



INTEGRATED
WASTE
MANAGEMENT
BOARD

**MEETING THE CHALLENGE
A MARKET DEVELOPMENT
PLAN FOR CALIFORNIA**

MARCH
1993

State of California

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Table of Contents

	Page
<i>Executive Summary</i>	1
I. Introduction	3
II. Strategies to Stimulate Demand for Secondary Materials	7
III. Analysis of Emerging Market Development Options	15
IV. Provisions for Review and Revision	19
 <i>Appendices</i>	
A. Definitions of Consolidated Actions	20
B. Matrix of Staff-Assigned Priorities	24
C. Summaries of Individual Action Plans	27
1. Mixed Waste Paper	28
2. Compostables	30
3. HDPE and Unsorted Plastics	32
4. Glass	34
5. Ferrous Metal	37
6. Pavement	39
7. Newsprint	43
8. Corrugated Cardboard	45

Recycling, Market Development and California Jobs

Market development for recyclables has the potential to solve an environmental problem as it creates an industry. Made with material formerly considered garbage but now diverted in increasingly larger amounts from landfills, products made from recyclables create jobs as they lessen the environmental impact of solid waste.

With its 32 million people, California is a market maker; it has an opportunity to lead the way in creating markets and demand for products made from recyclables not only for its citizens, but for the country. The California Integrated Waste Management Board (CIWMB or Board) has determined that potentially 20,000 jobs could be created in California's manufacturing sector, along with another 25,000 in sorting and processing, and many more from multiplier effects.

The California Integrated Waste Management Act, passed in 1989, directs the state's cities and counties to divert 25 percent of their waste streams from landfills by the year 1995 and 50 percent by the year 2000. If local jurisdictions meet this mandate, an estimated additional 22 million tons of recyclables will be collected annually by the year 2000 — an amount well in excess of today's industrial demand. If recycling is to be successful, market development — creation of demand for recyclable commodities — must meet or exceed supply.

The State has acknowledged the importance of market development for recyclables. Legislative statute directs the CIWMB to assure markets for recyclables by developing recommendations that address: issues of procurement of recycled-content products by government and the private sector; financial assistance to the recycling industry; and the needs of manufacturers and local governments in developing markets and use of recyclables.

The CIWMB's Market Development Plan was prepared in response to this statute and provides a blueprint for creating a 21st Century recycling industry in California. The Plan, the result of a series of steps that included public workshops for seven recyclable commodities, outlines 16 priority actions for Board consideration.

The actions give emphasis to increasing markets for three commodities identified by the Board as priority materials — mixed paper, compost, and HDPE and unsorted plastic. The criteria used to evaluate each commodity were: a low diversion rate, a high landfill percentage rate, and a high potential demand for which a self-sustaining

market could be created. The Board drafted a mission statement with four goals for market development; the plan describes ways in which the 16 priority actions, as well as 19 other identified actions, will meet the four goals of the mission statement. Moreover, the Plan identifies and suggests how the Board will address emerging market development issues of a legislative nature.

The priority actions address a broad range of issues as they relate to market development, including: ways of promoting recycled-content products (the "Buy Recycled" approach), assistance in addressing contaminant and sorting problems; financial assistance for industry and help in siting, regulations, and equipment design; and ways of bringing government, industry, and the public/private sector together to create market opportunities.

Far from the final work, this plan forms a base from which to work on a task that may seem daunting, but that has a potential to reinvigorate California's business base while it strengthens the state's environmental standards. In these days of recession, job creation is important in all industries, but especially important as we seek to create work and add to California's economic recovery while addressing very real and growing environmental problems.

Like all important undertakings, this work begins with one step. The Market Development Plan is that first step. The Board welcomes responses and contributions to this work. It will take a broad and vibrant fusion of government, industry, and the public working together to achieve the goals we have set for ourselves.

California must find markets in the next seven years for an additional 22 million tons of recyclables per year if it is to meet the 50 percent mandate of AB 939.¹ The State's cities and 58 counties are planning and implementing programs to increase collection rates of recyclables in response to the goals of AB 939; a corresponding increase in market development will be essential to meeting the legislative mandate as well as to the future success of recycling programs throughout the state.

California's overall diversion rate currently is about 12 percent. Even at this low percentage, markets are not consuming all of the material being diverted for recycling. AB 939 set diversion requirements for all local jurisdictions, but did not require extensive use of collected materials by manufacturers or consumers.

Actions presented in this report are designed to aggressively increase the quality of secondary materials used as feedstock and to begin building recycling-based industries in the state. A key tenet of market development is that materials in the waste stream are in fact raw material resources that can supply new and existing industries in California, the United States, and throughout the world.

Developing markets for recyclable materials thus becomes not only a way of ensuring that AB 939's mandates are met, but also of creating opportunities to reindustrialize California. The California Integrated Waste Management Board (CIWMB or Board) estimates that more than 20,000 jobs can be created in California's manufacturing sector, along with another 25,000 in sorting and processing, and tens of thousands more from multiplier effects, through full implementation of AB 939.² The Board also estimates that the manufacturing capacity needed to consume California's recyclable materials can be developed within the state at a capital investment of roughly \$300 million per year for each of the next seven years (in equipment and leasehold services) from private and public sources.

¹ AB 939 mandates that cities and counties divert 25 percent and 50 percent of their waste streams from landfills by 1995 and 2000, respectively. AB 2492, enacted in 1992, further clarifies planning requirements related to these mandates.

² This is based on extrapolations from independent data sources that all converge on a figure of 20,000 or more jobs. Data sources: Small Business Administration job investment ratios; data on businesses being considered for low-interest loans from the Board's Recycling Market Development Revolving Loan Fund; estimates of job generation associated with San Jose's diversion efforts; and preliminary data from a CIWMB contract with California State University Hayward's Center for Business and Economic Studies.

Market development occurs primarily as a result of private sector activity, with demand for secondary materials usually determined by the traditional equation of supply and demand. This equation is influenced by many factors, including: assuring the quality of materials during and after collection and processing, manufacturers' specifications, end-use consumer demand, and local and state public policy decisions regarding recycling. Board analyses confirm that general barriers to market development include the following:

- lack of reliable market information;
- lack of consistent supplies of sufficient quality;
- high costs in using secondary materials (i.e., supply of materials generally is not matched with demand for those materials at prices that cover collection, transportation, and processing costs);
- manufacturer and consumer wariness of products made from secondary materials; and
- financial barriers (e.g., difficulties small- and medium-sized businesses face in obtaining credit).

At the national level, market development policies are being debated as part of the reauthorization of the Resource and Conservation Recovery Act (RCRA), the primary federal statute governing solid waste. Overlaying all of this are global factors — fluctuating commodity values, new regulatory provisions on packaging and other products, and the potential effects of international trade agreements such as the North American Free Trade Agreement (NAFTA) and the General Agreement on Trade and Tariffs (GATT). For example, California minimum-content regulations may be considered constraints of trade and in conflict with treaty agreements.

The Board's market development programs must consider how these complex, inter-related factors affect each link of the market development chain, including material supply, processing, product design, manufacture, and consumption. The Board's market development programs are designed to encourage the production of value-added goods generally available at competitive prices through self-sustaining businesses. The Board encourages recycling activities that will not be dependent on permanent forms of government support once the transition investments in recycling have been made.

Success in implementing Board programs will require an aggressive partnership among state and local agencies and the private sector. As the lead state agency for recycling market development, the Board is responsible for monitoring and coordinating all related state activities and those of various local economic development agencies. To define its direction in this work, the Board has formulated a market development mission statement, which is presented on the next page.

MISSION STATEMENT

Encourage market conditions in which secondary materials generated in California are efficiently recycled into high quality, value-added products.

GOAL 1: Increase market demand for materials collected in California and supplied by California's recycling programs.

- Assist and encourage existing California businesses to increase their use of secondary materials by expanding operations, or by replacing raw materials with secondary materials in existing operations.
- Assist and encourage the development of new California businesses that consume secondary materials.
- Assist and encourage the development of alternative uses for secondary materials that currently have limited market value.

GOAL 2: Increase demand for recycled-content products.

- Increase government procurement of recycled-content products.
- Promote the use of recycled-content products by industry and the public through education, advertisement, labeling and other mechanisms.

GOAL 3: Promote efficient local waste diversion systems.

- Assist local agencies in development of self-sustaining recycling operations that are responsive to market conditions.
- Provide information and assistance to facilitate marketing of secondary materials.

GOAL 4: Promote long-term competitiveness of secondary materials collection and use.

- Establish appropriate mix of incentives, information systems, and regulations to increase use of secondary materials.
- Eliminate inefficiencies within each secondary material market.
- Sponsor research and development to increase the efficiency and competitiveness of secondary materials collection and use.

II. STRATEGIES TO STIMULATE DEMAND

The Board recognizes that additional work must begin immediately to develop markets for the steadily increasing volume of materials being diverted from the waste stream under AB 939. To determine what could and should be done, staff conducted detailed analyses of seven major secondary materials markets to identify current market conditions and barriers to market expansion. The seven commodities studied are:

- mixed wastepaper,
- compostables,
- HDPE and unsorted plastic,
- glass,
- ferrous metals,
- pavement and inerts, and
- newsprint and corrugated cardboard.

