economy predominated over all other issues. This required the Board to intensify its efforts to keep IWM issues in the forefront of the public's consciousness.

Through various public information and education programs, the Board is laying a foundation to change the public's daily habits and routines and the decisionmaking processes of business and government. The Board's challenge is to motivate California from a wasteful society to a resourceful one.

## KEY INITIATIVE: DEVELOP SCHOOL IWM PROGRAMS

The Board is committed to developing a student population that is aware of and concerned about IWM issues, and can work individually and collectively towards finding solutions to current problems and preventing new ones. Children taught the value of environmental quality through waste management skills will likely maintain those values as adults.

In preparation for IWM curriculum development, the Board surveyed schools in California for information on existing waste diversion programs and collected IWM instructional materials available in California and throughout the nation. Through these efforts, the

Board learned that various public and private entities have initiated IWM education programs with varying degrees of success. In addition, there exists an abundance of instructional curricula developed by educators, public agencies, and private entities.

The Board recognizes the possibilities of learning from the experiences of others and the importance of avoiding the duplication of efforts in promoting IWM programs at schools. In addition, it is felt that key players (educators, local government, and others) should have an opportunity to provide input as to the focus of educational programs that may impact them and others.

In June 1992, the Board convened two symposia to bring together representatives from state and local government, business and industry, and education professionals to share their experience and expertise in the development of IWM education programs in California schools; one workshop was held in Southern California, the other in Northern California.

The symposia were conducted in roundtable fashion following a pre-arranged agenda, with facilitated discussion and interaction between participants. Input received at the symposia assisted the Board in the following:

- identifying clear goals and objectives for IWM education;
- developing technical and informational assistance programs without unnecessary duplication of effort;
- gaining an appreciation and clear understanding of the perspectives of various interest groups involved in IWM education;
- the sharing of innovative ideas and approaches to education that have succeeded or failed; and
- a determination of how to address the special needs of the various cultural and socio-economic groups within the state.

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These results were compiled in a synopsis of the proceedings. This synopsis and its findings were used by the Board in the development of its education and schoolsite waste diversion workplan for implementation in California schools.

## A. AWARENESS PROGRAMS

### 1. PUBLIC INFORMATION AND EDUCATION [PRC 42600-42602]

The Board is embarking on a statewide public education campaign, using advertising and promotional techniques that will elevate awareness and result in behavior change in homes and businesses. It contracted with DDB Needham Worldwide, Inc., to conduct market research, identify target audiences, and develop a creative strategy to motivate Californians to action. Nothing short of a dramatic change in consumer attitude and habits will enable California to achieve its ambitious waste diversion goals. (See Figure VI-1.)

Additionally, the Board is working with Keep California Beautiful to develop a campaign to educate businesses, on an industry-by-industry basis, to provide information and education on ways to reduce, reuse, recycle, and buy recycled.

#### Accomplishments

- The Board compiled, reviewed, and analyzed existing research on consumers' and businesses' attitudes toward waste reduction. Twelve focus groups were held throughout the state to obtain qualitative information about consumers' attitudes and consumer willingness to change. The major finding is that consumers believe recycling is the single best solution to solving the garbage problem. Business groups indicated they were willing to reduce, reuse, recycle, and buy recycled content products, but only if it was economical and convenient. They were willing to buy recycled products as long as they did not have to sacrifice quality.
- Based on this research, the Board established a communications plan that will convince target audiences that recycling is not enough; that other actions such as reducing waste, buying recycled or buying recyclable goods and reusing materials are needed.

- The Board is using a variety of approaches to change attitudes and behavior. Two are described below:

1. A marketing support kit for distribution to cities and counties: the kit includes newspaper advertisements, television and radio public service announcements, publicity materials, and videos that can be used on a continuing basis. These materials were prepared for local government for use in their communities.
2. An advertising and public relations market test: the Board has completed production of three television commercials and numerous radio commercials for airing during the first quarter of 1993. Consumers will be polled prior to airing of the commercials and after the campaign concludes in June 1993. Consumers viewing the commercials will be invited to call the Board's toll-free telephone number (1-800-553-2962) to receive a free booklet on waste reduction tips.

### 2. HOTLINE [PRC 3472, 42600]

With increasing public awareness of environmental issues, there is a growing demand for information about reducing, reusing, recycling, and composting waste. To respond to individual requests for information, the Board operates a toll-free hotline (1-800-553-2962) that is linked to an electronic database. It operates Monday through Friday, 7:30 a.m. to 5:30 p.m., and is listed in California telephone directories, newspaper recycling ads, and recycling guides throughout the state.

The electronic database includes the location of approximately 2,600 recycling centers. Information about upcoming household toxic "roundups" and collection facilities is also available through the hotline database, as well as county contact names and numbers for 72 cities and 50 counties.

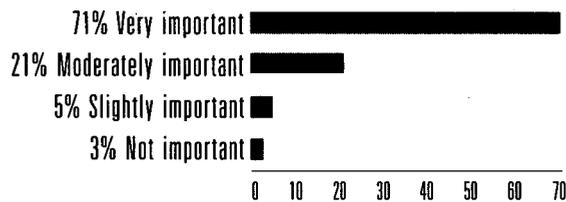
Hotline staff coordinate recycling information with other state departments, including the Department of Toxic Substances Control and the Department of Conservation's Division of Recycling.

**FIGURE VI-1**

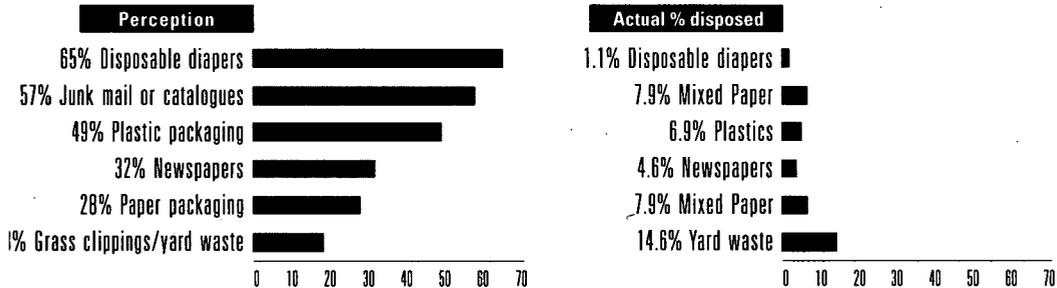
Research indicates California consumers are aware of the waste problem and are eager to respond but do not know "what to do." Consumer awareness of the waste problem is higher than ever. Californians are more concerned about the waste problem than they were a year ago.



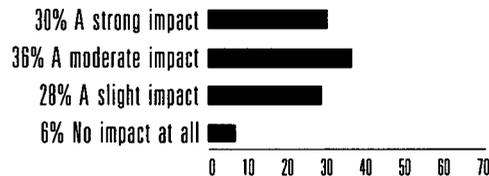
They believe reducing their own garbage is very important:



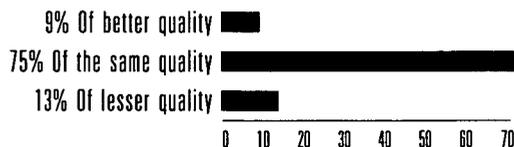
However, they are misinformed about what is actually causing the problem:



And a majority feel they can make an impact on the amount of waste generated by their community.



There is good news for business as Californians believe products made of recycled material are of equal quality as those made from virgin materials.



Source: Lieberman Research, December 1992. Telephone poll of 1,100 adults. Margin of sampling error: plus or minus 3 percentage points.

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### **Accomplishments**

- Hotline staff answered more than 50,000 calls for a monthly average of more than 4,000 calls in 1992. The majority of callers requested information on dropoff locations for used oil, paper products, and plastics.
- The Board contracted to have the present hotline system evaluated and to assist in developing an alternative to improve the system to better serve its callers. Upon completion of the study, the Board may enhance the present system to provide more accurate and timely service to Californians.

## **B. EDUCATION PROGRAMS**

### **1. IWM CURRICULUM DEVELOPMENT [PRC 42603(a)]**

In cooperation with the State Department of Education, the Board is reviewing existing IWM educational materials for correspondence to California educational standards. This review will be compiled for distribution in a curriculum compendium expected to be completed in spring 1993. Educational materials will either be adopted or adapted from reviewed materials, or developed as necessary. Currently, educational information and services are provided to schools upon request. For discussion of school source reduction and recycling programs, please see Chapter I, Source Reduction.

#### **Accomplishments**

- The Board has developed interim educational materials entitled, *A Week With Waste*, providing lessons on IWM. More than 3,000 copies have been distributed to educators statewide. Please see the Publications List, Appendix D, Educational Materials for further information.
- The Board sponsored school assemblies promoting source reduction and recycling activities, drawing participation of approximately 5,000 students.

