



FIVE-YEAR PLAN

FOR THE

WASTE TIRE RECYCLING MANAGEMENT PROGRAM

(3rd Edition Covering Fiscal Years 2005/06–2009/10)
Report to the Legislature



July 1, 2005

STATE OF CALIFORNIA

Arnold Schwarzenegger
Governor

Alan C. Lloyd, Ph.D.
Secretary, California Environmental Protection Agency

•

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

Rosario Marin
Board Chair

Rosalie Mulé
Board Member

Cheryl Peace
Board Member

Carl Washington
Board Member

(Vacant Position)
Board Member

(Vacant Position)
Board Member

•

Mark Leary
Executive Director

For additional copies of this publication, contact:

California Integrated Waste Management Board
Public Affairs Office, Publications Clearinghouse (MS-6)
1001 I Street
P.O. Box 4025
Sacramento, CA 95812-4025
www.ciwmb.ca.gov/Publications/
(800) CA WASTE (California only) or (916) 341-6306

Publication #620-05-005

 Copies of this document originally provided by California Integrated Waste Management Board (CIWMB) were printed on recycled paper containing 100 percent postconsumer fiber.

Please always print your documents on recycled paper and buy recycled-content products whenever possible.

The statements and conclusions of this report are those of the California Integrated Waste Management Board. The State makes no warranty, expressed or implied, and assumes no liability for the information contained in the succeeding text. Any mention of commercial products or processes shall not be construed as an endorsement of such products or processes.

The California Integrated Waste Management Board does not discriminate on the basis of disability in access to its programs. CIWMB publications are available in accessible formats upon request by calling the Public Affairs Office at (916) 341-6300. Persons with hearing impairments can reach the CIWMB through the California Relay Service, 1-800-735-2929.

Join Governor Schwarzenegger to Keep California Rolling.

Every Californian can help to reduce energy and fuel consumption. For a list of simple ways you can reduce demand and cut your energy and fuel costs, *Flex Your Power* and visit www.fypower.com/.

Table of Contents

Acknowledgements.....	ii
Executive Summary	1
Introduction.....	4
Enforcement and Regulations Relating to the Storage of Waste and Used Tires	5
Enforcement Program Background and Status.....	5
Direction Provided by SB 876.....	6
Objectives.....	6
Performance Measures	6
Activity Description and Budget.....	7
Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State	10
Cleanup Program Background and Status.....	10
Direction Provided by SB 876.....	12
Objectives.....	12
Performance Measures	12
Activity Description and Budget.....	12
Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires	16
Research Program Background and Status.....	16
Direction Provided by SB 876.....	17
Objectives.....	17
Performance Measures	17
Activity Description and Budget.....	18
Market Development and New Technology Activities for Waste and Used Tires	22
Market Development Program Background and Status	22
Direction Provided by SB 876.....	24
Objectives.....	24
Performance Measures	24
Activity Description and Budget.....	25
Waste and Used Tire Hauler Program and Manifest System.....	31
Hauler and Manifest Program Background and Status	31
Direction Provided by SB 876.....	32
Objectives.....	32
Performance Measures	33
Activity Description and Budget.....	33
CIWMB Administration	34
Mandatory Contracts.....	34
Program Evaluation	34
Appendix A: Accomplishments Based on Performance Measures From July 2003 <i>Five-Year Plan</i>	35
Program-Wide Performance Measures.....	35

Enforcement Performance Measures.....	37
Cleanup Performance Measures	43
Research Performance Measures.....	44
Market Development Performance Measures	46
Hauler and Manifest System Performance Measures.....	53
Appendix B: Legislative History	56
Appendix C: <i>California Waste Tire Generation, Markets, and Disposal: 2003 Staff Report</i>	59
Introduction	59
Estimate of Waste Tires Generated	59
Markets for Waste Tires	60
Summary	61
Appendix D: Waste Tire Recycling Management Program’s Publications.....	64

Acknowledgements

This report was prepared by the staff of the Waste Tire Recycling Management Program. Staff would like to thank the tire recycling industry, environmental groups, local and State Agencies, the regulated community, other Board programs, and interested parties that participated in the development of this plan.

This document was made available for public review and input on January 5 and March 3, 2005, before adoption by the California Integrated Waste Management Board on May 11, 2005.

Executive Summary

The California Integrated Waste Management Board's (CIWMB) Waste Tire Recycling Management Program (Tire Program) has had many successes since it began. The annual diversion rate of waste tires has increased from 34 percent in 1990 to more than 73 percent in 2003. Most large tire piles have been cleaned up and the remaining piles of any significance are being dealt with effectively. Remediation efforts at California's last large tire fire site, the Royster stockpile in Tracy, are expected to be complete by the end of 2005. A statewide enforcement infrastructure is beginning to expand significantly. This will help ensure that the stockpiling of waste tires never becomes a problem again. Markets for tire-derived products are beginning to strengthen, and potential new market opportunities are being pursued. Research into new and promising technologies is forming a vision of a future with fewer waste tires generated and virtually all being recovered for higher and better uses.

Still, the State of California is faced with a great challenge as well as an environmental and economic opportunity. Even though California's enforcement infrastructure is growing, effectively addressing all the enforcement issues on a statewide basis is still difficult. Additionally, current markets for tire-derived products are not sufficient enough to divert all the waste tires generated in California. As a consequence, abandoned waste tires pose potential threats to public health and safety and the environment. This is particularly true with respect to fire hazards and mosquito-borne diseases such as West Nile Virus. Furthermore, the loss of waste tires through disposal or fire constitutes an unacceptable loss of a valuable resource. Finally, many old tires are dumped or piled in low-income and/or minority rural and urban settings, such as reservations, rancherías, and communities along the California-Mexico border, raising environmental justice concerns.

The latest tire industry survey showed that Californians generated about 1.1 waste tires per person in 2003, or 39 million * waste tires. Approximately 28.5 million of these waste tires were diverted to productive end uses. However, this means that about 10.5 million would still have to be diverted to achieve the CIWMB's zero waste goals with respect to tires. The diversion amounts and categories from the California Waste Tire Generation, Markets, and Disposal: 2003 Staff Report are below.

Number of California Waste Tires Diverted From Disposal, 2003

(Millions of Passenger Tire Equivalents)

Reuse	1.8	ADC ¹	4.9	TDF (Co-Generation) ³	1.3
Crumb Rubber	3.4	Other Uses ²	2.7	TDF (Cement) ⁴	5.8
Rubberized Asphalt Concrete (RAC)	2.6	Retread	4.4	Imported ⁵	2.0
Civil Engineering	1.8	Exported	1.8	Total Diverted	28.5

¹ Alternative Daily Cover

² Other uses include applications for waste tires like roofing shingles, sandals, weights, and agricultural uses.

³TDF (Tire-Derived Fuel) combusted in power plants.

⁴TDF combusted in kilns for making cement.

⁵ Imported tires are subtracted from the other diversion categories to make the total diverted accurate for California.

In light of these great opportunities and formidable challenges, Board members, stakeholders, and Board staff have mapped out a new, more focused strategy for this biennial revision of the *Five-Year Plan for the Waste Tire Recycling Management Program (Five-Year Plan)*.

* Appendix C contains the report, *California Waste Tire Generation, Markets, and Disposal: 2003 Staff Report*.

This new strategy has the following four program priorities:

1. Strengthen and expand markets for Rubberized Asphalt Concrete (RAC), civil engineering applications, and other tire-derived products.
2. Expand the statewide enforcement and surveillance program through cooperative efforts with local and State enforcement agencies.
3. Clean up and remediate the remaining tire piles identified through surveillance and enforcement programs.
4. Increase the useful lifespan of tires through product stewardship initiatives and social marketing techniques.

To measure the effective implementation of these priorities, the CIWMB has established the following goals:

- Increase the annual waste tire diversion rate to 90 percent by 2015.
- Conduct inspections according to statutory requirements and ensure that 100 percent of facilities are in compliance or under compliance orders by 2007.
- Eliminate all identified illegal tire piles by 2010.
- Reduce the number of tires generated by Californians from the current 1.1 to .75 per person per year by 2015.

Furthermore, the CIWMB determined that the primary focus of this biennial update of the *Five-Year Plan* would be to build a sustainable statewide market infrastructure for tire-derived products. A solid market infrastructure for RAC, tire-derived aggregate (TDA) in civil engineering applications, rubber mat and cover products, and the development of new tire-derived products is essential to divert the remaining tires still being landfilled or disposed of illegally. In order to make these markets sustainable, there must also be a steady flow of materials, sufficient capacity, diverse product lines, and continuous viable uses entering the marketplace. The activities identified in this *Five-Year Plan* are designed to help enhance and solidify the infrastructure that manages waste tires from generation to end-product by partnering with local jurisdictions, the private sector, and other State agencies. By building strong sustainable markets in California, the intrinsic value of waste tires as a raw material can be increased, diminishing the current economic advantage of landfilling tires.