During the fall of 1992, the Board held seven workshops to discuss individual commodity markets and gather public input on how the Board could improve market development for the specific commodities. This Market Development Plan is the result.

The Market Development Committee identified mixed paper, compost, and HDPE and unsorted plastics as priority materials based on the following criteria:

1. Which materials have a low diversion rate?
2. Which materials with a low diversion rate make up a significant percentage of landfill disposal?
3. Which of the materials fitting criteria 1 and 2 above have a low current demand but a high potential demand?
4. Considering all of the above, which materials have the potential to create self-sustaining markets?

After each commodity workshop, Board staff developed a plan to identify actions that could be taken to overcome market development barriers for that commodity.⁴ The four goals from the market development mission statement were used as guidelines for developing specific action items in the individual plans, and each action was evaluated in terms of how it contributed to the specific market development goal it supported.⁵

⁴ Appendix C contains the executive summaries of the Action Plans.

⁵ A "High," "Medium," or "Low" rating was given each item, based on the impact the action would have on the goal. A "high" score was given to an action that would have a large impact and a "low" score to an action that would have a lesser impact.

More than 150 specific actions were initially listed in the commodity action plans. Board staff consolidated 150 actions to 35 actions to form a cohesive list of strategies for Board consideration. The consolidated actions fall into three distinct areas: administrative, regulatory, and legislative. Administrative actions are those that can be accomplished within current Board authority, through an internal adjustment of resources and/or priorities. Regulatory actions are those within the Board's authority that require the development of new regulations. Legislative actions require further analysis and, if warranted, development of legislative proposals.

The 35 actions cover a wide range of strategies that are not possible to pursue simultaneously because of resource constraints. To select the more important actions, a ranking system was developed and each action was scored on how it satisfies the following selection criteria:⁶

- number of materials addressed;
- number of priority materials addressed;
- rating of actions (high, medium, low) from individual workshops based on market development goals; and
- evaluation of actions against a set of criteria modified from those being used by the national Recycling Advisory Council.

The modified criteria are listed below.

1. Will the action increase the amount of secondary material being used in manufacturing?
2. How quickly will the action create jobs and/or markets in California?
3. Will the action attract and expand existing and anticipated capital investments by the private sector?
4. Is the action cost-effective and compatible with existing state and local programs and existing commercial enterprises?

Action Item Priorities

The Board selected the top 15 actions for in-depth analysis and resource needs. In addition, Action 19, to establish specifications for compost, was added as a priority action since compostables represent up to 40 percent of the waste stream and the compost industry stressed the importance of such standards to stimulate demand for their products. These actions are not presented in priority order; the Board will select activities from this list, and possibly other actions, to be implemented over the next 12 to 18 months. Because of budget limitations, some actions may not be selected, may be postponed, or may be restricted.

⁶ See Appendix B for scoring of individual action items.

Summaries of the 16 actions chosen for immediate Board consideration are presented in this section of the report and are listed below. A listing and description of the remaining actions can be found in Appendix A. A variety of other actions were developed during the commodity workshops that pertained to only a single, non-targeted commodity. Because of the limited application of these actions, they were not included in the general ranking process and are also listed in Appendix A.

Although the rankings represent the relative importance the consolidated actions have for market development, they do not indicate an absolute priority for the Board. For example, Action 18 relates to permit streamlining, an issue of great importance to the Board's permitting staff but an action ongoing outside of market development considerations. Similarly, Actions 20 and 34 are being addressed by the Board's Public Affairs staff as ongoing efforts. Several other suggested actions (e.g., Action 28) will be addressed as part of Board analyses described in Section III, Analysis of Emerging Market Development Options. It should also be noted that some of the Board's ongoing programs address several actions. For example, the Market Development Zone Implementation Assistance program addresses many of the action items and is a vehicle that can be used to implement priority items.

SUMMARY OF PRIORITY ACTION ITEMS

	<i>Goal*</i>
1. Promote "Buy Recycled" by local and state governments and private industry.	1,2
2. Identify contaminants and determine how to overcome/eliminate them in collection systems.	3,4
3. Minimize or eliminate barriers to the use of secondary materials.	1,2,3,4
4. Determine optimal sorting strategies.	3
5. Consider low-interest loans for equipment and projects.	1,3,4
6. Develop a marketing information database.	1,2,3,4
7. Provide training for collectors.	3,4
8. Consider bonds for small business development.	1
9. Set up pilot projects to research use of secondary material to replace virgin materials.	1,2,4
10. Set minimum content standards.	2,4
11. Promote government procurement of recycled products.	2,3
12. Create industry advisory task forces.	1,4
13. Provide alternative use information.	1,2
14. Equalize incentives between virgin materials and recycled materials (level the playing field).	4
15. Invest in and promote new technology and equipment design.	1
16. Develop quality standards for compost.	2

***Summary of Goals (from page 5):**

- Goal 1 Increase manufacturers' use of recycled materials.
- Goal 2 Increase consumers' purchases of products containing recycled materials.
- Goal 3 Improve recycled material collection efficiency.
- Goal 4 Ensure long-term competitiveness of recycled materials.

The 16 priority actions listed below address the barriers described in Section I. They will provide a framework for an aggressive marketing strategy to stimulate uses of secondary materials and demand for products made from these materials.

1. Promote “Buy Recycled” by local and state governments and private industry.

- Identify consumer attitudes toward recycled products.
- Develop minimum standards and sample specifications for product procurement.
- Encourage purchase preferences for recycled content products by all sectors.

2. Identify contaminants and determine how to overcome or eliminate them in collection systems.

- Evaluate materials recovery facilities (MRF) to: 1) determine methods for sorting materials into higher-value grades, and 2) learn which types of facilities purchase various grades.
- Evaluate various collection methods (co-mingled and source separated) for contamination levels and collection and processing costs.
- Assess the application of existing equipment design.

3. Minimize or eliminate barriers to the use of secondary materials.

- Facilitate communication among product manufacturers, secondary materials suppliers, and secondary materials end-users to minimize barriers to recycling.
- Promote design for recycling with product manufacturers.
- Facilitate public and private discussions with industry, government and the public to assure efficient material flow from collection through processing to manufacturing.
- Use internal working groups and advisory panels to identify manufacturers' attitudes toward using secondary materials.

4. Determine optimal sorting strategies.

- Fund through public/private partnership the development of prototype equipment designs that enable separation and use of postconsumer material feedstocks.
- Fund research and development (R&D) efforts for manufacturing equipment modifications to maximize use of postconsumer feedstock.
- Evaluate new equipment designed to handle postconsumer feedstocks.
- Evaluate the technical and economic feasibility of retro-fitting existing equipment.
- Provide funds to develop equipment prototypes to commercial size.

5. Consider low-interest loans for equipment and projects.

- Provide financing incentives for recycling businesses.
- Investigate low-interest loan or grant programs to support recycling businesses.
- Investigate recycling tax credits for commercial and residential consumers who purchase products made with secondary materials having low market demand.
- Look at funding through already available mechanisms including the California Pollution Control Financing Authority (CPCFA) and others.

- Work with CPCFA to consider CPCFA purchasing of Recycling Market Development Zones loans and to consider expanding small-issue industrial development bonds (IDB) tax-exempt funding priorities to include Recycling Market Development Zones.
- Support federal efforts to change the definition of facilities eligible for tax-exempt financing and to extend the small-issue IDB program.
- Investigate the establishment of a small issue IDP pool.

[Note: Action 8 below addresses the sources of funds to finance these programs.]

6. Develop a marketing information database.

- Establish a comprehensive marketing information database that includes information on business operations, new products, quality issues, ongoing supply by sector, and economic baseline data such as prices and quantities available. Information in the database should cover the western United States as well as California and include information on municipal collection programs, recycling centers and dealers. Identify in the database recycled-content products manufactured in California, feedstock requirements, and purchasing specifications.

7. Provide training for collectors.

- Based on information generated in Action 2, provide collection and sorting strategy training and information to collectors, MRF operators, recovery system designers, and small business generators.
- Provide assistance to collectors and processors to design systems that meet the product requirements of the end-markets.

8. Consider bonds for small business development.

- Investigate legislation for a General Obligation Bond Measure, an Industrial Revenue Bond Act, creation of a financing authority, and other state revenue sources to provide funding for small- to medium-size recycling businesses needing start-up or expansion capital, credit support, or loan guarantees.

[Note: Action 5 addresses programs to disperse these funds.]

9. Set up pilot projects to research the use of secondary material to replace virgin materials.

- Support pilot projects to research the feasibility of substituting postconsumer materials for virgin or postindustrial secondary materials.
- Investigate new technological applications of postconsumer materials in industrial processes.

10. Set minimum content standards.

- Investigate and where economically feasible and practical, initiate and/or support legislation to establish minimum recycled-content standards, or amend existing standards for selected products, with the option of a tradable credits system.

11. Promote government procurement of recycled products.

- Strengthen the minimum recycled-content standards and purchase requirements for products purchased by the State of California. The standards would be individually established for specific products and set with the highest practical postconsumer content.

12. Create industry advisory task forces.

- Create industry advisory task forces comprised of representatives from government solid waste agencies, materials recycling industries (collection, processing and manufacturing), environmental advocacy groups, and environmental permitting agencies. The task forces would be designed to:

- identify barriers to recycling (including barriers associated with siting new production facilities in California) and recommend actions to overcome those barriers; and
- provide ongoing technical assistance to the State on all aspects of recycling: collection, processing, manufacturing and recycled products procurement.
- work with the advisory task forces, Cal/EPA, other state agencies, and local governments to provide siting assistance to targeted industries to identify optimal locations for those industries and to streamline permitting requirements, improving California's ability to attract these industries to the state.