- The Board held two successful education symposia to bring together representatives from state and local government, business and industry, and education professionals to provide input in the development of IWM education programs in California schools.
- The Board sponsored a waste awareness exhibit at the Sacramento Science Center; school program attendance was 25,877 and general attendance more than 40,500.
- The Board approved an education and schoolsite waste diversion program workplan that identifies strategies to be undertaken within the next 12 to 18 months.

## **C. PUBLIC INFORMATION AND EDUCATION EFFORTS**

### **1. REVIEW OF EFFORTS [PRC 40507(e)]**

The Board has chosen to focus its public information and education efforts as a central theme in all of its programs to educate the public about IWM. The following are Board accomplishments related to its programs on public information and education. For specific discussion about the following and other Board accomplishments, please refer to the preceding chapters of this Annual Report.

#### **Accomplishments**

- More than 60 different reports and other publications were developed and distributed in 1992. The Board published: general information brochures; special brochures on source reduction, recycling, and composting; and numerous fact sheets, resource guides and manuals, videos, and pamphlets on a variety of IWM topics.
- The Board initiated an effort to educate the public through focused media relations; more than 75 news releases were prepared and distributed.

- Education in the areas of composting, used oil, buying recycled, and landfill status and technology were also initiated; several projects are currently in the development stages.
- The Board sponsored school assemblies promoting source reduction and recycling activities and developed interim educational materials that provide lessons on IWM.
- Efforts to attract business to reduce, reuse, and recycle were also initiated by the Board in 1992. Keep California Beautiful is working under contract with the Board to identify successful business strategies and communications programs that will be used to prepare for a series of business workshops to be launched in 1993.
- The Board continued through the year to maintain a presence at exhibits and fairs as a direct method of reaching consumers and discussing IWM issues. Below is a listing of some fairs and events the Board attended; they represent a sampling of the many conferences and exhibitions that enabled the Board to spread the IWM message.

**All About Kids Expo**—held in San Diego, it attracts hundreds of thousands of young Californians and is a gathering targeted to families and young children.

**Arroyo Seco Earth Festival**—the state's largest family festival, organized for the Hispanic community in the Los Angeles area.

**Biosfaire**—a waste management symposium in Northern California attended by the Board.

**California Resource Recovery Association Conference**—attended by more than 1,000 members of the recycling community, includes members of local government, industry, and related suppliers.

**California State Fair**—the Board staffed a booth at the fair and gave its waste awareness quiz to more than 50,000 attendees.

**County Supervisors Association of California**—the Board staffed an information booth at the association's annual conference.

**Earth Day**—events attended by the Board in several larger communities including: Kern County, Ventura County, and Long Beach.

**League of California Cities**—the Board provided staff for an information booth at the League's annual conference.

**Pacific Recyclers Expo**—a waste management symposium in Southern California attended by the Board.

- The Board annually receives a great number of telephone calls on its toll-free line. Operating with three lines, staff handled more than 70,000 telephone calls in 1992.

## D. PUBLIC INFORMATION PROGRAM EFFECTIVENESS

### 1. MEASURING EFFECTIVENESS [PRC 42601]

With a comprehensive public education mandate and limited funding, the Board recognized the need to make every public education dollar perform the work of ten, be cost-effective, impactful, and result in elevated awareness and behavior change throughout California. To this end, the Board has adopted a three-part approach to ensure that information disseminated is effectively reaching Californians.

During 1992, the Board studied all available information on existing consumer attitudes and the dynamics of the waste stream, and crafted a communications program designed to ensure program effectiveness. The methodology included:

- a review of existing research on current consumer behavior and attitude patterns in practicing waste prevention techniques;
- first-hand interviews of a cross-section of Californians — from those who only participate in mandated curbside programs, to those who practice waste reduction if it is convenient, to those who regularly practice

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waste management habits out of concern for the environment;

- identification by Californians of strategies and messages that would encourage sound IWM practices;
- establishment of a pilot public education program in two markets; and
- evaluation of the communications program through statistically valid telephone polls and in-depth interviews of those who have acquired public information materials.

**Front-End Approach:** To identify which communications have the potential for the greatest impact on reducing the solid waste stream, the Board reviewed the latest data about consumer attitudes. This review included literally hundreds of pages of published research. Sources included: *Advertising Age*, the Council for Solid Waste Solutions, Gallup, the National Solid Waste Management Association, Roper, and *The Wall Street Journal*; and 12 focus groups held by the Board throughout California. The research confirmed the following trends.

- Although there is substantial awareness of California's solid waste problem, both businesses and consumers believe they are doing all they can to help solve the problem by recycling bottles, cans, and newspapers. Although a majority of Californians understand and accept recycling, many do not realize that there is far more they can do — reduce waste, reuse products, and buy recycled, to name a few behavior changes.
- The following additional consumer barriers to source reduction and buying recycled were noted:
  - skepticism about “green” claims;
  - lack of understanding of the terms reduce and reuse as waste reduction strategies; and
  - shopping done on basis of price and convenience, not environmental consequences.

- The following business barriers were identified:
  - the high cost of being a “green” business; and
  - a lack of awareness and information about waste reduction strategies.

It is important to recognize the role these barriers and motivators play in the communications process. While it would be highly desirable to impose a message upon consumers and business, unless the message content is directly relevant to these barriers and motivators, it is not likely to be effective. By attacking the areas where consumers are willing to change first, the Board can make initial in-roads; more difficult issues can be tackled in subsequent communications.

From this research, the Board determined its target group. The residential target is a group identified as “conveniently involved” consumers — those who recycle some newspapers, bottles and cans, but do so only because it is easy. This group is predominantly women, aged 24 to 54, married with children. It represents approximately 30 percent of all California households.

This target group was selected over the “environmental enthusiast” because the enthusiast only represents an estimated 11 percent of the population. The Board would have difficulty reaching both its 25 and 50 percent goals by communicating to such a small group. By concentrating its primary effort on the “conveniently involved,” the Board can motivate more people while reinforcing the message to the enthusiast.

The research indicated that consumers are motivated by startling, personalized facts, an opportunity to make a better world for our children, and the opportunity to contribute to reducing waste. In order to embark on a successful campaign, the Board analyzed what consumers were willing to do.

Focus groups suggested consumers are most often willing to engage in several activities other than recycling, such as purchasing products in packages made from recycled materials, buying packages that are recycled, and buying products that use less packaging. In addition, research showed that businesses will gravitate to waste reduction strategies if they are convinced it is “smart” to do so, will give them a positive image, and will make a contribution to the environment.

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The Board's strategy is to leverage the momentum of high recycling participation by creating a communications effort that motivates Californians to take the next logical environmental act, "think before you buy." Focus group research found a high willingness among consumers to participate in three "think-before-you-buy" activities. For example, consumers felt surprise, shame, and guilt when given facts such as, the average Californian throws away 600 times his/her adult weight in a lifetime or a 150-lb adult leaves a legacy of 90,000 pounds of trash to his/her children.

**Process to Determine Effectiveness:** Early in 1993 the Board intends to launch a pilot communications program in two markets — Sacramento and Bakersfield. Prior to the kickoff, the Board will conduct a consumer survey of 300 residents in each market respectively, and survey 500 consumers statewide to obtain a baseline from which to compare the impact of the communications program. Following the six-month campaign, the Board will conduct a postconsumer survey to gauge effectiveness of the message. The Board hopes to realize a change in awareness of between 5 and 12 percent. Additionally, the Board seeks to obtain increased public perception that individuals can help control the generation of garbage through personal action. Expected initial change in awareness is between 5 and 11 percent. The Board also expects to generate roughly 3,000 to 4,000 calls to the consumer hotline in the test markets during the campaign.

The Board will determine the effectiveness of this pilot program effort and use the information to establish a broader statewide effort, potentially with private sector assistance.

It is important to recognize that this communication effort has an infinitely more complex message than previously introduced environmental campaigns in the state. Recycling dealt with beverage containers, and provided a financial reward for compliance. Litter and toxic waste campaigns were straightforward and easy to comprehend. Source reduction is a complex set of actions that requires an "unlearning" of several environmental practices and a reorientation of the way we shop and dispose of our trash.