Recent revisions to the waste tire manifest program will help track the flow of tires, while simplifying and reducing the cost to stakeholders for manifesting and tracking tires. The CIWMB recently completed the rulemaking process to establish hauler penalties and manifest requirements for the retread industry, which further improved the process. More assistance and guidance will be available to businesses that make value-added products from waste tires. These businesses will be offered assistance with operating and marketing plans, as well as equipment purchases. However, building and expanding these markets will not occur overnight. In the meantime, California must remain vigilant in protecting the public and the environment from the hazards presented by discarded tires. The waste tire program's surveillance and enforcement efforts must remain strong and expand through local government involvement. Grants and technical assistance provided to local jurisdictions for surveillance, enforcement, and cleanup activities are crucial to guarantee adequate statewide coverage.

The overall success of the CIWMB's waste tire program requires a matrix of approaches and the cooperation of all stakeholders. A partnership between State government and local governments is vital to protect the environment and significantly impact the tire-derived product market. Tire and auto manufacturers can play a key role in the success of both national and international programs through product stewardship efforts. The public can contribute by buying longer-lived tires and maintaining them properly. Eventually, other businesses and the public will help the markets by purchasing tire-derived products.

The Tire Program will also work with the Grants Administration Unit and the Legal Office to identify procedural activities for all tire grant programs which could be modified or eliminated without disrupting the

CIWMB's ability to properly administer grants in a fiscally responsible manner. Several recommendations have been developed, such as combining:

1. Split-funded projects into one grant agreement.
2. Multiple RAC projects into one grant agreement.
3. Amnesty and cleanup grant programs into one application submittal.

Further recommendations that could be adopted without Board or Executive staff approval will be implemented immediately. Other recommendations will be presented to the Executive Office or the Board for consideration and approval.

This third edition of the *Five-Year Plan* proposes a comprehensive and ambitious approach to manage California's waste tires, and is intended to comply with both the spirit and intent of the California Waste Tire Recycling Act and subsequent legislation augmenting the original act (subsequent legislation—Chapter 838, Statutes of 2000, Escutia, Senate Bill (SB) 876). However, the ultimate measure of success will be how well these program activities divert waste tires to the highest and best use, and how effective enforcement and surveillance programs protect human health and the environment. This third edition of the *Five-Year Plan* presents the following budget for CIWMB's Tire Program for fiscal years (FY) 2005/06–2009/10.

Table 1: Total Tire Program Funding for Fiscal Years 2005/06–2009/10

Program Areas	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10	Totals for All Fiscal Years
Enforcement	\$8,270,948	\$8,270,948	\$8,120,948	\$8,120,948	\$8,120,948	\$40,904,740
Cleanup*	\$7,025,292	\$6,507,292	\$5,728,656	\$5,828,656	\$5,728,656	\$30,818,552
Research	\$1,460,573	\$1,710,573	\$669,368	\$1,169,368	\$669,368	\$5,679,250
Markets	\$10,375,055	\$12,473,055	\$14,192,896	\$13,842,896	\$14,442,896	\$65,326,798
Kuehl Program**	\$1,663,000	\$0	\$0	\$0	\$0	\$1,663,000
Hauler and Manifest Program	\$876,482	\$776,482	\$776,482	\$776,482	\$776,482	\$3,982,410
Administration	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$7,500,000
Mandatory Contracts	\$1,373,650	\$1,373,650	\$1,373,650	\$1,373,650	\$1,373,650	\$6,868,250
Program Evaluation	\$0	\$0	\$250,000	\$0	\$0	\$250,000
Totals	\$32,545,000	\$32,612,000	\$32,612,000	\$32,612,000	\$32,612,000	\$162,993,000

* The cleanup element contains the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program. Its spending authority is separate from the Tire Fund's spending authority.

** The Kuehl RAC Grant Program sunsets in FY 2005/06. A similar program will take its place under the Markets element.

Introduction

This third revision of the *Five-Year Plan* has been developed based on the experience gained from previous programs and projects and input from public and private stakeholders, other states and countries, Board members, and staff. Since the Tire Program began, many reports and studies have been done. For instance, the report entitled California Waste Tire Program Evaluation and Recommendations: Final Report (pub. #540-99-006, also referred to below as the “AB 117 Report”) included recommendations to address such waste tire issues as elimination of waste tire stockpiles; protection of public health, safety, and the environment; and an increase in sustainable economic markets for waste tires in California. Many of the recommendations in the AB 117 Report provide the foundation for this plan.

Specific reports and studies concerning tire-related issues such as pyrolysis, devulcanization, consumer tire-buying habits, market status and trends, and many more help provide guidance to the CIWMB for setting priorities. Other reports from outside sources are also taken into consideration. For instance, in November 2003, the Senate Advisory Commission on Cost Control in State Government issued a report to the California State Senate entitled *CIWMB's Administration of the Waste Tire Recycling Management Program*. This report included findings and recommendations on how best to increase the effectiveness of the CIWMB's Tire Program. All the findings and recommendations in the report have been considered in the development of this biennial update.

Both the CIWMB and the California Environmental Protection Agency (Cal/EPA) adopted strategic plans that guide executive and management staff in establishing priorities and designing programs. These documents helped frame the parameters of this *Five-Year Plan*. Within that frame, the CIWMB held numerous workshops, roundtable discussions, and conferences to solicit input and to share information. Furthermore, the Special Waste Committee held four public meetings in September 2004, October 2004, January 2005, and March 2005 to obtain input from stakeholders on this biennial update of the *Five-Year Plan* in its draft form. This biennial update of the *Five-Year Plan* is the culmination of past efforts, Board member guidance, and stakeholder input. The plan is divided into the program elements identified in [Public Resources Code \(PRC\) section 42885.5\(b\)](#). These elements are:

- Enforcement and Regulations Relating to the Storage of Waste and Used Tires.
- Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State.
- Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires.
- Market Development and New Technology Activities for Waste and Used Tires.
- The Waste and Used Tire Hauler Program and Manifest System.

This version of the plan has been pared down considerably. Older, less relevant, and duplicate information has been removed. The format has been improved for clarity, consistency, and readability. References to reports or legislation may include a brief description and a link to an electronic version rather than more detailed information. Each of the program elements will consist of five sections:

1. *Program Background and Status*. This section will include background information, a summary of achievements, and an overview of planned activities.
2. *Direction Provided by SB 876*. This section lists the specific statutory language that directs the particular program element.
3. *Objectives*. This section lists the objectives the program element is designed to achieve.
4. *Performance Measures*. This section identifies how individual or groups of related element activities can be measured to show how well objectives and goals are met.
5. *Activity Description and Budget*. This section includes an overall chart of element activities and describes each activity with associated budget information by fiscal year.

Enforcement and Regulations Relating to the Storage of Waste and Used Tires

Enforcement Program Background and Status

At the onset of the Tire Program's enforcement program, the primary goal was to clean up the numerous legacy tire piles throughout the state. Between 1994 and 2002, the enforcement program identified 894 sites and brought nearly 74 percent into compliance with storage requirements or had the waste tires removed. These enforcement efforts, which included notices of violation (NOV), cleanup and abatement orders, administrative complaints, and referrals to local district attorneys' offices and the State Attorney General's office resulted in operators or property owners cleaning up approximately 6.1 million waste tires.

Since 1994, the CIWMB has issued 440 cleanup and abatement orders, 170 administrative complaints, and 41 criminal complaints. Additionally, since 1997, the CIWMB has imposed \$808,018 in liens and \$589,845 in fines against owners and operators who have failed to comply with Tire Program requirements. So far, the CIWMB has collected \$156,368 of the imposed fines. Using historical cost data from State-funded tire cleanups, the CIWMB estimated that the enforcement program saved California more than \$8.9 million in potential costs for removing waste tires from illegal sites.