13. Provide alternative use information.

- Identify and compile information on successful alternative use projects throughout the United States and abroad and develop case studies.
- Research emerging technologies and explore viability of high value-added uses and new products.
- Identify characteristics needed for new and niche markets; locate geographic areas within the state that exhibit these characteristics for possible siting of new industries.

[This information and results of research will be included in the marketing information database discussed in Action 6.]

14. Equalize incentives between virgin materials and recycled materials (level the playing field).

- Investigate whether subsidies to virgin feedstocks and preferences for products made from virgin materials discourage the use of secondary materials in manufacturing processes and consumer purchases of recycled products.
- Determine how best to "level the playing field" for the secondary materials market and stimulate purchases of products made from recycled materials.
- If results of a study on the impacts of subsidies now underway so indicate, propose legislation to provide incentives to use secondary materials in manufacturing processes.

15. Invest in and promote new technology and equipment design.

- Investigate legislation to support funding for innovative equipment design and new, cost-effective methods for collecting, sorting, and reclaiming secondary materials.

[Note: This Action provides funds for Action 4.]

16. Develop quality standards for compost.

- Develop product quality standards to address the quality and content of compost.
- Include labeling of compost products to provide information to end-users.

The market development actions identified in Section II are actions that the Board can begin working on immediately. In contrast, several emerging market development options require much more analysis. This section outlines the Board's approach to analyzing these options. In addition to promoting market development, these emerging options may also address other important integrated waste management (IWM) issues including funding for local and state programs, public education, and source reduction. The options selected for special consideration are discussed below.

"Fee-based" incentive options: Under this option a fee is charged on products and package prior to consumption (also called an advanced disposal fee or ADF) or for waste management services after products are consumed (also called a back-end fee). Both types of fee systems can provide powerful incentives for source reduction and recycling, as well as important sources of funds for state and local programs. A limited ADF program was included in a California legislative proposal (AB 2213, Sher - District 21, Palo Alto) which failed passage during the 1991/92 session. Industry groups have expressed concern regarding the proposed ADF program. However, recycling interest groups and the California League of Cities have indicated interest in sponsoring or supporting such legislation in the coming session.

"Manufacturer responsibility" approaches: As adopted in Germany and other countries, this approach mandates or seeks voluntary commitments from manufacturers and other designated entities to assume specified responsibility to support source reduction and recycling efforts. This approach was recently embodied in a short-lived Resource Conservation and Recovery Act (RCRA) reauthorization proposal in Congress, and many analysts expect it to reappear in RCRA proposals and/or in proposed California legislation.

Tradable credit system: This system can provide a market-based approach to promoting source reduction and recycling. It can be combined with minimum-content requirements for packaging and products, or applied in a variety of other ways to allow regulated parties flexibility in achieving standards. A recent RCRA proposal included a tradable credit system applied to minimum-content requirements.

Environmental labeling programs: These can be used to "reward" businesses with a marketing tool for their efforts in promoting source reduction and recycling. Environmental labeling has also been included in recent RCRA proposals and is the subject of continuing controversy in California and throughout the nation.

Analysis of the potential impact of global trade agreements on market development efforts: This issue has not been widely addressed. Some international agreements may potentially jeopardize the federal or state government's ability to enact or enforce market development legislation. For example, the European Community has reportedly identified California's minimum content legislation for glass bottles as a trade barrier and could contest this legislation under the General Agreement on Tariffs and

Trade (GATT). The North American Free Trade Agreement (NAFTA) may also call into question the ability of a state government to require minimum recycled-content levels in products imported from member countries.

The Board believes these particular subjects are worthy of special consideration because:

- they have each been included in proposed legislation at the state and/or federal level;
- they each require in-depth analysis of potential ramifications should they be enacted in legislation; and/or
- they each have the potential to significantly impact the existing recycling marketplace, including the collection and processing infrastructure.

The primary purpose of the Board's analysis of these approaches is to allow the Board to respond to legislative proposals with objective information. The analyses will also provide information to allow the Board to develop its own legislative proposals, should it choose to do so.

Schedule of Projects and Key Tasks

The projects listed below will be coordinated by the Board's Policy and Evaluation Office (PEO); they will also involve staff in other Board divisions and several contractors. Each project will be accomplished with existing staff resources and previously adopted contracts. In addition to PEO, the Economic Research and Forecasting Section and the Market Development Branch will review work products and perform selected tasks. Contractors involved include: Booz-Allen & Hamilton, Inc. (to analyze ADF implementation issues and unit pricing systems); Resource Integration Systems, Inc. (to analyze responsible entity approaches); California Futures, Inc. (to analyze select tradable credit and fee issues); and the Department of Finance (to evaluate state implementation costs for funding mechanisms such as ADFs and back-end fees).

The approximate completion date given for each project is staff's best estimate. Staff will provide input on legislative proposals as required both before and after the estimated project completion date.

Alternative Fee-Based Incentive Systems

This project will build on and complete research conducted by Board staff and contractors. It will: 1) identify and evaluate alternative fee-based incentive systems; and 2) provide a summary of the practical implementation issues associated with various ADF alternatives. The project will complement a contracted study to identify and evaluate funding mechanisms for Board programs. Approximate completion date: August 1993.

16

Supporting tasks: Board staff drafted market status reports and action plans for each secondary material type and the Board contracted with California Futures to draft a report on market-based policy alternatives. Staff completed an issue paper on ADF implementation and the Tellus Institute completed a disposal cost fee study under contract to the Board.

Key tasks: The staff will summarize fee-based incentives adopted in California, other states, and other countries. Staff will also evaluate the need for new incentive systems at each stage of the recycling "loop." Other tasks will include summarizing the range of alternative fee-based incentive systems and developing criteria to evaluate California-specific ADF-related proposals.

Final product: All tasks will be compiled in a summary report and presented to the Markets Development Committee; other appropriate Board committees, and Board.

"Manufacturer Responsibility" Implementation Alternatives

This project will evaluate "manufacturer responsibility" approaches proposed or adopted worldwide, and their potential transferability to California. Approximate completion date: April 1993.

Supporting tasks: Staff developed an issue paper on a 1992 RCRA proposal on manufacturer responsibility. Board member Paul Relis and staff member Ed Boisson conducted separate interviews with German officials involved in implementing Germany's new responsible entities ordinance.

Key tasks: Board staff will summarize manufacturer responsibility approaches adopted in other countries. Staff also will develop criteria and evaluate the potential implementation of California-specific proposals and prepare a draft issue paper summarizing findings. A Board workshop is planned to examine issues associated with hypothetical implementation of manufacturer responsibility approaches in California.

Final product: An issue paper based on a workshop and findings of a Resource Integration Systems, Ltd. contract to the Board will be presented to the Markets Development Committee and Board.

Tradable Credit Applications

This project will identify and evaluate applications of tradable credit mechanisms to complement market development approaches. Approximate completion date: June 1993.

Supporting tasks: The Board contracted with California Futures to draft a report on market-based policy alternatives.

Key tasks: Board staff will summarize information on the use of tradable credits in other states and countries and in other fields; alternatives to the application of tradable credit mechanisms will be identified; and criteria developed to evaluate selected applications for tradable credit mechanisms.

Final product: Board staff will summarize all tasks in a brief issue paper to be presented to the Markets Development Committee and the Board.

Alternative Environmental Labeling Programs

This project will evaluate California's environmental labeling legislation and consider whether "clean-up" legislation is necessary to increase its effectiveness. It will also evaluate alternative environmental labeling programs that may provide a marketing incentive to businesses for recycling. (Note: Work on this task will be performed primarily through participation with Cal/EPA's Environmental Marketing Task Force.) Approximate completion date: August 1993.

Supporting tasks: Staff responds on an ongoing basis to inquiries concerning California's existing environmental advertising legislation (AB 3994, Sher, 1990). Staff also participates in Cal/EPA's Environmental Marketing Task Force. An issue paper comparing California's environmental labeling law with new Federal Trade Commission guidelines was drafted by staff in 1992.

Key tasks: Staff will evaluate California's existing environmental labeling legislation and continue its participation in Cal/EPA's Environmental Marketing Task Force.

Final products: Staff will draft a report summarizing alternatives and recommendations for environmental labeling programs.

International Agreements

This project will seek to understand trends in global trade issues that may impact the ability of countries or states to enact and enforce market development legislation. Initiatives to be considered include GATT, NAFTA, and the Basel Agreement. Approximate completion date: May 1993.

Supporting tasks: Staff drafted an issue paper on the impact of NAFTA on integrated waste management. Board member Paul Relis participated in a U. S. Congress Office of Technology Assessment advisory panel on global trade.

Key tasks: Board staff will perform literature review to identify and summarize relevant international agreements and identify key issues requiring additional research.

Final Product: Staff will summarize results in a brief issue paper to be presented to the Markets Development Committee.

This Market Development Plan is intended to provide guidelines to the Executive Director in implementing market development programs and policies. The Board views this document, however, as part of a dynamic process. As such, the Board recognizes that implementation of specific programs and analyses of new issues may lead to changes in its understanding of market factors or to actual changes in secondary materials markets.