# APPENDIX A

## LIST OF ACRONYMS

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AB:	Assembly Bill	IWM ACT:	Integrated Waste Management Act
ACCOUNT:	Solid Waste Disposal Site Cleanup and Maintenance Account	LB/LBS:	Pound(s)
ACW:	Asbestos Containing Waste	LEA:	Local Enforcement Agency
ARB:	Air Resources Board	LTF:	Local Task Force
CAL/EPA:	California Environmental Protection Agency	MWTFP:	Major Waste Tire Facility Permit
CALMAX:	California Materials Exchange (Catalog)	NDFE:	Non-Disposal Facility Element
CALPOLY:	California State Polytechnic University	OEHHA:	Office of Environmental Health Hazard Assessment
CALTRANS:	California Department of Transportation	OP:	Office of Procurement
CC:	Community College	ORE ACT:	California Oil Recycling Enhancement Act
CDF:	California Department of Forestry and Fire Protection	PCB:	Polychlorinated Biphenyl
CEQA:	California Environmental Quality Act	PCC:	Public Contract Code
CFC:	Chlorofluorocarbon	PETE:	Polyethylene Terephthalate
CIA:	Closed, Illegal, and Abandoned	PIA:	Prison Industry Authority
CIWMP:	County Integrated Waste Management Plan	PMP:	Postclosure Maintenance Plan
CP:	Closure Plan	PRC:	Public Resource Code
CSE:	Countywide Siting Element	RCRA:	Resource Conservation and Recovery Act
CSU:	California State University	RPPC:	Rigid Plastic Container Program
DGS:	Department of General Services	RTC:	Revenue and Taxation Code
DHS:	Department of Health Services	RWQCB:	Regional Water Quality Control Board
DPR:	State Department of Parks and Recreation	SAIC:	Science Application International Corporation
DTSC:	Department of Toxic Substances Control	SB:	Senate Bill
EA:	Enforcement Agency	SRRE:	Source Reduction and Recycling Element
EAC:	Enforcement Advisory Council	SWFP:	Solid Waste Facilities Permits
EIR:	Environmental Impact Report	SWGGS:	Solid Waste Generation Study
GC:	Government Code	SWRCB:	State Water Resources Control Board
HHW:	Household Hazardous Waste	TAC:	Technical Advisory Committee
HRA:	Health Risk Assessment	UC:	University of California
IWM:	Integrated Waste Management	US EPA:	United States Environmental Protection Agency
		WCC:	Waste Characterization Component

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# APPENDIX B

## GLOSSARY OF TERMS

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*These definitions are only for the purpose of understanding the 1992 Annual Report. Some definitions were paraphrased from statutes and regulations. Other definitions were developed by Board staff for this report.*

- Advance Disposal Fee:** fees levied on products or packaging prior to their disposal as an incentive to promote source reduction and recycling by manufacturers and consumers, as well as providing a revenue source for state and local programs.
- Biohazardous Waste:** human or animal specimen cultures and cultures and stocks of infectious agents from medical and pathological laboratories. Waste containing any microbiological specimens or products. Human surgery specimens or tissues; animal parts, tissues, fluids, or carcasses suspected of being contaminated with infectious agents. Waste which contains recognizable fluid blood, fluid blood products, or bodily fluids.
- Block Grant:** a type of federal or state aid, made available to states (a federal block grant) or by a state (a state block grant) for such purposes as aid to cities and/or counties, and improvement to community services, education, and health.
- Buyback Center:** a central point for collecting specific recyclables where cash payments are given; some materials may be accepted without payment. The material is subsequently processed for delivery to market.
- Chemically-fixed Sewage Sludge:** soil-like material produced from raw or digested sewage sludge using chemical stabilization by either a cement and silicate process or other similar processes to immobilize toxic materials.
- Co-Compost:** simultaneous composting of two or more diverse waste streams in a single stock mixture.
- Community Redevelopment Plans:** plans prepared by local redevelopment agencies detailing efforts to encourage economic development in specified depressed areas.
- Condensate Samples:** a sample of liquid that may condense within a landfill and is collected from landfill gas extraction pipes for analysis of toxicity.
- Countywide Integrated Waste Management Plan (CIWMP):** the principal local planning document for ensuring that the requirements of the IWM Act of 1989 are met. Each CIWMP is composed of a Source Reduction and Recycling Element, a Household Hazardous Waste Element, a Countywide Siting Element, a Non-Disposal Facility Element, and a Summary Plan.
- Countywide Siting Element (CSE):** one of the elements of the CIWMP, prepared by each county that identifies the landfills and transformation facilities necessary to assure a minimum of 15 years permitted capacity; describes criteria in the siting of the facilities to assure environmentally safe disposal and the preservation of public safety; and identifies strategies for maintaining adequate disposal capacity.
- Curbside Collection:** a residential service for the collection and processing of recyclable materials only.
- Discretionary Grants, Household Hazardous Waste Program:** an award of funds to a city, county, or local agency based on the evaluation and selection of the applicant's proposed or implemented Household Waste Program pursuant to the California Code of Regulations, Title 14, Section 18533.1 of Article 2.2.
- Drilling Mud:** waste products from the drilling of oil, gas, geothermal, or water production wells, including used or contaminated drilling mud and cuttings. Fresh drilling mud may be a dense slurry generally composed of bentonite clay, water,

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floculants, sealants, and barite, which is used as lubricant and for pressure control in the drilling operation. Drilling mud may be water based, which is the most common, or oil based. Oil-based drilling muds are generally considered hazardous.

**Dropoff Center:** a central point for collecting recyclable or compostible materials. Materials are taken by individuals to the dropoff center and deposited into designated containers or areas.

**Durability Standards:** specifications that require products to maintain a minimum service duration or performance.

**End-User:** a manufacturer or other consumer of finished products that are made from virgin or recycled materials.

**Feedstock:** raw material (virgin or recycled) put into a manufacturing or conversion process.

**Ferrous Metals:** a metal with iron as its major constituent that is relatively heavy, easily recoverable with magnets, and in most of its forms, quite strong.

**Friable Asbestos:** asbestos that when dry can be broken, crumbled, pulverized, or reduced to powder by hand pressure and that contains more than one percent asbestos by area.

**Grasscycling:** a source reduction practice of leaving grass clippings on the lawn while mowing instead of collecting them for disposal.

**Green Material:** any wastes derived from plant material separated at their source of generation, including, but not limited to, leaves, grass clippings, weeds, tree trimmings, or shrubbery cuttings.

**Green Materials Composting Facilities:** a facility operated for the purpose of producing compost from the green material fraction of the waste stream.

**HDPE:** a plastic resin (high-density polyethylene) used in the manufacture of consumer products, such as bottles for milk, water, juice, bleach and detergents, and motor oils; margarine tubs; and grocery sacks. Also used in landfill liners and landfill caps.

**Household Hazardous Waste Element (HHWE):**

one of the elements of the CIWMP prepared by each local jurisdiction (incorporated cities and counties) that identifies the means by which each jurisdiction will reduce, safely collect, recycle, treat, and dispose of household hazardous wastes.

**Incentive Fee:** a fee levied on an activity such as manufacturing or purchasing a product that provides an economic incentive for manufacturers or consumers to increase source reduction or recycling.

**Incineration:** burning materials at high temperatures for the purpose of volume reduction and/or energy recovery.

**Inert Solids:**

**For Water Quality** — a 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.

**For Integrated Waste Management Planning** — includes rock, concrete, brick, sand, soil, fines, asphalt, drywall, and unsorted construction and demolition waste [Public Resources Code, Section 41781.2 (b) (3)].

**Integrated Waste Management:** the planned handling of solid wastes in a manner which treats the wastes as a whole through an array of possible techniques, including source reduction (also called "waste prevention"), recycling and composting, incineration or other transformation with or without energy recovery, and land disposal. The Public Resources Code, Section 40051 (b), requires solid waste to be managed to maximize the use of all feasible source reduction, recycling, and composting options in order to reduce the amount of solid waste that must be disposed of by transformation and land disposal.

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**Joint Powers Agreement:** a contractual relationship between two or more public agencies, as authorized by their legislative or governing bodies, to jointly exercise power common to the contracting agencies. General authority for joint powers agreements is found in the Government Code, Section 6502.

**Landfill:** a disposal site employing a method of disposing of solid wastes on land without creating nuisances or hazards to public health or safety, by utilizing principles of engineering to confine the wastes to the smallest practical area, to reduce them to the smallest practical volume, and to cover them with a layer of suitable cover material at specific designated intervals.

**Landfill Cover Material(s):** includes soil or other material that is in conformance with regulations and suitable for use in covering compacted solid wastes in a disposal site. A material is suitable for use as a cover material if it acts as a barrier to: flies, rodents, or other vectors; the progress of fires within the landfill; the escape of odor; and excess infiltration of surface water runoff.