In fiscal year 1998/99, the CIWMB entered into an interagency agreement with the California Highway Patrol (CHP) to assist in identifying illegal disposal of tires through aerial surveillance. The CHP provided aerial photos that enabled staff to identify 357 sites suspected of storing waste tires. Of these sites, the CIWMB was able to confirm and investigate 199 sites resulting in various enforcement actions. The CHP is currently assisting with investigations and surveillance, serving enforcement orders, conducting check points to find unregistered haulers, training local police departments, and providing security in situations where peace officer support is needed. To enhance the surveillance program, the CIWMB is partnering with the California State University San Jose Foundation and the NASA Ames Research Center to conduct a pilot project using satellite imagery to find illegal tire piles and monitor large permitted tire piles.

Since many of the initial legacy piles have been brought into compliance, the CIWMB has redirected resources to focus more on maintenance and prevention of illegal tire piles through permitting, inspection, and the waste tire hauler registration and manifest programs. Additionally, ongoing ground and aerial surveillance assist enforcement efforts by identifying remote illegal tire sites and illegal activities of tire businesses. These programs, especially inspection and surveillance programs, generate enforcement cases on an ongoing basis. However, the overall number of illegal tire pile cases has been declining. Since 2002, staff investigated and took enforcement actions on 62 illegal tire sites. As of November 2004, only 24 illegal tire piles were identified and awaiting enforcement action.

Prior to 2002, most of the inspections, investigations, and enforcement efforts were conducted by five CIWMB field staff. Their efforts focused on enforcement of cases identified through complaints and referrals from other agencies. As a way to provide consistent, uniform, and proactive enforcement throughout California, the CIWMB has significantly increased the number of local agencies engaged in tire enforcement activities through the tire enforcement grant program. In fiscal year 2002/03, only eight waste tire enforcement grants were awarded. By fiscal year 2003/04, the number of participants increased to 24, and as a result of inspections, surveillance, and initial enforcement activities, these grantees were responsible for remediating 266 piles of tires (more than 99,000 tires) illegally dumped. From fiscal year 2003/04 funding, the CIWMB awarded grants to 36 local agencies that covered enforcement activities for 59 percent of California's population. This year the state's coverage increased to 71 percent of the state's population, with the Board awarding 39 grants funded from fiscal year 2004/05.

Direction Provided by SB 876

PRC section 42889:

“Funding for the waste tire program shall be appropriated to the board in the annual Budget Act...for the following purposes:

(b)(4) To pay the costs associated with the development and enforcement of regulations relating to the storage of waste tires and used tires. The board shall consider designating a city, county, or city and county as the enforcement authority of regulations relating to the storage of waste tires and used tires, as provided in subdivision (c) of Section 42850. If the board designates a local entity for that purpose, the board shall provide sufficient, stable, and noncompetitive funding to that entity for that purpose, based on available resources, as provided in the five-year plan adopted and updated as provided in subdivision (a) of Section 42855.5. The board may consider and create, as appropriate, financial incentives for citizens who report the illegal disposal of waste tires and used tires as a means of enhancing local and statewide waste tire and used tire enforcement programs.”

Objectives

The enforcement program has the following objectives:

1. Support existing and new waste tire enforcement grantees by providing stable funding and ongoing assistance.
2. Develop measures and set a baseline to assess the effectiveness and efficiency of the waste tire enforcement grant program.
3. Inspect tire businesses on a routine bases to assure compliance with all State laws and regulations.
4. Provide ongoing surveillance for illegal tire sites. Identify and investigate all suspected illegal sites through ground and aerial surveillance and respond to complaints.
5. Bring all known sites that are operating illegally (without the proper permits and/or operating outside the terms and conditions of their permits, or State minimum standards) into compliance through a progressive enforcement program.
6. Expand the statewide coverage of inspection, enforcement, and surveillance of waste tire business (generators, haulers, and end users).
7. Manage and evaluate a tire database that will collect and store the necessary information for an effective program.

Performance Measures

The enforcement program will use the following measures to evaluate success in achieving its objectives:

1. Assess waste tire enforcement grantee performance by conducting annual reviews on cost effectiveness, program efficiency, number of inspections, enforcement activities, equipment costs, and how the grantee meets the terms and conditions of the grant Agreement, and then prepare a baseline report by 2008.
2. Track the number of inspections conducted for specific types of tire facilities within the set timeframes—for permitted facilities, once every year or every 30 months; for haulers and exempt and excluded facilities, once every two years; and for generators, once before 2008.
3. Track and report on identified illegal waste tire sites (through CHP surveillance or local enforcement) to determine if the number is increasing or decreasing on an annual basis.
4. Track and report the number of all tire sites, generators, end users, and haulers (whether permitted, exempted/excluded, or illegal) found in violation and brought into compliance as the result of NOV's, cleanup and abatement orders, and administrative complaints.
5. Correlate the number of inspections for specific types of facilities and the corresponding number of documented violations, and then establish a baseline by 2007.

6. Increase the waste tire enforcement grantee coverage in the state to 80 percent by 2008.
7. Increase State inspections in the jurisdictions without grantees by 50 percent by 2008.
8. Track the number of inspections conducted in relation to the number of program staff and number of grantee staff and establish a baseline effort by 2007.

Activity Description and Budget

The enforcement program will implement a two-pronged approach to statewide enforcement. This approach will use local enforcement entities wherever possible and State resources in “gap” areas. However, the enforcement program will provide ongoing assistance to local jurisdictions and oversee the entire effort. Table 2 provides a list of activities and associated budgets for the Enforcement and Regulations Relating to the Storage of Waste and Used Tires element.

Table 2: Budget for Enforcement and Regulations Relating to the Storage of Waste and Used Tires

Program Area	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10
Staffing and Administration	\$1,720,948	\$1,720,948	\$1,720,948	\$1,720,948	\$1,720,948
Surveillance and Enforcement Assistance	\$350,000	\$350,000	\$300,000	\$300,000	\$300,000
CDAA Enforcement Case Assistance	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Local Government Waste Tire Enforcement Grants	\$6,000,000	\$6,000,000	\$6,000,000	\$6,000,000	\$6,000,000
Database Development	\$100,000	\$100,000	\$0	\$0	\$0
Totals	\$8,270,948	\$8,270,948	\$8,120,948	\$8,120,948	\$8,120,948

1. **Staffing and Administration:** The enforcement program element consists of 14.84 staff positions and includes administrative and other costs associated with implementation of enforcement goals.

Activity Funding

FYs 2005/2006–2009/10\$1,720,948 per fiscal year*

* *Estimate of staffing and administrative costs*

2. **Surveillance and Enforcement Assistance:** Through interagency agreements, the CIWMB will continue to leverage resources from CHP and the Air Resources Board to conduct aerial and ground surveillance. This surveillance will identify illegal tire piles and assist with investigations and surveillance activities associated with illegal dumping and illegal transportation of waste tires. Information gained from these surveillance activities will be used for various enforcement actions, including NOVs, cleanup and abatement orders, and administrative complaints.

Additional services provided through these interagency agreements will include enforcement activities that require law enforcement expertise or peace officer status, legal processing services, assistance with waste tire hauler and manifest training, local policy departments training on tire laws, and more vehicle checkpoints throughout the state.

Finally, in fiscal year 2004/05, the CIWMB approved a pilot project for satellite imagery. If it proves successful, staff will expand the use of satellite imagery to locate and monitor waste tire disposal sites in California.

Activity Funding

FYs 2005/06–2006/07.....\$350,000 per fiscal year
FYs 2007/08–2009/10.....\$300,000 per fiscal year

3. **California District Attorney’s Association (CDAA) Assistance:** The CIWMB’s legal office normally prosecutes administrative enforcement penalty actions to ensure uniformity of enforcement and to expedite processing. However, certain cases, such as multimedia cases, can be more effectively handled by local district attorneys’ offices. Unfortunately, some rural jurisdictions do not have the resources to handle waste tire misdemeanor cases. In fiscal year 2001/02, the CIWMB established a two-year pilot program with the California District Attorney’s Association (CDAA) to assist these jurisdictions. This pilot project proved successful. Therefore, the CIWMB will continue to work with the CDAA to refer criminal and civil cases to local district attorneys. The CDAA will provide circuit prosecutor and investigator services to pursue criminal and civil actions.

Activity Funding

FYs 2005/06–2009/10.....\$100,000 per fiscal year

4. **Local Government Waste Tire Enforcement Grants:** PRC section 42889(b)(4) allows the CIWMB “to consider designating a city or county, or city and county as the enforcement authority of regulations relating to the storage of waste and used tires.” This section also states that if the CIWMB designates a local entity for this purpose, it must provide sufficient, stable, and noncompetitive funding to that entity, based on available resources.