These changes, in turn, may warrant subsequent revisions in the focus and staffing needs delineated in this version of the plan. The Board therefore intends that its Market Development Plan be reviewed and revised as necessary on an annual basis. Since sufficient allocation of staff and contract resources is critical to successful implementation of the Board's market development programs, this review and revision process should occur prior to and directly influence the Board's annual development of its budget and contract concepts.

NONPRIORITY ACTION ITEMS

N

ote: Actions 1 through 16 are described in Section III of this report and are not repeated here; Action 19, listed as Action 16 in the report, is included as 19 here.

16. Provide general information on composting, reuse, and collection.

- Provide general information on composting, reuse, and collection needs to local governments, including local enforcement agencies, and other regulating agencies.
- Develop brochures describing regulatory requirements and procedures to assist applicants in meeting regulatory requirements.

17. Lower production costs, increase tolerance of contaminants in end products.

- Eliminate contaminants to lower production costs.
- Modify equipment to better tolerate contaminants while maintaining quality control.

[Note: This also relates to Actions 2 and 4.]

18. Simplify the permitting process and develop a “one-stop-shop.”

- Simplify the compost permitting process and develop a one-stop-shop by increasing coordination with state, local and regional agencies that regulate businesses.
- Eliminate regulatory overlap, duplication and conflict between agencies such as the Water Quality Control Board and the CIWMB. This effort is currently under way in the Board's Permitting and Compliance Division. A lead agency could be designated to streamline the process, specifically for composting permits.

19. Develop quality standards for finished products.

- Develop product quality standards to address the quality and content of compost.
- Include labeling of compost products to provide information to end-users.

[Note: Specifications for compost have been identified as a priority action by the Board to be considered for implementation; this has been included as Action 16 in Section III of the Plan.]

20. Publicize uses of materials.

- Publicize the uses of secondary materials through a joint state/private industry advertising campaign.

- Target specific groups for advertising outreach campaigns to promote the benefits of postconsumer products, using public service announcements and articles in trade journals and newspapers.

21. Provide education and advertisement.

- Provide educational outreach by working with industry groups and other state agencies to set up workshops, roundtable discussions, and conferences with collectors, processors, reproducers, manufacturers, brokers, retailers, and public interest groups.
- Use task forces to develop strategies to ensure that collected materials meet the needs and specifications of resource users.
- Compare costs in California with other regions of the country.
- Form a working partnership with the overseas offices of the California World Trade Commission to promote California products.

22. Develop permit siting requirements.

- Complete regulations for mandates requiring minimum content (plastics) and permitting (compost). To be completed in 1993 and 1994 for plastics and for compost.

23. Consider consumer rebates.

- Investigate legislation to offer a one-time consumer "instant" rebate for purchase of single purpose equipment such as mulching mowers or compost bins.

24. Promote compost/mulch to foster local water efficiency landscape ordinances.

- Promote the use of compost and mulch to foster local water efficiency in landscape ordinances mandated by AB 325 (lead agency: Department of Water Resources).
- Encourage coordination between local water agencies, city planners, and waste management and recycling staff to increase awareness of the advantages and savings involved in using mulch and compost generated within and by local governments.

[Note: This could be included in Action 13, as an alternative use.]

25. Consider purchasing incentives/tax credits.

- Investigate legislation for a consumer tax credit and/or consumer rebate (both commercial and residential consumers) for the purchase of products manufactured with secondary materials such as construction materials, hydromulch, plastic lumber products, etc.

26. Provide collection incentives.

- Investigate legislation for variable can rates or bi-weekly or monthly collection (as a cost incentive) to make consumers aware of source reduction (including alternatives to disposal such as backyard composting) and promote recycling.

27. Assist in formation of niche markets.

- Assist in the formation of niche markets with special characteristics to meet local and regional needs and to reduce the cost of moving products to market.

- Encourage wider knowledge about the seasonal and regional nature of compost feedstock. [Note: This could be considered in Action 13.]

28. Investigate “tradable credits.”

- Establish a tradable credit system for postconsumer material products used in the private and public sectors. This system may be considered as an option in minimum-content requirements and other strategies.

29. Amend regulations to better report waste stream data.

- Amend the regulations governing the reporting of solid waste composition data in the city & county Source Reduction & Recycling Elements (SRREs) to replace the term “mixed paper” with the terms (and definitions) “mixed office paper” and “mixed residential paper.” This Action will be included in the Board’s review of SRRE regulations pursuant to AB 2474 (Sher, 1992).

30. Market secondary materials as commodities, not waste.

- Develop standards for labeling of recycled content products; this activity is currently underway by Cal/EPA and representatives from the CIWMB, Air Resources Board, and Water Quality Control Board.
- Determine when waste becomes a product or commodity.

31. Investigate consistent, mandatory labeling.

- Investigate mandatory labeling on all packaging that states percentage of secondary, postconsumer, and virgin materials (it should add up to 100) to provide information for consumers.

[Note: This activity is also discussed as an emerging market development option in Section III.]

32. Develop ways of reducing transportation costs.

- Develop ways to reduce transportation costs, a large part of the cost of low-value materials.
- Encourage backhauling, which involves scheduling of deliveries so that trucks transporting material from one destination can carry other materials on the return trip.
- Site intermediate transfer sites to reduce the volume of materials before shipping; for example, grinding yard waste will reduce volume, much like baling reduces the volume of other materials.

33. Promote environmental benefits of using recycled packaging materials.

- Promote the environmental benefits of using recycled packaging materials and encourage product manufacturers to increase emphasis on recycled content and recyclable packaging.
- Identify recycled-content products and give them special emphasis in promotional programs.

34. Educate K-12 children about compost.

- Educate K-12 children about composting, recycling and vermiculture (worms) as part of the integrated waste management (IWM) curriculum intended for use in

California's public schools. School composting programs are being established as pilot projects throughout the state through the Board's Diversion Assistance Branch.

35. Consider manufacturing incentives/tax credits.

- Investigate possible legislation for a secondary materials purchase credit that would apply toward the purchase of unsorted materials used to manufacture new marketable products.

Unranked Actions

These actions only addressed a single non-targeted material and were not ranked.

- a. Hold regional workshops with other relevant state agencies for local public works staff to encourage use of recycled materials in public works projects.
- b. Study refillable glass bottle markets for possible expansion; identify legislative barriers to reuse of glass bottles.
- c. Develop a model city/county ordinance for encouraging diversion and use of recycled materials.
- d. Develop contingency plans with the Office of Emergency Services for handling and use of inert solid materials and other debris following emergencies.
- e. Working with industry, assist with the development of warranties and guarantees of products made with recycled materials.
- f. Encourage removal of zoning barriers at the local level that restrict recycling businesses to inappropriate locations.
- g. Identify landfills that allow free disposal of inert solid materials and work with operators to determine appropriate charges.
- h. Facilitate the establishment of a glass processor in the northern part of the Central Valley.
- i. Ensure that virgin and secondary materials used today can be recycled in the future.
- j. Work with the appropriate agencies to revise building codes to allow use of recycled products and secondary materials when possible.
- k. Explore expansion of AB 2020 to cover food containers and other containers.
- l. Clarify legal definitions of recycled materials.
- m. Clarify permit status of inert solid recycling sites; define inert solid materials that are being recycled as secondary materials in statutes and not as waste.
- n. Assist jurisdictions to increase recovery of steel cans. Develop a public outreach program to increase consumer awareness of the recyclability of steel cans used for food and paint and of aerosol cans. Develop programs to improve the recovery of steel cans from institutional sources (e.g., prisons, schools, hospitals, and military installations).
- o. Inform jurisdictions of end-users (manufacturers) willing to purchase recovered material collected from jurisdictions.
- p. Investigate PUC utility rate structures and regulations to determine the impact on metal processors and steel producers. Investigate methods and policy options to lessen energy costs for metal processors and steel producers.

MATRIX OF STAFF-ASSIGNED PRIORITIES

This matrix identifies actions and their priority as identified in the individual commodity action plans. Note that the assigned priorities are only consistent within each material type, and may not be compared between material types (for example, a medium priority for compostables may be more important than a high priority for ferrous metal).

The matrix also identifies the mission statement goal corresponding to each action. The four goals are:

1. Increase market demand for materials supplied by California's recycling programs.
2. Increase demand for recycled content products.
3. Promote efficient local waste diversion systems.
4. Promote long-term competitiveness of secondary materials collection and use.

The criteria used by staff to assign priorities was based entirely on market development considerations and did not consider policy or funding needs.