**Landfill Gas Condensate:** the liquid found in landfill gas collection systems as a result of moisture condensation stemming from changing temperatures and pressures within the system. The condensate may contain high concentrations of certain toxic chemical compounds.

**Leachate:** liquid that has come into contact with or percolated through solid waste or another medium and has extracted, dissolved, or suspended materials from it.

**Local Jurisdiction:** each county, for unincorporated areas, and each incorporated city within the state.

**Market Development:** a term used to describe efforts to strengthen the demand for recyclable materials or products produced with recyclable materials.

**Material Recovery Facilities (MRF):** 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, composting, or transformation.

**Minimum-Content Requirements:** state requirements that specified products be produced with secondary materials. Minimum-content requirements may apply to purchasers or producers.

**Minimum Standard(s):** standards for the design, operation, maintenance, and ultimate closure of solid waste facilities.

**Mulching:** the practice of applying a layer of certain material (mulch) to the top surface of soil to achieve desired results (i.e., providing an insulating layer that protects the soil from erosion and temperature extremes, and serves to retain moisture and suppress the emergence of weeds). Mulch can be an organic material such as shredded yard trimmings, straw, decorative bark, or compost.

**Non-Discretionary Grant, Household Hazardous Waste Program:** an award of funds to a city, county, or local agency that has generated fees into the Solid Waste Disposal Site Cleanup and Maintenance Account and has implemented a Household Hazardous Waste Program during the same fiscal year, and which meets the specific criteria for the non-discretionary award pursuant to the California Code of Regulations, Title 14, Section 18515 of Article 2.1.

**Non-Disposal Facility Element (NDFE):** one of the elements of the CIWMP, developed by each local jurisdiction that describes the solid waste handling facilities and identifies the applicable sites for those facilities (excluding disposal and transformation facilities) necessary for the efficient implementation of the programs identified in the Source Reduction and Recycling Element (SRRE).

**Non-Disposal Facilities:** any solid waste facility required to obtain a permit that is not a disposal facility (e.g., a landfill or transformation facility). Examples of non-disposal facilities are transfer and processing stations.

**Permit-by-Rule:** refers to the regulatory standards that provide an alternative to the solid waste facilities permitting process. An applicant's facility is considered to be permitted if that facility meets those standards set forth in regulations. Provisions are included in the standards for revocation of the permit if the standards are not met.

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**PET:** a plastic resin (polyethylene terephthalate) used primarily in the manufacture of soda bottles and other packaging applications (e.g., edible oils, peanut butter).

**Postclosure Maintenance:** the operator of a landfill is required to provide for the monitoring and maintenance for a minimum of 30 years after the closure of a landfill. Postclosure maintenance continues until the operator demonstrates that the site no longer poses a threat to health and safety and the environment. Postclosure maintenance includes, but is not limited to, maintenance of the final site face, the final cover, site security, groundwater monitoring, and landfill gas monitoring.

**Postconsumer Material:** any product or material that has been used by the consumer and is recycled or discarded.

**Procurement:** in the context of integrated waste management, procurement programs are market development activities that attempt to increase the purchase of secondary materials and recycled-content products by local, state, and federal government agencies.

**Project Proponent:** the person who is proposing a solid waste management project. "Person" includes an individual, firm, association, copartnership, political subdivision, government agency, municipality, public or private corporation, or any other entity.

**Resin:** solids or semi-solid, viscous organic substances used as raw materials in the manufacture of varnishes, lacquers, and plastics.

**Resource Recovery:** the retrieval and use of materials from the waste stream. Recovered materials are used in the manufacturing of new products, or converted into some form of fuel or energy source.

**Rigid Plastic Packaging Containers:** a plastic package having a relatively inflexible finite shape or form, with a capacity of between eight ounces and five gallons (or equivalent volumes), and that is capable of maintaining its shape while holding other products (e.g., bottles, cartons).

**Schoolsite:** physical location of properties within the school district including: elementary schools, middle schools, high schools, continuation high schools, adult education, and school district offices and buildings.

**Secondary Materials:** recyclable material(s) that can be used as a substitute for primary raw material in product manufacturing.

**Sharps Waste:** any device having acute rigid corners, edges, or protuberances capable of cutting or piercing the skin, including: hypodermic needles, blades, syringes contaminated with biohazardous waste, and broken glass items, such as pasteur pipettes and blood vials contaminated with biohazardous waste.

**Shredded Tires:** whole tires which have been reduced to rubber strips, between one inch and six inches wide, by special shredding machines.

**Sludge (Sewage):** includes any residue, excluding grit or screenings, removed from waste water, whether in a dry, semi-dry, or liquid form.

**Solid Waste Facility:** includes a solid waste transfer or processing station, a composting facility, a transformation facility, and a disposal facility.

**Source Reduction and Recycling Element (SRRE):** one of the elements of the CIWMP, developed by each local jurisdiction (incorporated cities and counties) identifying: the quantity and types of waste generated, diverted, and disposed; the diversion programs evaluated and chosen by the local jurisdiction that have been designed to achieve the 25-percent and 50-percent diversion mandates; and the disposal capacity available and needed by the local jurisdiction for the next 15 years.

**Source Separated:** recyclable or compostible materials segregated from other materials in the waste stream at the point of generation.

**Special Districts:** any agency of the state that performs governmental or proprietary functions within limited boundaries. Examples include redevelopment agencies, joint powers agencies and authorities, maintenance districts, sanitation districts,

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and garbage and refuse disposal districts. According to the definition in the Government Code, Section 17520, "special district" does not include a city, a county, a school district, or a community college district. Garbage and refuse disposal districts are discussed in Part 8 of the Integrated Waste Management Act of 1989 (Public Resources Code, Section 49000, et seq.).

**Synthetic Blanket(s):** a man-made material, usually a fabric or tarpaulin, used for alternative daily cover at a landfill.

**Tipping Fee:** the fee levied on the disposer for acceptance of materials at a solid waste facility, usually a landfill, transfer station, or incinerator.

**Tire-Derived-Fuel:** a product produced from whole scrap tires for use as a fuel.

**Transfer Station:** a facility where waste materials or recyclables are taken from smaller collection vehicles and transhipped in larger units for movement to disposal sites. Some sorting and separation of recyclables may take place.

**Transformation:** processes including incineration, pyrolysis, distillation, gasification, or biological conversion other than composting which chemically and physically convert wastes to produce recoverable materials or energy.

**Unit Pricing:** a term applied to a rate structure for solid waste management services in which generators are charged progressively more for each additional unit of waste they generate, rather than a flat fee for unlimited services.

**Used Tire:** a tire that has been removed from the wheel of a vehicle, including waste tires or tires that may be reused or retreaded.

**Virgin Materials/Primary Materials:** raw materials used in product manufacturing derived directly from natural (not man-made) resources such as ore, timber or other plant materials, petroleum, and natural gas.

**Waste Shed:** a geographic area served by a common solid waste management system.

**Waste Stream:** the total flow of solid waste from homes, business, institutions, and manufacturing plants that must be reused, recycled, composted, incinerated, or disposed of in landfills; or any segment thereof, such as the "residential waste stream" or the "recyclable waste stream."

**Waste Tire:** a tire that is not on the wheel of a vehicle and is no longer suitable for its original intended use because of wear, damage, defect or deviation from the manufacturer's original specifications.

**Waste-to-Energy:** the process of converting waste to energy through incineration of processed or raw refuse to produce steam and generate energy.

**Waste Treatment Sludge:** includes any residue, excluding grit or screenings, removed from waste water, whether in a dry, semidry, or liquid form.

**Xeriscaping:** the practice of landscaping with slow growing, drought tolerant plants to conserve water and reduce yard trimmings.