The purpose of this grant program is to enhance the statewide waste tire enforcement infrastructure in California. This grant program will augment the CIWMB’s enforcement efforts in overseeing the proper management and flow of waste tires throughout the state. Eligible county and city jurisdictions can use these funds to identify waste tire sites, conduct waste tire facilities inspections, investigate illegal tire disposal activities, review waste tire hauler documents, issue NOVs, and ensure that tire dealers, auto dismantlers, tire haulers, and others comply with all applicable laws, storage standards, and manifest requirements. The priorities for this grant program are to:

- Offer a sufficient, stable, and non-competitive funding source.
- Ensure consistent statewide inspection and enforcement coverage.
- Assure cost-effective and successful local waste tire enforcement programs.
- Streamline the grant program application, annual renewal, and reporting process.
- Conduct evaluations to assess Grantee performance and enforcement program effectiveness.

Participation in this grant program has increased more than fourfold over the last three years. There were just 8 grant applicants in fiscal year 2001/02, 25 in fiscal year 2002/03, and 36 in fiscal year 2003/04. As a direct result of the waste tire enforcement grants, local agencies have a much more vital and expanded role in enforcement.

Activity Funding

FYs 2005/06–2009/10.....\$6,000,000 per fiscal year

5. **Database Development:** The current database systems do not track and manage the universe of tire information effectively. To address this issue, the CIWMB determined that the multitude of various tire information databases must be combined into one comprehensive database. The Waste Tire Management System (WTMS) database project will combine the following databases:

- WTMS database, which manages tire haulers, generators, end users, manifests, and complaints.
- Grants Management System (GMS) database, which manages data for all the tire grants.
- Solid Waste Information System (SWIS), which tracks facility inspections (not generator and hauler inspections), enforcement actions, permits, and remediation information for all tire facilities and solid waste facilities in the state.
- Practice Master, which tracks enforcement action history once a tire case has been referred to CIWMB's legal office.
- California Highway Patrol (CHP) database, which is used to track information from CHP flyover.
- Other databases that track various tire information including databases used for contracts, the annual report, etc.

To date, CIWMB staff has:

- Created a scannable, standardized inspection form for use in the field by enforcement staff and grantees. These inspection forms must be turned in monthly to be scanned into the WTMS database. The information in these forms will include the number of inspections completed by the CIWMB and individual grantees, types of violations noted, number of sites issued an NOV, and referrals to the CIWMB (6,600 inspections have been scanned into the system since July 1, 2004, when the form was introduced).
- Developed the inspection page in the WTMS database reflecting the information collected from the scanned inspection forms.
- Developed several reports providing statistical information regarding inspections by CIWMB or grantees, and NOVs.

Next, CIWMB staff will integrate the aforementioned databases and include other tire-related information into the WTMS database by:

- Incorporating the CHP flyover information into the current the WTMS complaint module.
- Developing a module to manage remediation and a link to databases containing local cleanup and amnesty day grant information.
- Developing the permitting module in the WTMS database by pulling permitting information from the SWIS database.
- Providing a link to databases containing information on tire-derived products, research, and promotion of tire recycling.

Activity Funding

FYs 2005/06–2006/07.....\$100,000 per fiscal year

Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State

Cleanup Program Background and Status

[PRC section 42846](#) allows the CIWMB to perform any cleanup, abatement, or remedial work required to prevent substantial pollution, nuisance, or injury to the public's health and safety at waste tire sites where the responsible parties have failed to take appropriate action. These efforts may entail stabilizing piles until they can be removed, removing all waste tires, and/or remediating the site after the tires are removed. In general, these waste tire sites are referred to the waste tire stabilization and abatement program once the tire enforcement program has exhausted enforcement efforts.

From the time the cleanup program began in 1994, the CIWMB has used contractors to remediate or stabilize illegal waste tire sites. Since 1995, the CIWMB has removed more than 771,128 tons of illegal waste tires and contaminated debris from 52 sites for a total cost of over \$39.5 million. However, due to several major tire fires and the complicated enforcement issues surrounding the remaining waste tire sites on the short-term remediation list, there has been a decrease in the number of sites remediated. Beginning in 2001, remediation efforts were focused on cleaning up the Westley tire fire site. Then in 2003, the CIWMB directed staff to extinguish any smoldering tires at the Tracy tire fire site prior to the long-term remediation efforts that began in the spring of 2003. The majority of the long-term remediation funds allocated in 2004 and 2005 have been spent on work at the Tracy tire fire site.

In addition, the CIWMB has been pursuing enforcement actions and site access on recalcitrant owners of waste tire sites. Due to the success of these enforcement efforts, several sites on the list have been remediated by their owners. Continuing efforts are expected to result in the completion of six short-term remediation projects by the end of 2005. Another factor contributing the decrease in remediation action taken in recent years is that the CIWMB spent significant resources pursuing the complicated enforcement and resultant legal actions surrounding the Sonoma waste tire sites, which have the largest accumulation of waste tires awaiting remediation.

While the number of sites remediated each year has generally decreased since 1999, the cost of cleanup has varied significantly depending on the number of large projects undertaken any given year. Since 1995, the average cost for cleanup ranges from \$0.40 to \$2.82 per tire removed, depending on the complexity and legal issues associated with the remediation project. The following table lists annual remediation activities.

Table 3: CIWMB Annual Remediation

Year	Number of Sites	Tons of Tires Remediated	Remediation Cost
1995	6	21,544	\$870,832
1996	6	4,114	\$389,487
1997	9	283,292	\$1,367,760
1998	8	448,833	\$2,726,196
1999	15	13,345	\$2,848,992
2000	5	46,029*	\$3,705,430
2001	1	36,209*	\$2,162,000
2002	2	214,417*	\$11,624,345
2003	2	27,707*	\$2,002,383
2004	2	148,833*	\$9,859,548
2005	2	59,942*	\$1,984,784
Totals	52	771,128	\$39,541,757

* These totals include tons of contaminated debris removed from the long-term remediation projects.

The purpose of the local government waste tire cleanup matching grant program is to facilitate the removal, transport, and reuse/recycling/disposal of waste tires from illegal tire piles and areas where illegal dumping has occurred along public right-of-ways. This is done by providing grants to local governments and Native American reservations and rancherías. Grantees remediated nearly 900,000 illegal waste tires, as indicated in the following table.

Table 4: Local Government Remediation Grants

Fiscal Year	Number of Sites	Number of Tires Remediated	Amount Awarded
1997/98	8	140,290	\$151,410
1998/99	4	28,116	\$51,323
1999/00	6	178,400	\$213,126
2000/01	0	0	*
2001/02	8	115,200	\$458,609
2002/03	10	163,900	\$602,642
2003/04	14	252,500**	\$712,286
2004/05	15	TBD	\$693,936
Totals	65	878,406	\$2,883,332

* No funds available—sunset of tire fee.

** This is an estimate because all final reports have not been submitted.

Since 1992, the CIWMB has provided more than \$3.4 million to the local government amnesty days grant program. One hundred and forty-seven grants have been awarded to eligible local governments to recover waste tires from the general public. With these grants, local governments develop public education materials on proper maintenance and disposal of automobile tires and hold amnesty day events where the public can drop off waste tires for free. The following table is a summary of the amnesty day grants.

Table 5: Amnesty Day Grants

Fiscal Year	Number of Grants	Grant Award
1992/93	4	\$74,400
1993/94	8	\$177,720
1994/95	13	\$316,287
1995/96	1	\$12,744
1998/99	16	\$176,543
1999/00	26	\$374,043
2000/01	0	*
2001/02	22	\$330,817
2002/03	11	\$321,247
2003/04	29	\$924,674**
2004/05	17	\$704,793
Totals	147	\$3,413,268

* No funds available—sunset of tire fee.

** The number of applicants increased because no matching funds were required.

Direction Provided by SB 876

PRC section 42889:

“These moneys shall be expended for. . . the following purposes:

(b)(5) To pay the costs of cleanup, abatement, removal, or other remedial action related to tire stockpiles throughout the state, including, all approved costs incurred by other public agencies involved in these activities by contract with the CIWMB. Not less than six million five hundred thousand dollars (\$6,500,000) shall be expended by the board during each of the following fiscal years for this purpose: 2001-02 to 2006-07, inclusive.

(b)(9) To pay the costs to create and maintain an emergency reserve, which shall not exceed one million dollars (\$1,000,000).

(b)(10) To pay the costs of cleanup, abatement, or other remedial action related to the disposal of used whole tires in implementing and operating the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program established pursuant to Chapter 2.5 (commencing with Section 48100) of Part 7.”