Action	Compost		Plastic		Mixed Paper		Glass		Pavement		Metal		ONP		OCC	
	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal
1	H	2			H	2	M	2	H,M	1,2	H	2	H	2	H	2
2	H	3	H	3	H	3	L,M	3,3					H	3,4	H	3,4
3	H	4	H	2,3,4			H,M	4,3			M	4	H	4	H	4
4			H	3	H	3	M,L	3,3	L	3			H	3	H	3
5			H	1	H	1			M	4			M	1	M	1,3
6	M	4	H	1,2	H	3	H	1	M,H,L	1,2,3						
7	M	3	H	3	H	4	M	3					H	3	H	3
8			H	1	H	1							H	1	H	1
9	M	4	H	1	H	4			H,H	2,1	M	1				
10			H	4	H	2							H	2	H	2
11					H	2					H	3	H	2	H	2
12			H	4	H	1							H	1	H	1
13	H	2	H	1,2			H	1	M,L	1,2						
14	M	4		M	4	H	4	H	4				M	4	M	4
15	H,H	3,4	H,H	3,1			M	1					M	1	M	1
16	H	1	H	4			H	1	H,L	1,3						
17	M	3	H	3					M	1						
18	H	1					H	4	H	4						
19	H	1	H	2			H	4								
20	H	2					M	2	H,L	2,2						
21			H,M	4,2			M,H	2,3	M	3	L	1				

Priority identified
in action plan

Goals: 1-Secondary material demand
2-Finished product demand

3-Collection efficiencies
4-Long term competitiveness

Action	Compost		Plastic		Mixed Paper		Glass		Pavement		Metal		ONP		OCC	
	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal	priority	goal
22	H	1					H	3	H	4						
23	L	2			M	1			M	4			M	1	M	1
24	M	2	H	2			M	1								
25	L	2			M	1							M	1	M	1
26	M,L	3,4	H	3			M	3							M	3
27	L	2	M	1			M	1								
28	L	2											H	2	H	2
29					H	3			H	2						
30	H	1														
31			H	1												
32	L	3									L	4	M	4	M	4
33					M	2										
34	M	4														
35	L	2														

Priority identified
in action plan

Goals: 1-Secondary material demand
2-Finished product demand

3-Collection efficiencies
4-Long term competitiveness

ACTION PLAN EXECUTIVE SUMMARIES

This appendix includes the individual action plan executive summaries for the eight commodities listed below. They have been condensed for purposes of this report. Each executive summary addresses the four goals of the Market Development Plan's mission statement.

1. Mixed Wastepaper
2. Compostables
3. HDPE and Unsorted Plastics
4. Glass
5. Ferrous Metal
6. Pavement
7. Newsprint
8. Corrugated Cardboard

SUMMARY OF MIXED WASTEPAPER ACTION PLAN

Each of the actions listed below is categorized under one of two timeframes: FT (fast track) or LT (long-term). (These are timeframes for initiating, not completing, each market development action.) The FT timeframe is between July 1992 and December 1993. The LT timeframe is 1994 and beyond. Within the four groupings, actions are listed in order of priority.

GOAL 1: Increase market demand for mixed wastepaper recovered in California.

- Investigate legislation for a General Obligation Bond Measure and/or Industrial Revenue Bond Act to provide funding for small- to medium-size recycling businesses. (FT)
- Establish a statewide paper recycling advisory task force. (FT)
- Investigate legislation for a low-interest loan program that will provide funding for projects/equipment that use either unsorted mixed office paper (MOP) or unsorted mixed residential paper (MRP). (FT)
- Investigate legislation for one of the following two programs:
 1. a consumer tax credit (for both commercial and residential consumers) for the purchase of products manufactured with mixed wastepaper, such as construction materials, hydromulch, etc.; or
 2. a consumer rebate (for both commercial and residential consumers) for the purchase of products manufactured with mixed wastepaper, such as construction materials, hydromulch, etc. (FT)
 - Investigate legislation for a secondary materials purchase tax credit that would apply towards the purchase of either unsorted MOP or unsorted MRP used to manufacture new marketable products. (LT)

GOAL 2: Increase demand for recycled-content products made with mixed wastepaper.

- Investigate legislation to establish minimum recycled-content standards, with the option of establishing a tradable credits system, for paper and paper-based products purchased in both the private and public sectors. Consider, also, the option of empowering the Board with regulatory authority to establish minimum recycled-content standards. (LT)
- Investigate legislation that would strengthen the postconsumer recycled-content standards for paper and paper products purchased by the State of California. (FT)
- Encourage product manufacturers using paper packaging, through a technical assistance campaign, to increase emphasis on recycled-content attributes of paper packaging. (FT)

- Promote private and public sector purchasing of recycled products made with mixed wastepaper. (FT)

GOAL 3: Promote the development of efficient local mixed wastepaper diversion systems.

- Amend the CIWMB regulations governing the reporting of solid waste composition data in the city & county Source Reduction and Recycling Elements (SRREs) to replace the term "mixed paper" with the terms (and definitions) "mixed office paper" and "mixed residential paper." (FT)
- Develop a statewide mixed wastepaper marketing information database. (FT)
- Conduct a study of materials recovery facilities (MRF) that handle both MRP and MOP to determine optimal sorting methods for upgrading these papers to sorted grades, and provide this information to local jurisdictions. (FT)

GOAL 4: Promote the long-term competitiveness of mixed wastepaper collection and use.

- Design and coordinate a cooperative pilot MRP recycling project between one or more processors handling MRP collected via curbside programs and a nearby mill that will test the unsorted MRP to determine its utility as furnish. (FT)
- Conduct a research and education program to promote design for recycling in paper and paper products, and to reduce or eliminate major recycling contaminants in MOP and MRP. (FT)
- Determine the significance of subsidies to the timber industry, and, if found to be a significant barrier to recycling, investigate legislation to "level the playing field" between virgin and recycled paper production. (FT)

SUMMARY OF COMPOSTABLES ACTION PLAN

Strategies for compostables include joint efforts with other state agencies and industry to overcome barriers and encourage the use of compost and of secondary organic materials (yard, food, and wood waste) as feedstock for recycled products. These strategies are based on research for the draft *Market Status Report: Compost* and on information presented by panelists during the Compostables Market Development Workshop held at the Board on September 8, 1992.

Three major themes recurred throughout the Market Development workshops: 1) the need for a recycling information center or database clearinghouse; 2) the need for marketable, uncontaminated secondary materials; and 3) the need for incentives to promote the use of secondary materials to make recycled products. Other major themes at the Compostables Workshop included the need for product quality standards, the need for a streamlined permitting process, and the need for education on all aspects of composting and recycled products.

GOAL 1: Increase market demand for organic materials supplied by California's recycling programs.

- Complete the Board's composting permit regulations.
- Develop a brochure describing the regulatory requirements.
- Simplify composting permits.
- Assist enforcement agencies in understanding composting.
- Promote the development of product quality standards.

GOAL 2: Increase the demand for compost and other organic recycled content products.

- Expand and monitor the state "Buy Recycled" procurement mandates.
- Establish a promotional campaign to encourage compost use.
- Compile information about alternative uses.
- Use compost/mulch to implement water efficient landscape ordinances.
- Investigate financial incentives.
- Encourage the spread of composting information.
- Promote local niche markets.

GOAL 3: Promote the development of efficient local waste diversion systems.

- Determine collection efficiencies.
- Conduct education programs to reduce contaminants.
- Encourage intermediate transfer facilities.

GOAL 4: Promote the long-term competitiveness of secondary materials collection and use.

- Facilitate public/private information sharing.
- Prepare a research and development (R&D) agenda.
- Establish an information clearinghouse.
- Investigate subsidies or incentives preventing recycled products.
- Educate children K-12 about composting.
- Develop information about variable can rates.

SUMMARY OF HDPE AND UNSORTED PLASTICS ACTION PLAN

The following actions are intended to increase the supply of quality postconsumer plastic resins, stimulate markets, and educate consumers. These strategies are based on research for the *Market Status Report for Plastics* and on information presented by panelists during the Plastics Workshop for HDPE and Unsorted Plastics, held October 8, 1992, at the Board's Markets Development Committee meeting.

The actions are organized according to the more general goals presented in this report. Small liberties have been taken with the wording of the goals to adapt them specifically to plastics.

The ranking of projects in the high and medium categories is somewhat subjective. Project ranking was based on the importance that projects appeared to be given by the panel of experts during the Plastics Workshop and staff's assessment of the effects the project would have on secondary plastic use.

Two major themes recurred throughout the workshop: the need for ongoing research and development of quality postconsumer collection, processing and manufacturing, and the need to develop cost incentives to encourage the use of postconsumer resins as feedstock. Because of California's current economic state, the use of state-initiated incentives, such as a recycling bond act, may be limited at this time. It will be necessary to fine tune the existing programs to determine what additional incentives, if any, are necessary.

The Public Resources Code already mandates specific plastic recycling programs (e.g., minimum-content trash bags and rigid plastic packaging containers). Monitoring activities, encouraging purchase of recycled plastic products, and other strategies presented in this action plan will overcome most obstacles.

GOAL 1: Increase market demand for HDPE and unsorted resins supplied by California's recycling programs.

- Investigate the potential effectiveness of a General Obligation Bond measure and/or an Industrial Revenue Bond Act to provide funding for small- to-medium size recycling businesses; based on this determination, consider potential legislation.
- Develop a detailed information system about viable alternative uses for HDPE and unsorted plastics; focus on higher value-added products.
- Investigate the benefits of promoting consistent and accurate labeling on all packaging stating percentage of postconsumer resin used in the packaging and the percentage of other resin used (this should add up to 100).
- Investigate possible legislation for a statewide low-interest loan program that will provide funding for projects/equipment that use unsorted and/or commingled plastics.
- Promote industry and government partnerships to fund R&D in new technologies and new equipment design to use postconsumer resin.

- Identify small-scale manufacturing processes that can produce high value-added products for local niche markets. Study projects in other states and countries to determine applicability to California market conditions and consumer needs.