# APPENDIX C

## LIST OF CERTIFIED LEAS AND CONTACTS

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July 28, 1992  
Revised: January 15, 1993

LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
<b>ALAMEDA COUNTY</b>		
Environmental Health Department Solid Waste Local Enforcement Agency 470 - 27th Street, Room 325 Oakland, CA 94612	Rafat A. Shahid (510) 271-4300	Bill Reynolds, Program Manager (510) 271-4303
<b>CITY OF BERKELEY</b>		
CIWMB Enforcement Agency 8810 Cal Center Drive Sacramento, CA 95826	John Bell Compliance Branch Permitting & Compliance Division (916) 255-2459	(CIWMB): Reinhard Hohlwein (916) 255-2475
<b>ALPINE COUNTY</b>		
County Health Department Solid Waste Local Enforcement Agency P.O. Box 545 (50 Diamond Valley Road) Markleeville, CA 96120	Dr. Richard Botto, M.D. Health Officer (916) 694-2146	Bob Karrasch (916) 694-2146
<b>AMADOR COUNTY</b>		
County Health Department Solid Waste Local Enforcement Agency 108 Court Street Jackson, CA 95642	Dr. James McClenahan, M.D. Health Officer (209) 223-6407	Margaret Blood (209) 223-6439
<b>BUTTE COUNTY</b>		
<b>Oroville Office</b>		
County Health Department Solid Waste Local Enforcement Agency 7 County Center Drive Oroville, CA 95965	Tom Reid Director (916) 538-7146	

LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
<b>BUTTE COUNTY</b>		
<b>Chico Office</b>		
Solid Waste Local Enforcement Agency 1469 Humboldt Road Chico, CA 95928	Vance Severin Program Manager (916) 891-2727	Charles Bird (916) 891-2727
<b>CALAVARES COUNTY</b>		
County Health Department Solid Waste Local Enforcement Agency 891 Mountain Ranch Rd. San Andreas, CA 95249	Wes Gebb Director (209) 754-6399	Brian Moss or Paul Feriani (209) 754-6399
<b>COLUSA COUNTY</b>		
County Health Department Environmental Health Division Solid Waste Local Enforcement Agency 251 East Webster Avenue P.O. Box 610 Colusa, CA 95932	Richard Dickson Director (916) 458-7717	Karen Coolidge (916) 458-7717
<b>CONTRA COSTA COUNTY</b>		
Health Services Department Environmental Health Division Solid Waste Local Enforcement Agency 20 Allen Street Martinez, CA 94553	Dr. William Walker, M.D. Medical Director (510) 370-5010	Charles Nicholson Supervisor (510) 646-2521
<b>DEL NORTE COUNTY</b>		
CIWMB Enforcement Agency 8810 Cal Center Drive Sacramento, CA 95826	John Bell Compliance Branch Permitting & Compliance Division (916) 255-2459	(CIWMB): Sadie Galos (916) 255-2468
<b>EL DORADO COUNTY</b>		
Building Department Solid Waste Local Enforcement Agency 360 Fair Lane Placerville, CA 95667	Gary Delgado Chief Building Official (916) 621-5315	Bob Cothrin (916) 621-6505

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
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**FRESNO COUNTY**

Department of Health  
Solid Waste  
Local Enforcement Agency  
1221 Fulton Mall, Brix Building  
P.O. Box 11867  
Fresno, CA 93775

George Bleth  
Director  
(209) 445-3200

Tim Casagrande  
Supervisor  
(209) 445-3271

**GLENN COUNTY**

Health Services Department  
Solid Waste  
Local Enforcement Agency  
240 North Villa Avenue  
Willows, CA 95988

Mike Cassetta  
Director  
(916) 934-6582

Don J. Holm  
(916) 934-6588

**HUMBOLDT COUNTY**

County Health Department  
Environmental Health Division  
Solid Waste  
Local Enforcement Agency  
100 "H" Street, Suite 100  
Eureka, CA 95501

Jeffrey W. Arnold  
Director  
(707) 445-6215

Diane Gereke  
(707) 441-2004

**IMPERIAL COUNTY**

County Dept. of Health Services  
Div. of Environmental Health  
Solid Waste  
Local Enforcement Agency  
Courthouse  
939 West Main Street  
El Centro, CA 92243

Tom Wolf  
Director  
(619) 339-4620

Gerald Quick  
(619) 339-4618  
or  
Herb Hollinshed  
(619) 339-4203

**INYO COUNTY**

Co. Dept. of Env. Health Services  
Solid Waste  
Local Enforcement Agency  
168 N. Edwards Street  
P.O. Box 427  
Independence, CA 93526

Robert L. Kennedy  
Director  
(619) 878-2411, Ext. 2233

Bob Hurd  
Asst. Director  
(619) 873-7865

**INYO COUNTY  
Independence Office**

Cheryl A. Hawkins  
(619) 878-2411, Ext. 2233  
or  
Marty Goodman  
(619) 873-7867

---

LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
<b>INYO COUNTY</b>		
<b>Bishop Office</b>		Mark Von Seggren (619) 878-2411 Ext. 2233
<b>KERN COUNTY</b>		
Co. Env. Health Services Dept. Solid Waste Local Enforcement Agency 2700 "M" Street, Suite 300 Bakersfield, CA 93301	Steve McCalley Director (805) 861-3636	William O'Rullian (805) 861-3636 Ext. 548 or Diana Wilson (805) 861-3636 Ext. 551
<b>KINGS COUNTY</b>		
County Health Department Solid Waste Local Enforcement Agency 330 Campus Drive Hanford, CA 93230	Keith Winkler Director (209) 584-1411, Ext. 2626 (must use extension #)	Phil Hudicek (209) 584-1411
<b>LAKE COUNTY</b>		
Environmental Health Division Solid Waste Local Enforcement Agency 922 Bevins Court Lakeport, CA 95453-9739	Martin Winston Director (707) 263-2222	Ray Ruminski (707) 263-2222
<b>LASSEN COUNTY</b>		
County Health Department Div. of Env. Health Solid Waste Local Enforcement Agency 555 Hospital Lane Susanville, CA 96130	Doug Ames Director (916) 257-8311, Ext. 183	Mark Jeude 916) 257-8311
<b>LOS ANGELES COUNTY</b>		
<b>City of Los Angeles Office</b> Environmental Affairs Department Solid Waste Local Enforcement Agency 200 N. Spring St., Room 1500 City Hall Los Angeles, CA 90012	Lillian Kawasaki General Manager (213) 237-0352	Josephine Gonzalez (213) 485-9997

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
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**LOS ANGELES COUNTY**

**Los Angeles County Office**

County Dept. of Health Services  
Solid Waste  
Local Enforcement Agency  
313 N. Figueroa Street  
Los Angeles, CA 90012

Robert C. Gates  
Director  
(213) 974-8101

**City of Long Beach**

Dept. of Health & Human Serv.  
Bureau of Env. Health  
Hazardous Materials Division  
Solid Waste  
Local Enforcement Agency  
2655 Pine Street  
Long Beach, CA 90806

(Bureau of Env. Health)  
Donald Cillay  
Bureau Mgr.  
(310) 427-7421

Bea Anderson  
Haz. Waste Div.  
(310) 427-7421

(Haz. Materials Div.)  
Dick Smith  
Haz. Waste Officer  
(310) 427-7421

**Monterey Park Office**

2525 Corporate Place, Rm. 150  
Monterey Park, CA 91754

Richard Hanson  
Chief  
Solid Waste Management Program  
(213) 881-4151

**City of West Covina Office**

Waste Mgmt. Enforcement Agency  
Solid Waste  
Local Enforcement Agency  
1444 West Garvey Ave., South  
West Covina, CA 91793

Michael L. Miller  
Interim Manager  
(818) 814-8411

Steve Samaniego  
(818) 814-8411

**MADERA COUNTY**

Environmental Health Department  
Solid Waste  
Local Enforcement Agency  
135 W. Yosemite Avenue  
Madera, CA 93637

James Blanton  
Director  
(209) 675-7823

Jill Nishi  
(209) 675-7823

**MARIN COUNTY**

Co. Environmental Health Services  
Solid Waste  
Local Enforcement Agency  
Marin Co. Civic Center, Room 283  
San Rafael, CA 94903

Ed Stewart  
Director  
(415) 499-6907

Laurel Riek  
(415) 499-6907  
or  
Cynthia Barnard  
(415) 499-6907

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
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**MARIPOSA COUNTY**

County Health Department  
Solid Waste  
Local Enforcement Agency  
4988 Eleventh Street  
P.O. Box 5  
Mariposa, CA 95338

Dr. Charles B. Mosher, M.D.  
Health Officer  
209) 966-3689

Richard Blood, REHS  
(209) 966-0200

**MENDOCINO COUNTY**

Public Health Department  
Division of Environmental Health  
Solid Waste  
Local Enforcement Agency  
890 Bush Street, (Court House)  
Ukiah, CA 95482

Gerald F. Davis  
Director  
(707) 463-4466

Candi Zizek  
(707) 463-4466

**Fort Bragg Office**

County Health Department  
120 W. Fir Street  
Ft. Bragg, CA 95437

**MERCED COUNTY**

Department of Public Health  
Division of Environmental Health  
Solid Waste  
Local Enforcement Agency  
385 East 13th Street  
P.O. Box 471  
Merced, CA 95340

Jeff Palsgaard  
Director  
(209) 385-7391

Jerry Lawrie  
Supervisor  
(209) 385-7391

**MODOC COUNTY**

County Health Department  
Environmental Health Division  
Solid Waste  
Local Enforcement Agency  
131-B Henderson Street  
Alturas, CA 96101