Objectives

The cleanup program has the following objectives:

1. Eliminate illegal stockpiles with more than 5,000 tires.
2. Increase local government participation in eliminating illegal waste tire stockpiles within their jurisdictions.
3. Direct tires from cleanup to productive end use rather than landfill disposal to the extent costs are reasonable.

Performance Measures

The cleanup program will use the following measures to evaluate success in achieving its objectives:

1. Complete the long-term waste tire remediation projects by June 2007.
2. Complete the short-term waste tire remediation projects referred by the enforcement program and report status of projects to the CIWMB on an annual basis.
3. Increase the number of waste tire cleanup grants issued to local governments on an annual basis.
4. Increase the number of waste tire amnesty grants issued to local governments on an annual basis.
5. Increase the percentage of tires remediated through the farm and ranch cleanup grants issued to local governments on an annual basis.
6. Assess existing tire fire response protocol and update and amend the Uniform Fire Code every five years in cooperation the Office of the State Fire Marshall.

Activity Description and Budget

The cleanup program will continue to remediate sites with CIWMB-managed contractors and grants to local governments for amnesty day events and cleanup of illegal piles. In addition, the CIWMB will provide funding to the farm and ranch solid waste cleanup grant program to further mitigate future accumulations of waste tires. Additionally, the CIWMB will establish an emergency reserve account, which cannot exceed \$1 million, as directed by SB 876. Table 6 provides a list of activities and associated budgets for the element entitled “Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles Throughout the State.”

Table 6: Budget for Cleanup, Abatement, and Remedial Action

Program Area	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10
Staffing and Administration	\$892,292	\$892,292	\$828,656	\$828,656	\$828,656
Long-Term Remediation Projects	\$1,300,000*	\$0	\$0	\$0	\$0
Short-Term Remediation Projects	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Local Government Waste Tire Cleanup Grant Program	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Local Government Amnesty Grants	\$1,000,000	\$1,715,000	\$1,000,000	\$1,000,000	\$1,000,000
Emergency Reserve Account	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Farm and Ranch Solid Waste Cleanup and Abatement Grant Program**	\$333,000	\$400,000	\$400,000	\$400,000	\$400,000
Office of the State Fire Marshal Training	\$0	\$0	\$0	\$100,000	\$0
Totals	\$7,025,292	\$6,507,292	\$5,728,656	\$5,828,656	\$5,728,656

*At the Board's June 2005 meeting, \$300,000 from unused fiscal year 2004/05 funds was reallocated to the Tracy tire fire site contract. Therefore, this \$1,300,000 may be reduced to \$1 million at a later date.

** Funds transferred to Farm and Ranch Solid Waste Cleanup and Abatement Grant Program.

- 1. Staffing and Administration:** The costs for cleanup as estimated in this plan are generally higher than past cleanups. Sites yet to be remediated tend to be more remote and/or more complex than those sites that have previously been remediated. Currently, the cleanup program consists of 5 and 1/3 positions. In fiscal year 2007/08, half a position will be shifted to the Market Development Program element to manage increased activities.

Activity Funding

FYs 2005/06–2006/07\$892,292 per fiscal year*

FYs 2007/08–2009/2010\$828,656 per fiscal year*

*Estimate of staffing and administrative costs

- 2. Waste Tire Stabilization and Abatement Program:** The CIWMB funds both long-term and short-term remediation of illegal waste tire sites with CIWMB-managed contracts. These contracts are awarded for a two- or three-year period. Funds allocated to remediation efforts may roll over from one fiscal year to the next. The CIWMB will prioritize all identified sites to ensure that the most significant sites are addressed first. Projects will be broken out according to their long- or short-term nature:

Long-Term Remediation Projects: To date, the CIWMB has awarded four contracts to carry out long-term remediation. Cost estimates were based on the remediation of the Westley site, which was completed in fall 2002 and included the removal of over 290,000 tons of debris, contaminated soil, and partially burned tires, as well as extensive site restoration. The project was allocated \$11 million over a five-year period. The remediation work was completed in less than three years at a cost of approximately \$17 million. The fiscal year 2001/02 allocation of \$6 million was expended, and the remainder of the funds came from various settlement agreements with the responsible parties. The CIWMB is still working in cooperation with the Office of the Attorney General to pursue cost recovery against the remaining responsible parties. It is anticipated that these efforts will continue at least until the middle of 2005.

Field work at the Tracy tire fire site began in the spring of 2003. Originally, the estimated cost for the entire project was \$9 million, to be funded over a four-year period. This first estimate was not based on any actual field data, since the site was still burning. However, based on further site investigations after the fire was suppressed, the CIWMB determined that the residual contamination was more extensive than originally projected. Ash and pyrolytic oil was observed to be as deep as 25 feet below ground surface. To remove this additional contamination, the funding for the remediation work was increased to \$15.57 million during fiscal years 2002/03 through 2004/05 funds. Another \$1 million will be necessary to finalize the Tracy remediation project, which will make the total remediation cost in excess of \$16.57 million. Current test results have indicated neither the pyrolytic oil nor constituents from the hazardous ash has adversely impacted the underlying groundwater. If future test results show an impact, additional funds will be necessary to address groundwater contamination. If the groundwater remains uncontaminated, it is anticipated the remediation work at Tracy will be completed by the end of 2005.

A total of three contracts have been awarded for the Tracy site totaling in excess of \$17.8 million. One contract was for engineering and environmental services to Levine and Fricke, Inc., in the amount of \$1.25 million. The other two contracts are for site remediation to Sukut Construction, Inc. for \$16.57 million.

Finally, as part of the long-term remediation strategy, the CIWMB entered into interagency agreements with the Department of Toxic Substances Control (DTSC) and the Central Valley Regional Water Quality Control Board to reimburse any costs incurred in overseeing the remedial actions at these sites.

Activity Funding

FY 2005/06.....\$1,300,000*

**At the Board's June 2005 meeting, \$300,000 from unused fiscal year 2004/05 funds was reallocated to the Tracy tire fire site contract. Therefore, this \$1,300,000 may be reduced to \$1 million at a later date.*

Short-Term Remediation Projects: The CIWMB has existing contracts to carry out short-term State-funded remediation of illegal waste tire sites; however, the CIWMB entered into a new contract for fiscal year 2004/05 to ensure continuity. The CIWMB will move aggressively to remediate the sites on the current short-term projects list within the next three years. Thirty-four sites have been identified for short-term remediation. Of these sites, 14 are in the process of being cleaned up as CIWMB-managed remediations, 16 have been approved for CIWMB-managed remediation and are awaiting site access, and enforcement actions are being pursued on the remaining four sites.

Activity Funding

FYs 2005/06–2009/10\$1,500,000 per fiscal year

- 3. **Local Government Waste Tire Cleanup Grant Program:** Under this grant program, local governments including local enforcement agencies, county and city departments, fire districts, code enforcement agencies, and California Indian Tribes are eligible for funding. Grants are awarded to pay for the cost of cleanup, abatement, or other remedial actions related to the disposal of waste tires. Because of revisions to the program criteria in fiscal year 2001/02, participation in the local government waste tire cleanup grant program has increased, as shown in Table 4 above.

The funding for this program has increased an average of 20 percent per fiscal year over the last three years. Finally, the CIWMB approved a cost recovery policy that allows the CIWMB to recover its costs for illegal waste tire remediation where appropriate.

Activity Funding

FYs 2005/06–2009/10\$1,000,000 per fiscal year

- 4. Local Government Amnesty Grants:** This grant program is designed to help divert waste tires from landfill disposal, prevent illegal tire dumping, and educate the public about waste tire recycling and proper tire maintenance. California cities, counties, special districts, other political subdivisions and jurisdictions joined together by formal agreements, as well as California Indian Tribes, are eligible to apply for these competitive grants. An amnesty program allows private citizens to take waste tires, in non-commercial quantities, to a specific location established by the local government administering the grant program.

Activity Funding

FY 2005/06.....	\$1,000,000
FY 2006/07.....	\$1,715,000
FYs 2007/08–2009/10.....	\$1,000,000 per fiscal year

- 5. Emergency Reserve Account:** SB 876 legislation requires that CIWMB create and maintain an emergency reserve account, which shall not exceed \$1 million. These funds will be used to respond to emergencies involving waste tires, such as tire fires.