GOAL 2: Increase the demand for recycled content plastic products.

- Determine acceptance by the construction industry of high value-added products made from HDPE and commingled plastics.
- Explore other high value-added uses for commingled plastics such as pipe, nursery pots, pallets, and other lumber products.
- Promote "Buy Recycled" to increase federal, state, and local procurement of recycled-content plastic products. Expand the "Buy Recycled" program to include products made with postconsumer resin, such as waste baskets, utility poles, and other creosol treated lumber.
- Develop minimum standards and sample specifications for municipalities to use to purchase products.
- Promote use of recycled plastic products among industry and the public through education, advertisement, labeling and other mechanisms such as: a network to provide information on use of postconsumer resins by consumer products' firms, and more roundtables with all facets of the plastics industry present.

GOAL 3: Promote the development of efficient local waste diversion systems.

- Invest in research and development to develop a new, more cost-effective means of collecting, sorting, and reclaiming plastics; focus on how to deal with contamination and other key processing problems. Consider results of a pilot project in San Francisco and the State of Washington, sponsored by the Partnership for Plastics Progress.
- Evaluate the feasibility of installing equipment at existing facilities to better sort, process, and reclaim unsorted plastics.
- Encourage and actively assist in better communication between suppliers of recycled resins and resource users.
- Provide training and market information to collectors and MRF operators in sorting and high-grading plastics.

GOAL 4: Promote the long-term competitiveness of HDPE and unsorted plastics collection and use.

- Work with the Partnership for Plastics Progress, advocacy groups, and other state agencies to: revise state programs and policies; provide education and outreach; and develop technical issues relating to plastic recycling and products from recycled plastics.
- Investigate possible legislation that would empower the Board to regulatorily establish minimum recycled-content requirements for plastic products. If such authority is given to the Board, the need for specific standards will be investigated and prepared for public comment prior to any regulatory process undertaken.

SUMMARY OF GLASS ACTION PLAN

Markets for postconsumer container glass recycling in California are highly regulated. The majority of post-consumer glass is used by the glass container industry, a mature industry losing market share to aluminum and plastic containers. If supply of scrap glass exceeds demand, as is expected in the future, then alternative markets will have to be aggressively pursued.

The following actions are designed to increase the supply of quality scrap glass, stimulate markets, and educate consumers. These actions are based on research for the *Glass Market Status Report* and on materials presented by expert panelists during the Glass Workshop, held August 20, 1992, at the Board.

The ranking of projects in the high, medium, and low categories is somewhat subjective. Ranking projects as either high or medium was based on the importance that they appeared to be given by the panel of experts during the Glass Workshop. The criteria for placing a project in the low task were based on the quantity of materials that would be diverted if this project were successful and, in some cases, the identification of another agency or the industry as the leader in fulfilling the task.

Two major themes recurred throughout the workshop: the need for a glass recycling information database or clearinghouse, and the need to develop incentives to encourage the use of recycled materials in feedstocks. Because of the current state of the California economy, the use of state-initiated incentives, such as a recycling bond act, may be limited at this time. In addition, the glass recycling efforts in California are already heavily subsidized. Therefore, it will be necessary to fine tune the existing program to determine what additional incentives, if any, are necessary. One area that was determined to be left out of the existing incentive structure is the use of refillable containers.

For many of the actions, the Department of Conservation (DOC), Division of Recycling is identified as the lead agency. Issues involving refillable containers as well as recycling of glass of all types are summarized below. Assigned responsibilities, personnel needs, and timeframes are outlined further in the actions detailed in the main body of the Glass Action Plan.

GOAL I: Increase market demand for glass cullet and for refillable containers.

- Develop detailed information about viable alternative uses and amounts of cullet each use could potentially consume. Focus on high value-added products; this information should provide a basis for a state or regional recycling information center or database. (Priority: High)
- Work with trade unions and construction companies to answer opposition to using recycled materials in construction such as glass foam block and lightweight glass aggregate. (Priority: High)

- Encourage the revision of building codes to allow substitution of recycled glass materials for virgin materials where appropriate. (Priority: High)
- Determine statutory and regulatory barriers to successful reuse (i.e., washing bottles and reusing them). Identify successful reuse glass projects in other states and countries, and identify key variables that make these enterprises successful. (Priority: High)
- Identify small-scale manufacturing processes that can make high value-added products for local markets appropriate for rural areas. Study projects in other states and countries to determine applicability to California market conditions and consumer needs. (Priority: Medium)
- Promote use of cullet in road base and sub-base in Southern California where surpluses of three-color-mix and green glass exist. This is an interim measure until higher and better uses can be developed for cullet. (Priority: Medium)
- Determine if using recycled glass causes problems with existing manufacturing equipment designed to use virgin materials. (Priority: Medium)
- Overcome opposition or reluctance to using recycled materials in public works projects by organizing workshops throughout the state with Caltrans and the DOC and offering to present workshops at professional conferences. (Priority: Medium)
- Provide services to new recycling and reuse businesses and training so that Board staff understand the permits process, can identify other state agencies involved, and can provide adequate information to start-up companies. (Priority: Medium)
- Determine how best to assist business development and encourage use of glass as a feedstock by working with glass-related industries to encourage them to fund R&D in new technologies and new equipment design to adapt existing equipment to use recycled glass. Consider expanding incentives to encourage recycling of food containers. (Priority: Medium)

GOAL 2: Increase demand for recycled-content products and refillable bottles.

- Determine consumer and manufacturer acceptance of products contained in ecoglass containers by establishing a pilot project with the glass industry. (Priority: High)
- Study refillable markets for potential expansion. (Priority: High)
- Develop publicity and outreach programs to focus on recyclability of glass. (Priority: Medium)
- Expand the state "Buy Recycled" program to include purchase of insulation made with recycled glass. (Priority: Medium)

GOAL 3: Promote development of efficient local waste diversion systems.

- Develop information on variable can rates. Such recovery systems will make consumers more aware of what they discard and will promote recycling of glass containers. (Priority: Medium)
- Encourage processor to locate in the northern Central Valley, possibly in the Sacramento Market Development Zone.

- Develop information on collection systems that promote recovery of high quality recycled secondary materials, such as color-separated glass, and contamination-free glass. (Priority: Medium)
- Provide local recycling coordinators with educational outreach materials to promote recycling of glass and correct disposal of contaminants such as ovenware, ceramic coffee cups, wine bottle tops, etc. (Priority: Medium)
- Develop education and information on incentive programs for waste haulers and consumers to reduce breakage and contamination in both curbside and commercial collection programs. Identify programs that are efficiently collecting high quality glass in California and variables that determine successful collection programs. (Priority: Medium)
- Encourage the automotive glass industry to assist with R&D to determine cost-effective recycling methods for laminated glass. (Priority: Low)
- Encourage development of household hazardous waste programs to collect fluorescent lamps for recycling. (Priority: Low)
- Develop information on new colors of glass in the waste stream and how best to recycle slightly tinted bottles. (Priority: Low)

GOAL 4: Promote the long-term competitiveness of secondary materials collection and use.

- Identify any subsidies to industries using only virgin materials and determine how best to "level the playing field" for manufacturers using recycled glass. (Priority: High)
- Encourage consistent and dependable supplies of glass cullet. (Priority: High)
- Consider establishing advanced disposal fees on containers that are not recyclable. (Priority: High)

Most of the recommendations under the first three goals also contribute to the long-term competitiveness of scrap glass in feedstocks and encourage purchase and use of products made with recycled glass.

Obstacles to Implementation

The Public Resources Code (PRC) already mandates the use of recycled glass in containers and fiberglass insulation. The PRC contains provisions for subsidizing glass recycling because the prices for scrap glass do not cover the cost of collection and transport of this glass.

The Board has identified mixed wastepaper, plastics, and compostables as targeted secondary materials for the fast track Market Development Plan. As a result, resources may not be available to implement the identified actions for encouraging markets for cullet.

The Board's involvement in promoting glass recycling and improved markets for products made from recycled glass is limited by a lack of staffing and priorities.

SUMMARY OF FERROUS METAL ACTION PLAN

The market for municipal ferrous scrap operates as a part of the larger market for industrial ferrous scrap. The ferrous scrap market is a well developed and mature industry operating in California. The majority of ferrous metal recovered is processed and shipped out of state. In California the current demand for steel cans in Southern California exceeds supply.

The Ferrous Metal Action Plan identifies existing barriers that impede the supply of municipal ferrous metal, describes factors that lessen the ability of ferrous scrap processors and steel can detinners to compete in California, examines current Board programs to assist the market for ferrous scrap, and presents action strategies for Board programs to promote recovery and use of municipal ferrous metal.

The following proposed action strategies will increase the supply of municipal ferrous scrap, promote the competitiveness of California ferrous scrap processors, and educate consumers and jurisdictions. These strategies are based on research for the *Market Status Report on Ferrous Metal* and on information presented by expert panelists during the Ferrous Workshop, held September 21, 1992, at the CIWMB.

The barriers and strategies presented here are organized according to the four goals presented in the *Market Development Strategic Plan*. The strategies are ranked low, medium, or high based on the importance given by the panel of experts at the Ferrous Markets Workshop. Strategies that divert relatively small quantities of ferrous or may only marginally contribute to municipal ferrous market development are identified as low.