Dr. Edward Richert, M.D.  
Medical Director  
(916) 233-3516

Greg Farnam  
(916) 233-6311

**MONO COUNTY**

County Health Department  
Solid Waste  
Local Enforcement Agency  
P.O. Box 476  
Bridgeport, CA 93517

Jack Bertman  
Health Officer  
(619) 932-7485

Dennis Lampson  
(619) 932-7485

LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
<b>Bridgeport Office</b>		Dennis Goodloe (619) 932-7485 (Mono Co. #) (916) 694-2146 (Alpine Co. #)
<b>Mammoth Lakes Office</b> County Health Department Route 1, Box 222 Mammoth Lakes, CA 93546		Dennis Lampson (619) 934-8109
<b>MONTEREY COUNTY</b> County Health Department Division of Environmental Health Solid Waste Local Enforcement Agency 1270 Natividad Road Salinas, CA 93906	Walter Wong Director (408) 755-4540	Jim Finney (408) 755-4548
<b>NAPA COUNTY</b> Division of Environmental Health Solid Waste Local Enforcement Agency Hazardous Material Section 625 Imperial Way, #9 Napa, CA 94559	Ralph Hunter Program Manager (707) 253-4269	Catherine Moody (707) 253-4269
Environmental Management 1195 Third Street, Room 205 Napa, CA 94559	Trent Cave Director (707) 253-4471	
<b>NEVADA COUNTY</b> Dept. of Environmental Health Solid Waste Local Enforcement Agency 950 Maidu Avenue P.O. Box 6100 Nevada City, CA 95959-6100	Tim Snellings Director (916) 265-1452	Ron Hall (916) 265-1449 or Grant Eisen (916) 265-1469
<b>NEVADA COUNTY</b> <b>McCourtney Road L/F (Only) Office</b> CIWMB Enforcement Agency 8810 Cal Center Drive Sacramento, CA 95826	John Bell Compliance Branch Permitting & Compliance Division (916) 255-2459	CIWMB: Robert Holmes

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
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**ORANGE COUNTY**

Health Care Agency  
Environmental Health Division  
Solid Waste  
Local Enforcement Agency  
2009 E. Edinger Avenue  
Santa Ana, CA 92705

Bob Merryman  
Director  
(714) 667-3771

Jack Goetzinger  
(714) 667-3623  
or  
Joe Maturino  
(714) 667-3723  
or  
Fred Gaggioli  
(714) 667-3715

**PLACER COUNTY**

Dept. of Health & Medical Services  
Solid Waste  
Local Enforcement Agency  
11454 "B" Avenue  
Auburn, CA 95603

Richard Swensen  
Director  
(916) 889-7335

Thom Carmichael  
(916) 889-7335

**North Tahoe Office**

Environmental Health  
P.O. Box 1909, Drawer C  
Tahoe City, CA 95730

James Scribner  
(916) 581-6240

**PLUMAS COUNTY**

Environmental Health Department  
Solid Waste  
Local Enforcement Agency  
270 County Hospital Road  
P.O. Box 480  
Quincy CA 95971

William F. Crigler  
Director  
(916) 283-6355

Michael J. Murray  
(916) 283-6355

**RIVERSIDE COUNTY**

County Health Department  
Environmental Health Division  
Solid Waste  
Local Enforcement Agency  
1737 Atlantic Avenue, Bldg. "H"  
Riverside, CA 92507

John Fanning  
Director  
(714) 358-5316

Bill Prinz  
(714) 275-8980

**RIVERSIDE COUNTY**

(MAILING ADDRESS)  
P.O. Box 7600  
Riverside, CA 92513-7600

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
<b>SACRAMENTO COUNTY</b> Environmental Mgmt. Department Environmental Health Division Solid Waste Local Enforcement Agency 8475 Jackson Road, Suite 240 Sacramento, CA 95826	Mel Knight Director (916) 386-6168	Jim Cermak Field Operations (916) 386-6116
<b>SAN BENITO COUNTY</b> County Health Department Environmental Health Division Solid Waste Local Enforcement Agency 439 Fourth Street Hollister, CA 95023	Robert Shingai Program Manager (408) 637-5367	Raymond Stevenson (408) 637-5367
<b>SAN BERNARDINO COUNTY</b> Department of Envir. Health Services Solid Waste Local Enforcement Agency 385 N. Arrowhead Avenue San Bernardino, CA 92415-0160	Pamella Bennett Director (714) 387-4688	<u>Desert Contact</u> Mark Stevens (619) 228-5410  <u>Valley Contact</u> Suzanne Stowell or John Ramos (714) 387-4655
<b>SAN DIEGO COUNTY</b> Department of Health Services Environmental Health Services Solid Waste Local Enforcement Agency 1255 Imperial Avenue P.O. Box 85261 San Diego, CA 92186-5261	Gary Stephany Director (619) 338-2211	Lee Ann Williams (619) 338-2210 or Michelle Stress (619) 338-2209
<b>SAN FRANCISCO COUNTY</b> Bureau of Env. Health Services Solid Waste Local Enforcement Agency 101 Grove Street, Room 217 San Francisco, CA 94102	Ben Gale Director (415) 554-2770	

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
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**SAN FRANCISCO COUNTY**

**Field Office**

1380 Howard Street  
San Francisco, CA 94103

Hisashi "Bud" Kitano  
(415) 255-3620  
or  
Henry Louie  
(415) 255-3616

**SAN JOAQUIN COUNTY**

County Public Health Service  
Environmental Health Division  
Solid Waste  
Local Enforcement Agency  
445 N. San Joaquin Street  
P.O. Box 2009  
Stockton, CA 95201

Ron Valinoti  
Director  
(209) 468-3426

Ed Padilla  
Supervisor  
(209) 468-3458

**SAN LUIS OBISPO COUNTY**

County Health Department  
Division of Environmental Health  
Solid Waste  
Local Enforcement Agency  
2156 Sierra Way  
P.O. Box 1489  
San Luis Obispo, CA 93406

A. F. "Tim" Mazzacano  
Director  
(805) 781-5544

John Scholtes  
(805) 781-5557  
or  
Debbi Smith-Cooke  
(805) 781-5596

**SAN MATEO COUNTY**

Health Services Department  
Env. Health Services Division  
Solid Waste  
Local Enforcement Agency  
590 Hamilton Street, 4th Floor  
Redwood City, CA 94063

Brian J. Zamora  
Director  
(415) 363-4305

Nancy Adison  
(415) 363-4724  
  
Greg Schirle  
(415) 363-4797

Phillip Parson  
(415) 363-4668

**SANTA BARBARA COUNTY**

Env. Health Services Department  
Solid Waste  
Local Enforcement Agency  
120 Cremona Dr., Building "C"  
Goleta, CA 93117

Gary Erbeck  
Director  
(805) 681-4939

Michael Schmaeling  
(805) 681-4938  
David Brummond  
(805) 681-4967  
Vivian Nelson  
(805) 681-4948  
Barbara Fontes  
(805) 346-8482

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
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**SANTA CLARA COUNTY**

County Health Department  
Division of Environmental Health  
Solid Waste  
Local Enforcement Agency  
2220 Moorpark Avenue  
San Jose, CA 95128

Lee Esquibel  
Director  
(408) 299-6060

John Dufresne  
(408) 299-6930  
or  
Jim Tokarz  
(408) 299-6930

**City of San Jose**

Dept. of Neighborhood Preservation  
Div. of Environmental Enforcement  
Solid Waste  
Local Enforcement Agency  
801 N. First St., Room 200  
San Jose, CA 95110

Francis B. McVey  
Asst. Director  
(408) 277-5566

Solid Waste  
Local Enforcement Agency  
4 North Second St., Suite 675  
(408) 277-5970  
San Jose, CA 95113

Dennis Ferrier  
Program Manager

Richard Archdeacon  
(408) 277-5970

**SANTA CRUZ COUNTY**

CIWMB Enforcement Agency  
8810 Cal Center Drive  
Sacramento, CA 95826

John Bell  
Compliance Branch  
Permitting & Compliance Div.  
(916) 255-2459

CIWMB:  
Jeff Hackett  
(916) 255-2476

**SHASTA COUNTY**

Dept. of Environmental Health  
Solid Waste  
Local Enforcement Agency  
1640 West Street  
Redding, CA 96001

Russell Mull  
Director  
(916) 225-5787

Jim Smith  
(916) 225-5787 (3:30 - 4:00 pm)

**SIERRA COUNTY**

County Health Department  
Solid Waste  
Local Enforcement Agency  
P.O. Box 7  
Loyalton, CA 96118