Activity Funding

FYs 2005/06–2009/10.....	\$1,000,000 per fiscal year*
--------------------------	------------------------------

** This emergency reserve account is subject to change depending on the need or emergencies that arise. Legislation requires CIWMB to maintain \$1,000,000 in this account. However, more than \$1,000,000 may be expended on a yearly basis. If allocated funds are not expended, funds will carry forward to the fund balance in the following fiscal year. A million dollar reserve must be maintained within expenditure authority for emergency purposes.*

- 6. Farm and Ranch Solid Waste Cleanup and Abatement Grant Program:** The purpose of the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program is to remediate solid waste that has been disposed of illegally on farm or ranch properties. SB 876 requires that funds be allocated to pay the costs of cleanup, abatement, or other remedial action related to the disposal of whole waste tires in implementing and operating this program. This program cleans up sites that in the past have acted like a magnet for white goods, used oil, other trash, and waste tires. Cleaning these sites up will help deter future illegal dumping of old tires; therefore, funding is proposed to be increased to \$400,000 for this program starting in fiscal year 2006/07.

Activity Funding

FY 2005/06.....	\$333,000
FYs 2006/07–2009/10.....	\$400,000 per fiscal year

- 7. Office of State Fire Marshall Training:** The CIWMB will continue to work with Office of State Fire Marshall to update the tire fire curriculum, work with appropriate State agencies to develop a tire fire protocol, and work with the Western Fire Chiefs Association to update and amend the Uniform Fire Code. The CIWMB will also take the lead in making certain the most current information is available on the nature of tire fires.

Activity Funding

FY 2008/09.....	\$100,000
-----------------	-----------

Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires

Research Program Background and Status

The CIWMB has investigated a variety of waste tire diversion alternatives and has concluded that a rich mixture of strategies is necessary to ultimately eliminate tires from landfills. To date, projects involving RAC, civil engineering (CE) uses, energy recovery, molded rubber products, and projects that produce crumb rubber have been explored. So far, RAC, CE, and tire-derived fuel applications have shown the most promise for diverting tires from landfill.

The CIWMB has expended significant resources promoting the use of TDA in various civil engineering applications. Through two environmental services contracts with Dana Humphrey Consulting Engineering, the CIWMB provided education on, and promoted the use of, TDA as an alternative to conventional lightweight fill materials in highway construction projects. Up until now, these efforts were focused primarily on the California Department of Transportation (Caltrans), because it is the agency responsible for developing technical standards for highway construction. Staff has coordinated meetings with Caltrans' design engineers, given short courses on the use of TDA in highway construction, and provided both technical and environmental information to regulatory agencies responsible for the oversight of these projects. While Caltrans is an important player in this effort, more emphasis will be placed on city and county public works departments in the future.

Through the CIWMB's previous efforts, Caltrans identified several potential highway projects in which shredded tires could be used as lightweight fill. One of these projects was the Dixon Landing/I-880 interchange project (Santa Clara County) in which tire shreds were used as lightweight fill. This project was completed in August 2001. A second project was the construction of a retaining wall that used TDA as a lightweight backfill material. This project was built in 2003 on Route 91 in Riverside County and used 84,000 tires as TDA. Currently, the CIWMB, in coordination with Caltrans, is developing conceptual designs and conducting field tests to validate a new retaining wall design, which will take advantage of the reduced backfill pressure by using less concrete and steel in its designs. This new retaining wall design project will be constructed in 2005 and will use 250,000 tires worth of TDA.

In another CE application, the CIWMB partnered with the Valley Transportation Authority (VTA) in San Jose to investigate the use of TDA as a vibration-dampening material in VTA's light-rail system. The results of this investigation were very favorable, so VTA used 100,000 tires as TDA in 2,000 feet of light-rail section along its Vasona Line expansion that was completed in 2004. This resulted in significant cost savings because conventional technology for vibration mitigation costs \$500 per foot, whereas TDA costs only \$150 per foot.

Staff will continue to conduct research into the environmental impacts from TDA fills to assist in the development of technical standards for CE applications. This research will require actual monitoring of pilot and field studies to demonstrate and promote CE applications of waste tires.

The CIWMB partnered with Caltrans again to identify potential RAC formulations to test for recyclability using laboratory and field simulations. Once this first phase is completed, the second phase would be to test the recycled RAC formulations in an actual highway construction project. This could be accomplished through a project with a local government or Caltrans.

In 2003, the CIWMB published its report, *Assessment of Markets for Fiber and Steel Produced From Recycling Waste Tires*. This report concluded that while recovered steel has market potential, fiber has few market outlets at this point in time. The report also recommended that the CIWMB should help to improve processor-user communication, which would help develop markets for high-quality tire-derived steel.

Another study, *Evaluation of Waste Tire Devulcanization Technologies*, was completed in 2004. In terms of the potential of producing high-quality devulcanized rubbers, the best technology appeared to be ultrasonic devulcanization. However, this report concluded that under current and likely near-term future conditions, all forms of devulcanization face an uphill struggle to be competitive with virgin rubber. A third study, *Technology Evaluation and Economic Analysis of Waste Tire Pyrolysis, Gasification, and Liquefaction*, was scheduled to be complete by June 2005.

Direction Provided by SB 876

SB 876 includes legislative intent language as follows (from 2000 uncodified law, SB 876):

“(g) The purpose of this act is to do all of the following: . . .(2) Encourage tire manufacturers to promote the use of retreaded and longer-lasting tires, as well as develop recycled-content rubber tires.”

PRC section 42889:

“Funding for the waste tire program shall be appropriated to the board in the annual Budget Act...for the following purposes:

(b(6)) To make studies and conduct research directed at promoting and developing alternatives to the landfill disposal of tires.”

Objectives

The research program has the following objectives:

1. Work with other State agencies, academia, and research and testing laboratories to ensure that engineering curricula contain a wide range of tire-derived product applications.
2. Cooperate with the U.S. Environmental Protection Agency (U.S. EPA), states along the U.S.-Mexico border, and the Mexican government to resolve issues regarding stockpiles of tires located in border regions.
3. Conduct research and establish programs that support and promote new technology, new uses for waste tires, and improvements to products that use California-generated waste tires.
4. Identify research gaps in existing data and determine what areas need further investigation.

Performance Measures

The research program will use the following measures to evaluate success in achieving its objectives:

1. By September 2008, develop curriculum and continuing education credits at the university level for engineers and public works officials regarding the use of RAC and CE uses for waste tires.
2. Support the US-Mexico Border 2012 Program by providing ongoing technical support and educational outreach to Mexican stakeholders as needed.
3. As needed, investigate and evaluate RAC and CE applications to identify obstacles to increased use.
4. By December 2006, establish a testing and certification program that will expedite the use of new products made from waste tires.
5. By June 2006, conduct a life-cycle assessment of various waste tire management methods to determine safety, environmental, and economic tradeoffs.
6. By December 2006, determine the most accurate method currently available to estimate the number of waste tires generated, diverted, and disposed of.

Activity Description and Budget

The research program will concentrate on activities that support increased use of RAC, CE applications, and other tire-derived products. Table 7 provides the budget for the element entitled “Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires.”

Table 7: Budget for Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires

Program Area	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10
Research Staff and Administration	\$485,573	\$485,573	\$369,368	\$369,368	\$369,368
Continuing Education Units and Curricula for RAC & CE Applications	\$0	\$350,000	\$0	\$0	\$0
Border Outreach Activities	\$75,000	\$75,000	\$0	\$0	\$0
CE Applications for Waste Tires	\$0	\$500,000	\$0	\$500,000	\$0
Tire-Derived Product Testing and Certification	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Life-Cycle Assessment of Tire Management Methods	\$250,000	\$0	\$0	\$0	\$0
Generation and Diversion Data Study	\$100,000	\$0	\$0	\$0	\$0
Identifying Market Demand for Tire-Derived Products	\$250,000	\$0	\$0	\$0	\$0
Totals	\$1,460,573	\$1,710,573	\$669,368	\$1,169,368	\$669,368

- 1. Research Staff and Administration:** Currently, 3½ positions support the CIWMB’s research efforts. In fiscal years 2007/08–2009/10, one position will be shifted to the Tire Program’s market development section to manage increased marketing activities.

Activity Funding

FYs 2005/06–2006/07\$485,573 per fiscal year*

FYs 2007/08–2009/10\$369,368 per fiscal year*

* Estimate of staffing and administrative costs.

- 2. Continuing Education Units and Curricula for RAC and CE Applications:** This contract will be used to develop a program for awarding continuing education units (CEU) to engineers and others for taking new or refresher courses regarding RAC and CE applications for waste tires. The contractor will also develop course curricula and materials for engineering students at University of California and California community college (as appropriate) locations regarding RAC (and possibly CE applications). This activity has been identified by stakeholders as a cost-effective option to expose new students to RAC and CE applications and to effectively reach out to existing engineering professionals as part of their continuing education and professional development. Furthermore, it will help build sustainable markets for these applications.