Goal 1: Increase market demand for municipal ferrous scrap recovered from California's waste stream.

- Assist steel producers using CIWMB research and development staff and contract funding to: (1) develop new products from municipal ferrous scrap; and (2) enhance ferrous scrap processing and steel production through technological innovation. (Priority: Medium)
- Develop and disseminate information on current trade policies regarding the North America Free Trade Agreement (NAFTA) and the General Agreements to Trade and Tariffs (GATT). Identify potential trade barriers and their impact on the ferrous scrap market in California and the U.S. (Priority: Low)

Goal 2: Increase the demand for municipal ferrous recycled content products.

- Promote purchase by the state of metal products using municipal ferrous scrap recovered from the state's municipal waste stream. Evaluate and establish a list of possible products for State procurement and evaluate specifications for minimum-content requirements for each product. (Priority: High)

Goal 3: Promote the development of efficient municipal ferrous scrap diversion systems.

- In response to AB 1760, present the *Metallic Discards Management Plan* to the Board for adoption. Develop strategies to implement the recommendations in the plan to encourage and promote a white goods recycling infrastructure. (Priority: High)
- Investigate issues and problems of tin plate producers with current labeling requirements for steel cans in the United States. (Priority: Medium)
- With assistance from the Waste Generation and Diversion Assistance Branches, aid jurisdictions in increasing recovery rates of steel cans. Develop a program to improve the infrastructure to recover steel cans (number 10 can) from institutional sources (prisons, schools, hospitals and military installations). (Priority: High)

Goal 4: Promote long-term competitiveness of municipal ferrous scrap collection and use.

- Identify and evaluate competing methods for collection of municipal and industrial ferrous scrap. Evaluate methods of collection in terms of cost, efficiency, and quality. (Priority: High)
- Promote the design and engineering of metal products for ease of ferrous recovery. Assess the benefits of establishing a task force to work with major fabricators of metal products, Institute of Scrap Recycling Industries, California Resource and Recovery Association and Californians Against Waste on issues related to product design for ferrous recovery. (Priority: Medium)
- Investigate Public Utilities Commission's utility rate structures and regulations to determine policy options to lessen energy costs on intermediate (interruptable) electrical users (metal processors and steel producers). (Priority: Low)
- Study how California metal processors and steel producer(s) can be more competitive with out-of-state processors and producers. (Priority: Low)

SUMMARY OF PAVEMENT ACTION PLAN

Recycling asphalt concrete (AC) and portland cement concrete (PCC) has been successful in California; private industry has taken the lead. The market situation can be considered emerging and rapidly expanding, with numerous entrants.

Strategies outlined in the Pavement Action Plan are designed to increase the use of recycled AC and PCC in road construction and rehabilitation projects, educate staff in public works departments and in the California Department of Transportation's (Caltrans) 12 districts, and educate the public and contractors on the benefits of recycling inert solid materials, such as AC and PCC. These actions are based on research conducted for the *Pavement Market Status Report* and on information presented by expert panelists during the Pavement Workshop held September 29, 1992.

The ranking of actions in the high, medium, and low categories is somewhat subjective. These rankings are based on the apparent priorities given to them during the Pavement Workshop by the panelists. The criteria for placing a project in the low category were based on the quantity of materials that would be diverted if the action were successful and, in some cases, the identification of another agency or organization as the leader in directing the task.

Major emphasis has been placed on clarifying and simplifying the regulatory framework while maintaining environmental standards. The recycling of asphalt pavement has been successful primarily due to the efforts of private industries and some leaders in city and county public works departments. The recycling of this material has been proven technologically possible and cost-effective in most cases. The role of the Board and other agencies such as Caltrans should be to facilitate the use of inert solid materials such as used AC and PCC. (For many of these actions summarized below, Caltrans, not the Board, will be the lead agency.) Responsibilities assigned, personnel needs, and timeframes are outlined further in the actions detailed in the main body of the Pavement Action Plan.

GOAL I: Increase market demand for materials such as reclaimed asphalt pavement (RAP) and AC and PCC for use in pavement products.

- Develop state specifications for use of reclaimed asphalt pavement (RAP) in surface mixes. (Priority: High)
- Develop a state mandate for using recycled materials in pavement applications. (Priority: High)
- Conduct further testing on long-term performance of surface mixes incorporating recycled materials, and disseminate results of performance testing. (Priority: High)
- Ensure Board staff have adequate permits and business development knowledge and training to provide information for potential users of secondary materials such as AC and PCC. (Priority: High)

- Clarify definitions of recycled pavement: (i.e., what constitutes recycled pavement, what constitutes construction and demolition [C&D] waste material); ensure that definitions of inert solid materials are consistent in different codes, regulations, and state specifications. (Priority: High)
- Define postconsumer pavement as a secondary material for recycling rather than a waste material that requires landfill permits for storage and handling. (Priority: High)
- Conduct further testing of cold in-place recycling methods to identify clearly the problems and to develop cost-effective techniques for adjusting to changes in the used pavement. (Priority: Medium)
- Encourage revision of building codes to allow substitution of RAP and used AC and PCC materials in construction projects where appropriate. (Priority: Medium)
- Promote information exchanges such as CALMAX between suppliers of used AC and PCC and users of this material. (Priority: Medium)
- Develop a statewide database that can be accessible to recycling coordinators, public works departments, and others that includes technological information, permitting information, marketing information, and a list of contractors who use RAP, AC, and PCC. Other information included should be cost savings, case studies, and C&D collection sites accepting materials for recycling, as well as test results on demonstration projects. (Priority: Medium)
- Develop information about and specifications for use of low volume AC and PCC for rural areas that do not accumulate large amounts. These uses could include civil engineering projects such as use in retaining walls, culverts, and for fill and drainage projects. (Priority: Low)

GOAL 2: Increase demand for recycled-content products made with used pavement.

- Develop educational outreach programs to educate engineers in public works programs on the benefits of using scrap AC and PCC in local public works projects by conducting regional workshops and seminars for recycling coordinators and public works staff. (Priority: High)
- Develop model demonstration projects at or near Market Development Zone operations and elsewhere throughout the state. (Priority: High)
- Encourage public recognition of using recycled materials in projects such as shopping center parking lots by placing informational signs. Promote openings of parking lots and other public works projects with speeches by local dignitaries, etc. Develop educational outreach materials locally for products made with recycled pavement materials and for end-uses of these materials. (Priority: Medium)
- Encourage industry to fill market niches such as home improvement projects with materials that can be bought locally by contractors and homeowners that contain RAP and recycled AC and PCC. Such projects could be retaining walls, driveways, and patios. Encourage divergent uses of recycled products for local public works department projects such as RAP in asphalt-paved bicycle trails, handicapped accessible facilities or paths, and recycled AC and PCC in sidewalks. Develop specifications for these divergent uses. (Priority: Medium)

- Expand the "Buy Recycled" program to encourage use of recycled materials when paving parking lots in state parks and on other state-owned properties. (Priority: Medium)
- Develop specifications and purchase preference guidelines for local agencies for use of recycled materials in local public works projects. (Priority: Medium)
- Require that some paved trail projects completed with Symms Act trail funds be surfaced with recycled materials as demonstration projects. (Priority: Low)
- Recognize companies and public works departments that have developed innovative uses of secondary materials such as AC and PCC by giving Board-sponsored awards. (Priority: Low)

GOAL 3: Promote the development of efficient local waste diversion systems.

- Develop a model city ordinance for diverting materials such as used AC and PC and for using these materials in pavement maintenance programs. The ordinance should also cover contracts for use in public works projects such as road rehabilitation. (Priority: High)
- Clarify in regulations the "what counts?" issue presented in AB 2494 for counting of inert solid materials in baseline 1990 figures and toward diversion goals. (Priority: High)
- With the Office of Emergency Services develop emergency contingency plans for the storage and recycling of inert solid materials following a disaster such as an earthquake or extensive fire so that these valuable secondary materials are not deposited permanently in landfills. (Priority: High)
- Encourage removal of zoning barriers at the local level requiring that AC and PCC recycling be done only at remote quarry sites rather than near road construction and rehabilitation projects. (Priority: High)
- Identify cities and counties that prohibit use of recycled materials in public works departments and in local private construction. Work with local recycling coordinators to encourage changing ordinances to allow use of recycled materials. (Priority: High)
- Develop technical information on successful and efficient pavement removal techniques that ensure removal of high quality postconsumer AC and PC. (Priority: Medium)
- Assist local recycling coordinators and public works departments in developing educational materials to inform contractors and the public about local opportunities to recycle AC and PC and C&D debris. (Priority: Medium)
- Examine local collection and disposal systems for C&D debris to determine how best to encourage recycling of these materials. (Priority: Low)
- Develop a model tracking program for cities and counties using recycled materials in public works projects so that they can calculate amounts used, costs saved, and other data. (Priority: Low)
- Evaluate programs for cities and counties that have banned inert solids from their landfills to identify any problems such as increased illegal dumping and solutions, as well as the impact on local recycling efforts. (Priority: Low)

GOAL 4: Promote long-term competitiveness of secondary materials collection and use, focusing on scrap AC and PCC.