Klaus Ludwig  
Director  
(916) 993-6700

Elizabeth Morgan  
(916) 993-6700

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LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
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**SISKIYOU COUNTY**

Public Health Department  
Solid Waste  
Local Enforcement Agency  
806 South Main Street  
Yreka, CA 96097

Terry Barber  
Supervisor  
(916) 842-8230

Ernie Genter  
(916) 842-8230

**SOLANO COUNTY**

Dept. of Environmental Management  
Solid Waste  
Local Enforcement Agency  
601 Texas Street  
Fairfield, CA 95687

John Taylor  
Director  
(707) 421-6765

Miles Perez  
(707) 421-6770  
or  
Ron Scheufler  
(707) 421-6770

**SONOMA COUNTY**

Co. Public Health Department  
Solid Waste  
Local Enforcement Agency  
1030 Center Drive, Suite "A"  
Santa Rosa, CA 95403-2067

Johnathon J. Krug  
Director  
(707) 525-6522

Wiles Edison  
(707) 525-6579  
or  
Bob Swift  
(707) 525-6546

**STANISLAUS COUNTY**

CIWMB Enforcement Agency  
8810 Cal Center Drive  
Sacramento, CA 95826

John Bell  
Compliance Branch  
Permitting & Compliance Division  
(916) 255-2459

CIWMB:  
Mark de Bie  
(916) 255-2464

**SUTTER COUNTY**

(See Yuba County)

**TEHAMA COUNTY**

Dept. of Environmental Health  
Solid Waste  
Local Enforcement Agency  
Courthouse, Room 36  
633 Washington Street  
Red Bluff, CA 96080

Lee Mercer  
Director  
(916) 527-8020

Larry Olson  
(916) 527-8020

**TRINITY COUNTY**

County Health Department  
Solid Waste  
Local Enforcement Agency  
400 Barbara Avenue  
P.O. Box 1257  
Weaverville, CA 96093

Michael G. Polka, M.D.  
Health Officer  
(916) 623-1358

Martin Schliech, REHS  
(916) 623-1358

---

LOCAL ENFORCEMENT AGENCY	DEPARTMENT HEAD	CONTACT PERSON
<b>TULARE COUNTY</b> Dept. of Health Services Div. of Environmental Health Solid Waste Local Enforcement Agency County Civic Center Visalia, CA 93291	Dave Fishel Director (209) 733-6441	Sabine Geaney or Chuck Van Horn (209) 733-6441
<b>TUOLUMNE COUNTY</b> County Health Department Environmental Health Division Solid Waste Local Enforcement Agency 2 South Green Street Sonora, CA 95370	Walter L. Kruse Director (209) 533-5990	Robert L. Tremewan (209) 533-5990
<b>VENTURA COUNTY</b> County Resource Mgmt. Agency Environmental Health Division Solid Waste Local Enforcement Agency Mail Location 1730 800 S. Victoria Avenue Ventura, CA 93009	Don Koepp Director (805) 654-2818	Permits: Richard Hauge (805) 654-2434  Enforcement: Barry Marczuk (805) 654-2859  Inspections: Diane Hall (805) 654-2433 or Tom Kaufman (805) 654-5000, Ext. 8985
<b>YOLO COUNTY</b> County Health Department Environmental Health Solid Waste Local Enforcement Agency 10 Cottonwood Street Woodland, CA 95695	Thomas Y. To Chief (916) 666-8646	Bruce Sarazin, Pete White, or Paula Myers (916) 666-8646
<b>YUBA COUNTY</b> County Environmental Health Solid Waste Local Enforcement Agency 938 14th Street Marysville, CA 95901	Patrick J. Gavigan Director (916) 741-6251	Debra Biersteker (916) 741-6251

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LOCAL ENFORCEMENT AGENCY

DEPARTMENT HEAD

CONTACT PERSON

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**CONTRACT COUNTIES:**

Enforcement Advisory Council  
Contract Counties  
714 "P" Street., Room 523  
Sacramento, CA 95814

Tibor Banathy, EHS IV  
(916) 653-1844

**CCDEH/CAEHA:**

3700 Chaney Court  
Carmichael, CA 95608

Mr. Justin Malan,  
Executive Director  
(916) 944-7315

# APPENDIX D

## PUBLICATIONS LIST 1990-1992

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California Integrated Waste Management Board  
Office of Public Affairs and Education  
8800 Cal Center Drive, Sacramento, CA 95826  
(916) 255-2296

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### ANNUAL REPORTS

1991 Annual Report, Spring 1992.

### COMPOSTING

Composting, Nature's Way to Recycle, Fall 1992.  
(brochure)

Composting Video; an educational video on home  
composting.

### EDUCATIONAL MATERIALS

A Week With Waste: A Five-Day Activity  
Packet for Teachers. 500-92-001

### GENERAL

California Integrated Waste Management Statutes,  
January 1993.

Countywide Integrated Waste Management,  
Regulatory Issues and Responses, October 1990.

Disposal Cost Fee Study, Final Report,  
February 15, 1991.

Integrated Waste Management, A New Approach  
to Waste Reduction

Resource Guide to Integrated Waste  
Management, 1990.

California Integrated Waste Management Board,  
Program Descriptions, Summer 1992.

1991-92 Legislative Summary, September 1992.

Integrated Waste Management, The California  
Challenge, Summer 1992 (brochure).

### HOUSEHOLD HAZARDOUS WASTE

1989 Survey of California's Household Hazardous  
Waste Programs, c. 1990.

Fact Sheets (in English and Spanish):

Aerosols, January 1993.

Antifreeze, January 1993.

General Information, January 1993.

Latex Paint, January 1993.

Lead-Acid Batteries, January 1993.

Oil-Based Paint, January 1993.

Used Oil, January 1993.

Household Hazardous Waste Grant Program,  
1990.

The 20 Most Frequently Asked Questions  
Regarding Household Hazardous Waste,  
October 1990.

WARNING, The Hazards of Household Wastes.

Household Battery Waste Management Study,  
June 24, 1992. 402-92-001

Recommendations for Developing Permanent  
Household Hazardous Waste Facilities,  
December 1992. 402-92-002

### LANDFILLS

Permit Desk Manual, June 1992

Reaching the Limit: An Interim Report of Landfill  
Capacity in April 1992. 301-92-001

### MARKETS DEVELOPMENT

Quarterly Report on California's Recycling  
Markets, January-March 1991.

Quarterly Report on California's Recycling  
Markets, April-September 1991.

California Guides to Products with Recycled  
Content, 1992.

Closing the Loop: Market Development  
Assistance Program. (brochure)

Greening of California. (brochure)

Market Status Reports. Copies will be available  
upon Board approval and publication in  
early 1993.

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Market Development Plan. Copies will be available upon Board approval and publication in early 1993.

### **NEWS**

CIWMB Bulletins.

NEWS at a Glance, September, October, November, December 1992.

Waste Matters!, November/December 1992.

### **PLASTICS**

Plastics: Waste Management Alternatives, Adopted May 28, 1992. 401-92-001

Use of Recycled Plastics By Manufacturers: Laws, Specifications, and Barriers. Copies will be available upon Board approval and publication in early 1993.

Rigid Plastic Packaging Container Report. Copies will be available upon Board approval and publication in early 1993.

### **RECYCLING**

Paper Recycling Handbook for Office Recycling Coordinators, September 1991

Christmas Tree Recycling Guidebook, November 1992. 304-92-001

Christmas Tree Recovery Programs, November 1992. 304-92-003

Recycling, No Time to Waste, Fall 1992. (brochure)

State Recycled Procurement Report; provides recommendations for the State's procurement program for recycled goods and materials. This report will be available upon Board approval and publication.

### **SOURCE REDUCTION**

Achieving Optimal Waste Recycling and Source Reduction: Methods to Reach Your County's Recycling Goal Resource Manual, Revised June 1989.

PRECYCLIN', Rx for Living, Reduce, Reuse, Recycle

Source Reduction, Stopping Waste at the Start, Fall 1992. (brochure)

Statewide Action Plan for Source Reduction. Copies will be available upon Board approval and publication in early 1993.

### **SPECIAL WASTES**

Report to the Governor and Legislature on Metallic Discards Management. Copies will be available upon Board approval and publication in early 1993.

### **TIRES**

Tires as a Fuel Supplement: A Feasibility Study, January 1992.

### **USED OIL**

Used Oil Recycling In California, A Status Report for the 1988 Calendar Year, January 1990.

### **WASTE DIVERSION**

MRFs: Policy, Planning and Design Resource Manual, November 1991.

Waste Diversion in Rural California, September 1991.

Encouraging Commercial Sector Participation in Waste Diversion Programs, An Interactive Half-Day Videoconference, Resource Manual, February 1992. 304-92-004

Increase Profits and Participate in the Greening of America, CALMAX, 1992.