Activity Funding

FY 2006/07\$350,000

- 3. Border Outreach Activities:** Large numbers of tires flow into Mexico each year through both legal and illegal routes. Many of these tires eventually end up being stored near border regions, creating stockpiles that have the potential to cause great environmental damage in border communities in both Mexico and California. This potential environmental threat became apparent when over 200,000 tires caught fire in Calexico in 2003, and because of concerns about fire spreading, California’s Imperial County Fire Department was sent in to help.

The CIWMB has provided tire-related technical information exchange through participation in the US–Mexico Border 2012 Program. The Border 2012 Program is a 10-year, bi-national program designed to protect the environment and public health in a way that is consistent with the principles of sustainable development. Bilateral information exchange and networking to establish and maintain cooperative working relationships has also occurred through Mexican officials’ attendance at CIWMB tire conferences and meetings that CIWMB and Cal/EPA officials attended at similar venues in Mexico. The CIWMB has developed and implemented a training program to assist Mexican tire haulers to meet California’s legal requirements as part of CIWMB’s manifest and tire enforcement programs. Additionally, other Cal/EPA boards, departments, or offices worked with the CIWMB to provide K–12 environmental education training within the border region. The CIWMB will continue these activities using existing staff resources.

However, in recognition of the potential serious threat to the health and safety and the environment of border communities caused by the stockpiles of tires in Mexico, the CIWMB will provide technical outreach. The CIWMB will provide training and establish an ongoing information exchange with Mexican government officials, U.S. EPA, Border States, haulers, and other stakeholders. Furthermore, the CIWMB will work with border officials and others to better understand the flow of used tires into Mexico. Based on the results of these efforts, the staff will recommend changes to improve current California and Mexican waste tire policies, regulations and procedures regarding cross border issues, and markets for tire-derived products in Mexico. The CIWMB will conduct this study in conjunction with the US-Mexico Border 2012 Program.

Activity Funding

FYs 2005/06–2006/07\$75,000 per fiscal year

- 4. CE Applications for Waste Tires:** Although the CIWMB has made significant progress promoting CE applications, there is still much work that needs to be done to establish this use of waste tires as an accepted CE material. This activity will continue CIWMB’s program of investigating new CE uses for waste tires and education of State, local, and private-sector engineers on the use of TDA in CE projects. For research projects focusing on specific CE uses of waste tires, project-specific contracts may be implemented. These projects could include, but are not limited to, erosion control, earthquake dampening, vibration mitigation, and sound walls. This program will be coordinated with the Targeted Outreach for RAC & CE Projects activity (described in the “Market Development and New Technology Activities for Waste and Used Tires” section).

Activity Funding

FYs 2006/07 and 2008/09\$500,000 per fiscal year

- 5. **Tire-Derived Products Testing and Certification:** The time and money required for testing and certification are often-mentioned obstacles to introducing new products or receiving approval from Caltrans and others. This contract would provide testing and certification for new products consistent with specifications and requirements provided by Caltrans, other agencies, and local governments. These monies may also be used to acquire appropriate testing equipment for a State agency or the University of California (or other institutions, as appropriate) and provide for any technology evaluation (such as devulcanization) and tire residuals (such as steel).

Activity Funding

FYs 2005/06–2009/10\$300,000 per fiscal year

- 6. **Life-Cycle Assessment of Tire Management Methods:** This life-cycle assessment (LCA) would be conducted through an interagency agreement with the DTSC. Recently, the CIWMB contracted for an LCA study of biomass conversion technologies. This would be a similar LCA study of waste tire management methods. Specifically, an LCA would quantify the mass flow of materials and energy in and out, emissions and wastes of each process, and the benefits from products produced for each management method. Unit processes would include transportation, processing (shredding, grinding, etc.), end-product manufacture (molded products, asphalt etc.), electricity production, waste treatment, and disposal.

This study would provide the environmental and human impacts of major waste tire management methods that would be characterized and presented comparatively to landfilling. DTSC would review three major tire management methods determined by the CIWMB. Each scenario would include the impacts of transporting and processing tires into end-products, with offset credits given for products produced that offset virgin manufacture or virgin resources (or secondary resources, if appropriate).

DTSC would compare three major waste tire management methods used in California to landfilling by: constructing appropriate and balanced scenarios for comparison, making site visits and gathering pertinent data, assembling a life-cycle inventory for each method, and developing an impact assessment.

Activity Funding

FY 2005/06.....\$250,000

- 7. **Generation and Diversion Data Study:** This study will examine the correlations among the various methods that the CIWMB uses to determine the number of tires generated, diverted, and disposed. The results of the study will address any discrepancies found between generation and disposal numbers, Board of Equalization collection data, Department of Motor Vehicle data, and waste tire manifest data. Additionally, more accurate data collection methods will be identified to assure that traditionally “soft” numbers (in other words, retread and used tire information) are estimated as precisely as possible. Staff will use this information to calculate future diversion and disposal data on waste tire generation, markets, and disposal.

Activity Funding

FY 2005/06.....\$100,000

- 8. Identifying Market Demand for Tire-Derived Products:** Opportunities exist for a variety of products currently produced outside the state to be produced in California. This contract would identify products for which there is an existing market demand that are made elsewhere but could be made in California with recycled rubber, perhaps in combination with other materials such as plastic. The contract would also identify barriers and solutions to issues such as infrastructure, technology, testing, certification, equipment, etc., that would be necessary to bring these products to market or attract the companies currently producing the product to expand into California.

Activity Funding

FY 2005/06.....\$250,000

Market Development and New Technology Activities for Waste and Used Tires

Market Development Program Background and Status

The market development program will focus on developing long-term, sustainable markets for tire-derived products in California. The CIWMB will also investigate market potential for export markets as well. The primary emphasis for this revision of the *Five-Year Plan* will be developing solid markets for RAC and CE applications. However, a broad range of tire-derived products will be required to make the markets in California competitive and sustainable. Therefore, product stewardship, social marketing, curriculum development, and grant programs for other tire-derived products and businesses must also be included. Nevertheless, to ultimately accomplish market success, the CIWMB must find the proper balance between the low cost of disposal and the intrinsic value of waste tires as a commodity.

In the early years of the Tire Program, the CIWMB placed more emphasis on research and innovative product development. While market development is dependent upon research and pilot projects to demonstrate the viability and marketability of various tire-derived product applications, at some point products must be accepted into the marketplace based on real-world applications.

Through the CIWMB research efforts, TDA has been identified as a cost-effective and reliable alternative to lightweight fill materials. As such, the CIWMB will be increasing its promotion of TDA for CE applications. Since 1997, the CIWMB has expended significant resources promoting the use TDA in various CE applications. Table 9 shows that nearly 1 million tires were used in highway engineering, levee reinforcement, and leach field projects. These projects indicate that great market potential exists for using large quantities of waste tires when replicated in other projects throughout California.

Table 8: Waste Tire Civil Engineering Projects

Year	Item	Cost	Number of Tires Used
1997	Levee reinforcement project	\$660,000	45,000
1998	Research of tire shreds in septic leach fields	\$169,400	20,000
2001	Lightweight fill for the Dixon Landing Interchange	\$350,000	600,000
2001	Sound and Vibration Attenuation for Light Rail System	0*	100,000
2003	Lightweight fill for the Route 91 Retaining Wall	\$100,000	84,000
Totals		\$1,279,400	849,000

**After an initial consultation with Board staff and consultants, Valley Transportation Authority paid the cost for the material and construction for this project.*

The levee reinforcement project in an irrigation canal adjacent to the Feather River used about 45,000 waste tires. The tires came from a CIWMB remediation project in Oroville. The levee will continue to be monitored under carefully controlled water flow and pressure conditions. Another pilot project was a septic tank leach field using TDA instead of traditional rock aggregate as the drainage and filter medium. This project was conducted through an interagency agreement with Caltrans to demonstrate the beneficial reuse of tires chips in septic tank leach field construction. The field demonstration portion of this project is complete and the CIWMB is analyzing the data to determine the viability of this application.

Additionally, the CIWMB and Caltrans worked together on the Dixon Landing Project, which demonstrated (in an actual highway application) that TDA properties allowed it to replace conventional lightweight fill material while reducing costs. The CIWMB also partnered with the Valley Transportation Authority (VTA) in San Jose to investigate the use of TDA as a vibration-dampening material in VTA's light-rail system. Several East Coast states have successfully used tire shreds as lightweight fill in many highway projects.