- Identify landfills statewide that allow inert solids disposal for low or no tipping fees. Work with the landfill operators to determine reasonable charges that more clearly reflect the cost of disposal and/or recycling of this material at the landfills. (Priority: High)
- Identify any subsidies to manufacturers using only virgin raw materials and determine how best to "level the playing field" for manufacturers using recycled AC and PC. (Priority: High)
- Clarify in legislation and regulation the requirements for waste permits for businesses using scrap AC and PC; clarify mining permit issues with the DOC, Division of Mining; use the rebuild LA. "one-stop" permits office as a model to establish a similar office for statewide help on permitting issues. (Priority: High)
- Investigate techniques to ensure that virgin and secondary materials used in roads today can be recycled in the future. (Priority: High)
- Disseminate information on the Board's market development programs and financial assistance that might be available for purchasing equipment for recycling inert solids. (Priority: Medium)
- Develop a financial assistance package to target incremental costs of using recycled materials compared with using virgin materials. Provide assistance through a grants or loans program for these incremental costs. (Priority: Medium)
- Work with industry to develop recycled pavement guarantees and warranties to encourage public use of the products. (Priority: Low)

Obstacles to Implementation

Caltrans is the lead agency in road building and rehabilitation in California. Although its Transportation Laboratory has conducted much research on recycling of pavement throughout the years, it acts in an advisory capacity only to the 12 Caltrans districts. Uses of recycled materials are not mandated.

The Board has identified mixed wastepaper, plastics, and compostables as its targeted secondary materials for the fast track market development program. Therefore, resources may not be available in the immediate future to aggressively promote the recycling of AC and PCC. In addition, AB 2494 has set restrictions on the counting of inert solid materials both in the 1990 base measurements against which cities and counties can measure diversion and also in terms of whether recycling of inert solid materials will count for the 25-percent diversion requirements to be met by 1995. Board staff will develop regulations to implement AB 2494 during 1993, which will further clarify the conditions under which recycling of AC and PCC will count for diversion and in the base measurements.

Board resources have not been focused on recycling inert solid materials. The Board has 0.2 PY in the Market Trends and Analysis Section working on promoting recycling of used pavement and other PCC debris.

Seven additional staff would be needed at the Board to accomplish the goals to facilitate recycling of inert solid materials such as AC and PCC. This figure does not include staff at Caltrans, who would act as lead on many of the suggested projects.

SUMMARY OF NEWSPRINT ACTION PLAN

Each of the actions below is categorized under one of two timeframes: FT (fast track) or LT (long-term). (These are timeframes for initiating, not completing, each market development action.) The FT timeframe is between July 1992 and December 1993. The LT timeframe is 1994 and beyond. Within each of the four groupings, actions are listed in order of priority.

GOAL 1: Increase market demand for old newsprint (ONP) recovered in California.

- Investigate legislation for a General Obligation Bond Measure and/or Industrial Revenue Bond Act to provide funding for small- to medium-size recycling businesses. (FT)
- Establish a statewide paper recycling advisory task force. (FT)
- Investigate legislation for a low-interest loan program that will provide funding for R&D on the recycling of ONP into innovative products (other than paper or paper-board). (FT)
- Form a working partnership with the overseas offices of the California World Trade Commission to promote California ONP (and other wastepaper) to overseas markets. (FT)

GOAL 2: Increase demand for recycled-content products made with ONP.

- Investigate legislation that would increase the annual recycled-content newsprint relative-use requirements for California commercial printers and publishers, as defined in Public Resources Code § 42761. (FT)
- Investigate legislation to establish minimum recycled-content standards, with the option of establishing a tradable credits system, for paper and paper-based products purchased in both the private and public sectors. Consider, also, the option of empowering the Board with regulatory authority to establish minimum recycled-content standards. (LT)
- Investigate legislation that would strengthen the postconsumer recycled-content standards for paper and paper products purchased by the State of California. (FT)
- Investigate legislation that would add insulation and other building materials that can be made with ONP to the materials covered under the state's recycled product procurement laws. (FT)
 - Investigate legislation for one of the following two programs:
 1. a consumer tax credit (for both commercial and residential consumers) for the purchase of non-paper or paperboard products manufactured with ONP, such as cellulose insulation, animal bedding, hydromulch, etc.

2. a consumer rebate (for both commercial and residential consumers) for the purchase of non-paper or paperboard products manufactured with ONP, such as cellulose insulation, animal bedding, hydromulch, etc. (FT)

- Encourage product manufacturers using paper packaging, through a technical assistance campaign, to increase

emphasis on recycled-content attributes of paper packaging. (FT)

- Promote private and public sector purchasing of recycled products made with ONP. (FT)

GOAL 3: Promote the development of efficient local ONP diversion systems.

- Conduct a study of MRFs that sort ONP commingled with other recyclables to determine the costs (quality reduction) versus benefits (convenience, possible cost savings) of collecting ONP commingled as opposed to source separated. (FT)

GOAL 4: Promote the long-term competitiveness of ONP collection and use.

- Conduct a research and education program to reduce or

eliminate major recycling contaminants in ONP, both at the manufacturing level (e.g., self-adhesive address labels) and at the user level (e.g., inclusion of "junk mail" in curbside ONP). (FT)

- Research the problems associated with deinking flexographic inks used in printing newspapers, assess the extent of the problems in California, and make recommendations on how these problems can be overcome. (FT)

- Assign a staff member or Board member Advisor to serve as liaison to California paper recycling industry groups (such as California affiliates of the American Paper Institute and the California Wastepaper Dealers Association). (FT)

- Conduct a study to determine why break-bulk (containerless) shipping is more expensive on the West Coast of the U.S. than on the East Coast, and make recommendations to make break-bulk shipping more competitive with containerized shipping. (FT)

- Determine the significance of subsidies to the timber industry, and, if found to be a significant barrier to recycling, investigate legislation to "level the playing field" between virgin and recycled paper production. (FT)

SUMMARY OF CORRUGATED CARDBOARD ACTION PLAN

Each of the actions below is also categorized under one of two timeframes: FT (fast track) and LT (long-term); these are timeframes for initiating, not completing, each market development action. The FT timeframe is between July 1992 and December 1993. The LT timeframe is 1994 and beyond.

GOAL 1: Increase market demand for old corrugated containers (OCC) recovered in California.

- Investigate legislation for a General Obligation Bond Measure and/or Industrial Revenue Bond Act to provide funding for small- to-medium sized recycling businesses. (FT)
- Establish a statewide paper recycling advisory task force. (FT)
- Investigate legislation for a low-interest loan program that will provide funding for R&D on the recycling of OCC into innovative products (other than paper and paper-board). (FT)
- Form a working partnership with the overseas offices of the California State World Trade Commission to promote California OCC (and other wastepaper) to overseas markets. (FT)

GOAL 2: Increase demand for recycled-content products made with old corrugated containers (OCC).

- Investigate legislation to establish minimum recycled-content standards, with the option of establishing a tradable credits system, for paper and paper-based products purchased in both the private and public sectors. Include, also, the option of empowering the Board with regulatory authority to establish minimum recycled-content requirements. (FT)
- Investigate legislation that would strengthen the postconsumer recycled-content standards for paper and paper products purchased by the State of California. (FT)
- Investigate legislation that would add structural panels and other building materials that can be made with OCC to the materials covered under the state's recycled product procurement laws. (FT)
- Investigate legislation for one of the following two programs:
 - a. a consumer tax credit (to both commercial and residential consumers) for the purchase of nonpaper or non-paperboard products manufactured with OCC, such as structural board, insulation panels, etc.; or
 - b. a consumer rebate (to both commercial and residential consumers) for the purchase of non-paper or non-paperboard products manufactured with OCC, such as structural board, insulation panels, etc. (FT)

- Encourage product manufacturers using paper packaging, through a technical assistance campaign, to increase emphasis on recycled-content attributes of paper packaging. (FT)
- Promote private and public sector purchasing of recycled products made with OCC. (FT)

GOAL 3: Promote the development of efficient local diversion systems for old corrugated containers.

- Investigate legislation to provide low-interest loans to private/non-profit entities for the purpose of collecting and processing OCC from small commercial establishments. (FT)
- Conduct a study of MRFs that sort OCC co-mingled with other recyclables to determine the costs (quality reduction) versus benefits (convenience, possible cost savings) of collecting OCC co-mingled as opposed to source separated. (FT)
- Conduct an educational campaign for small retail businesses (perhaps in concert with the State Chamber of Commerce) to promote the economic and environmental benefits of source separating OCC for recycling. (FT)

GOAL 4: Promote the long-term competitiveness of old corrugated containers collection and use.

- Conduct a research and education program to promote design for recycling in the converting of corrugated and solid kraft boxes, and to reduce or eliminate major OCC recycling contaminants. (FT)
- Research the problems associated with recycling OCC that contains hot melt glues and paraffin waxes; assess the extent of the problems in California, and recommend how these problems can be overcome. (FT)
- Assign a staff member or Board member Advisor to serve as liaison to California paper recycling industry groups such as California affiliates of the American Paper Institute and the California Wastepaper Dealers Association. (FT)
- Conduct a study to determine why break-bulk (containerless) shipping is so much more expensive on the West Coast of the U.S. than the East Coast, and recommend how break-bulk shipping could be made more competitive with containerized shipping. (LT)
- Determine the significance of subsidies to the timber industry, and, if found to be a significant barrier to recycling, investigate legislation to "level the playing field" between virgin and recycled paper production. (FT)