Materials Listings Catalog, CALMAX, Volume 1, Issue 6, 1992.

### **WOOD WASTE**

Wood Waste Diversion: A Resource Guide, January 1993. 304-93-001

# APPENDIX E

## TIRE RECYCLING PROGRAM ANNUAL REPORT

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**T**his update has been prepared to partially fulfill the reporting requirements of Assembly Bill 1843 of 1989 (§42884 of the Public Resources Code). The California Integrated Waste Management Board (Board) is required to report to the Legislature on the number of tires recycled or otherwise diverted from disposal in landfills or stockpiles and the comparative costs and benefits of the recycling or conversion processes funded from the California Tire Recycling Management Fund.

Due to the increase in population, the number of used tires generated annually also increases. In California alone, an estimated 28.2 million used tires (light-duty and heavy-duty) were generated in 1992. Because limited data specific to California exist, quantifying used tire generation rates (as well as recycling rates) is difficult. Therefore, this estimate is based primarily on national figures for new and retreaded replacement tires and population increases.

Board staff have estimated that of the 28.2 million used tires generated in 1992, approximately 11.6 million were diverted for varying alternatives including reuse, retreading, and combustion (see Table 1). Many other alternatives which have historically consumed small amounts of tires also exist, primarily Asphalt-Rubber.

Because of the lack of detailed information available on tire recycling activities in California (due to the lack of a formal system for tracking used tire shipments and for creating and maintaining a database of used tire haulers, shredders, processors and recyclers), Board staff have estimated the quantity of tires recycled or diverted from landfill disposal and stockpiling based primarily on industry contacts who transport, process, and/or recycle large quantities of used tires. Any recycling trends discussed have been based on information from industry contacts as well as staff estimates, and are preliminary at this time.

### TIRE DIVERSION OPTIONS

#### REUSE

An alternative to disposal is tire reuse. After the purchase of new tires, the remaining used tires which still have a legal tread depth can be re-sold by the tire dealer. Rather than being disposed of prematurely, these tires are commonly reused, often beyond that which the law allows. According to industry sources, of the estimated 28.2 million used tires generated this year, about 1.1 million were reused.

#### RETREADING

Tire retreading is a viable option for renewing used tires by reusing the tire casing after the legal tread has been worn off. According to a recently completed Board survey, staff determined that over 2.2 million retreaded tires were sold in California in 1991. About 1.4 million of these sales were heavy-duty truck tires. Based on declining national sales, staff estimates that about 2.1 million retreaded tires were sold in 1992.

#### EXPORT

Tire export (consisting of both used and waste tires) reduces the number of tires requiring disposal in California. According to industry contacts, approximately 1.3 million used tires were exported (mainly to Mexico) for reuse and retreading in 1992. Historically waste tires have been exported to Mexico and have reportedly been stockpiled there rather than reused. Due to recent environmental protection efforts by the Mexican government however, waste tires cannot be legally imported until all waste tires in Mexico are first reused or cleaned up. It may be at least several years before waste tires can again be exported legally to Mexico.

#### COMBUSTION

Tire combustion also reduces the number of tires requiring landfill disposal or stockpiling. In 1992, about 6.6 million tires were combusted as fuel in

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California (up from 4.0 million in 1990). Of the 6.6 million tires combusted, approximately 4.7 million were combusted at the Modesto Energy Project in Westley, California. An additional 0.3 million tires from the existing stockpile near the facility were also combusted this year. The facility generates about 14 megawatts of electrical power which is sold to a local utility. Because of boiler size limitations at the Modesto Energy Project, little increase in waste tire combustion at this facility is anticipated.

Calaveras Cement Company in Redding, California, combusted (as a partial substitute for coal) approximately 1.4 million tires in 1992, of which 0.6 million were imported from Oregon. To promote tire pile cleanup, the State of Oregon has adopted a rebate system which allows the end users of Oregon tires to collect up to \$20 per ton, creating competition for California tire use.

Southwestern Cement Company in Victorville, California, combusted about 0.5 million tires in 1992 (from June through December). Therefore, in the future the facility is expected to combust at least 1.0 million tires annually.

Tire combustion rates could increase in future years. If permitted, the Southwestern Cement Company in Victorville could combust up to about 2.3 million tires per year. Also, RMC Lonestar in Davenport, California, has been performing test burns using tires as a fuel supplement. If the facility is permitted, about 2.2 million tires could be used each year.

An Agreement between the Board and the Air Resources Board (ARB) may also assist in the demonstration of tire combustion by providing source tests (designed to quantify air pollutant emissions) at cement manufacturing facilities. Tests will be conducted while firing primary fuel and while co-firing waste tires.

#### **OTHER USES**

Staff estimates that about 1.1 million tires were used for other alternatives including Asphalt-Rubber, Rubber-Modified Asphalt Concrete, playground cover, crash barriers, and various stamped or molded products.

Due to the passage of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA), the use of Asphalt-Rubber is expected to increase. If approved by the EPA and DOT, beginning in fiscal year 1994, 5% of all Federally funded highway projects must use at least 20 pounds of rubber per ton of paving material. This requirement increases to 20% by 1997.

## **CONCLUSION**

The remaining number of tires requiring landfill disposal or stockpiling in 1992 was about 16.6 million tires or about 59% of the used tire waste stream. Approximately 11.6 million used tires (41%) were diverted from disposal (up from 34% in 1990). Because of the uncertainty of some recycling or diversion estimates, however, these numbers are only approximations.

Board staff is confident in the values assigned for the categories of tires retreaded, imported, combusted for energy production, and combusted as a fuel supplement (see Table 1). Staff has less confidence, however, in the values assigned to the categories of reused, exported, and other uses due to the lack of sufficient information.

At the time of this report, no grants or loans from the California Tire Recycling Management Fund have been awarded. The regulations for the grants and loans program are currently under development by Board staff. It is estimated that applications will be solicited beginning in the Spring of 1993. Cost and benefit comparisons regarding waste tire recycling or conversion processes funded by this program will be ascertained after grants and loans are awarded.

Although grants and loans have not yet been awarded, funds from the California Tire Recycling Management Fund have been used to fund several Board contracts. Approximately 0.7 million dollars and one person-year were funded during fiscal year 91/92, and over 1.0 million dollars has been approved for funding an additional 3 contracts during fiscal year 92/93.

One contract and two Interagency Agreements (IAA) were awarded during fiscal year 91/92. The contract was awarded to the Sacramento based Local Govern-

TABLE 1

## Used Tire Recycling and Disposal

Numbers in Millions

Year	California Population	Estimated # of Tires Generated	Reused	Retreaded		Exported	Imported	Combusted for Energy Production	Combusted as Fuel Supplement	Other Uses <sup>1</sup>	Total Tires Diverted <sup>2</sup>	Remaining Tires Disposed of	% Tire Diverted
				Light	Heavy								
1990	29.5	27	1	0.9	1.4	1.3	0	2.4	1.6	.6	9.2	17.8	34%
1991	30.1	27.5	1	0.8	1.4	1.3	0.4 <sup>3</sup>	4.1	1.7 <sup>3</sup>	.8	10.7	16.8	39%
1992	30.7	28.2	1.1	0.7	1.4	1.3	0.6 <sup>3</sup>	4.7	1.9 <sup>3</sup>	1.1	11.6	16.6	41%
1993													
1994													
1995													
1996													
1997													
1998													

1. In actuality, more *tire rubber* is used than these figures depict. However, the extra rubber used is tire buffings from tire retread operations. These tires are already accounted for in the retreaded tire category.

2. Determined by summing the number Reused, Retreaded, Exported, and Combusted, and subtracting the number Imported.

3. Imported tires used as a fuel supplement. To determine the number of California tires combusted as a fuel supplement, subtract the number of tires imported.

ment Commission to plan and conduct a conference aimed at promoting alternatives to landfill disposal of whole waste tires. The conference is scheduled to be held in Los Angeles on April 1-2, 1993.

An IAA was awarded to Caltrans, Division of New Technology, Materials, and Research, to perform testing on asphalt concrete containing rubber. Emissions testing will also be performed during the recycling of paving materials containing rubber.

To promote alternative uses of waste tires, an IAA was awarded to the California Air Resources Board (CARB) to conduct emissions testing using tires as a fuel supplement at cement manufacturing facilities and biomass combustion facilities.

Funds have been allocated for an additional three contracts during fiscal year 92/93. These proposed contracts would enable the research of various strategies (types) of Asphalt-Rubber, research of pyrolysis, and assist local agencies in waste tire related issues.



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