At their own expense, VTA used 100,000 tires as TDA in 2,000 feet of light-rail section along its Vasona Line expansion in 2003 and 2004. The initial results were favorable and staff is assisting VTA with monitoring the performance.

In addition, the Route 91 project in Southern California used 84,000 tires as lightweight fill material in a retaining wall. The CIWMB and Caltrans are developing conceptual designs and conducting field tests to validate a new retaining wall design, which will take advantage of reduced backfill pressure by using less concrete and steel in its designs. The second phase of this retaining wall study will be constructed in 2005. This test section will use TDA made from 250,000 waste tires.

The success of these projects has prompted Caltrans to issue a letter to its district directors stating that the use of tire shreds has proven to be an economically feasible alternative where conditions warrant the use of lightweight fill. In fact, this letter specifically said, "Districts shall consider tire shreds as a first option when lightweight fills are recommended for projects. After economic and technical analysis, if tire shreds are not selected then those reasons shall be documented and send to James Davis, Deputy Division Chief, Geotechnical Services." As a result, the CIWMB anticipates many more projects coming forward, both at the State and local levels, which have the potential to divert millions of waste tires from disposal.

RAC paving projects are beginning to expand in California. When compared to conventional asphalt, RAC saves money, is safer in wet conditions, is quieter, and lasts longer. The CIWMB is successfully promoting the benefits of RAC through conferences, the RAC technical centers, and other outreach efforts. Another way the CIWMB will promote markets is by working with California's college and university system to develop curriculum for both RAC and CE applications. Furthermore, the CIWMB will provide funds for projects and equipment through grants, contracts, and interagency agreements, which will lead to greater RAC usage.

Caltrans reports annually to the CIWMB about projects that use waste tires. These reports, covering 1999–2003, show that Caltrans used over 5.1 million waste tires in RAC projects throughout the state. Many local governments are also using RAC for projects. For instance, since 1992, the City of Thousand Oaks has paved hundreds of miles of lanes with RAC using nearly 1 million tires. The cities of Sacramento and San Diego and Los Angeles County are following suit. One of the primary focuses of the CIWMB's new campaign to promote environmentally preferable products for the State and local transportation industry will be to identify where RAC can and should be used, and then work with Caltrans and local jurisdictions to affect decision making.

Another potential market for waste tires is molded rubber products. While this niche market is not projected to consume large numbers of waste tires, it is important to have a rich variety of outlets for crumb rubber to assure a long-term sustainable market. Furthermore, many of these tire-derived products have benefits over conventional alternatives. For instance, rubberized sidewalks help keep tree roots from destroying the sidewalks, and these more resilient sidewalks are easier on joggers' and walkers' joints. Playground and track mats are safer than some other options. Weed abatement mats can save State agencies and local governments money by reducing the need for herbicides and maintenance staff. Other transportation-related tire-derived products can effectively replace existing products like top-hats and road cones. To help stimulate these markets, the CIWMB will provide funding through tire-derived product grants, the Sustainable Building Program, and other business assistance programs. These programs will consider the number of waste tires used per project, costs per tire, and feasibility to determine funding opportunities.

Finally, the CIWMB will be examining and promoting the application of new technologies such as using nitrogen to fill tires instead of air. Nitrogen helps stabilize a tire's inflation pressure, making the tire last longer. "Smart-tire" devices that alert the driver when a tire is under-inflated or that automatically inflate a tire can also increase tire longevity. The CIWMB will be also be working with stakeholders to identify new product lines to pursue and cutting edge technology in the manufacturing process.

Direction Provided by SB 876

PRC section 42889:

“Funding for the waste tire program shall be appropriated to the board in the annual Budget Act...for the following purposes:

(b)(7) To assist in developing markets and new technologies for used tires and waste tires. The board’s expenditure of funds for purposes of this subdivision shall reflect the priorities for waste management practices specified in subdivision (a) of PRC Section 40051.”

Objectives

The market development program has the following objectives:

1. Increase the use of RAC and CE applications by providing funds and technical assistance to State agencies and local governments.
2. Increase the purchase of tire-derived products (not RAC or material for CE applications) by providing services and funding to State and local agencies to offset costs and promote sustainable purchase practices.
3. Increase statewide public awareness on purchasing longer-lived tires, proper care and maintenance, and supporting local use of RAC and CE applications using social marketing techniques designed to include cultural and ethnic considerations.
4. Increase the production capability and cost-effectiveness of processing waste tires into value-added products by offering help with business and marketing plans and equipment upgrades.
5. Increase the life span of tires by engaging in product stewardship initiatives with tire and automobile manufacturers, other state governments, federal agencies, and industry and consumer associations.

Performance Measures

The market development program will use the following measures to evaluate success in achieving its objectives:

1. Increase the percentage of waste tires diverted from landfill disposal from 73.5 percent to 85 percent by 2010.
2. Establish a baseline for current usage of RAC by State agencies and local governments by June 2006, and increase the use of RAC by 15 percent by 2010.
3. Establish a baseline for current usage of CE applications by State agencies and local governments by June 2006, and increase the use of CE applications by 10 percent by 2010.
4. Establish a baseline for current purchase of tire-derived products (not RAC or material for CE applications) by State agencies and local governments by June 2006, and increase purchases by 15 percent by 2010.
5. Provide business assistance services to 25 businesses and document successes and obstacles by 2010.
6. Reduce the number of waste tires generated in California from 1.1 to .9 per person per year by 2010.
7. By 2010, increase the percentage of Californians who purchase longer-lived tires and properly maintain their tires by 20 percent using the baselines established in the CIWMB publication entitled *Consumers’ Tire-Buying Habits and Their Knowledge of Tire Maintenance, Recycling, and Disposal* (publication #622-03-004).
8. Increase the promotion of tire-related resources and haulers listed in the CalMAX publication and website by conducting focused outreach by 2007.
9. Measure the number of businesses applying for the Waste Reduction Awards Program (WRAP) that are using auto and tire-related resources by 2007.

10. Maintain at least 10 percent of the number of vendors that display tire-derived products at the CIWMB’s annual recycled product trade show.

11. Establish a baseline for the average number of tires used in green building grants.

Activity Description and Budget

The market development program will focus on tire-derived products that use the largest number of tires. Therefore, significantly more resources will be devoted to RAC use and CE applications. In addition, a focused outreach effort will promote the use of RAC and CE projects to local jurisdictions. Moreover, the CIWMB will work with the University of California and community colleges to develop course curricula to ensure that future generations of engineers will consider using RAC and TDA. Table 10 provides the budget for the element entitled “Market Development and New Technology Activities for Waste and Used Tires.”

Table 9: Budget for Market Development and New Technology Activities for Waste and Used Tires

Program Area	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10
Waste Tire Market Development Staff and Administration	\$780,237	\$780,237	\$960,079	\$960,079	\$960,079
National Product Stewardship Institute Sponsorship for Tires	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Social Marketing Campaign to Promote Sustainable Practices	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Targeted RAC Incentive Program	\$3,827,000	\$2,432,818	\$2,847,817	\$2,622,817	\$3,112,817
Continuation of RAC Use Grant Program	\$0	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Civil Engineering Grants and Contracts	\$500,000	\$1,500,000	\$2,500,000	\$2,500,000	\$2,500,000
Tire-Derived Product Grants	\$1,792,818	\$2,400,000	\$2,400,000	\$2,400,000	\$2,400,000
Tire Business Assistance Program	\$1,500,000	\$1,750,000	\$2,000,000	\$2,000,000	\$2,000,000
Targeted Outreach for Tire-Derived Projects	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000
Support of Other CIWMB Market Development Activities	\$515,000	\$650,000	\$500,000	\$500,000	\$500,000
Tire Forums	\$100,000	\$0	\$125,000	\$0	\$110,000
RAC Technology Centers	\$250,000	\$350,000	\$350,000	\$350,000	\$350,000
State Agency Partnerships to Promote the Use of Tire-Derived Products	\$400,000	\$400,000	\$300,000	\$300,000	\$300,000
Subtotal	\$10,375,055				
RAC Grants (Kuehl Bill)	\$1,663,000	\$0	\$0	\$0	\$0
Totals	\$12,038,055	\$12,473,055	\$14,192,896	\$13,842,896	\$14,442,896

- 1. Staff and Administration:** The existing five staff positions, one supervisor, and one branch management position will continue to conduct the program, and 1½ additional positions will be shifted from the remediation and research sections starting in fiscal year 2006/07 to manage the increased marketing activities.

Activity Funding

FYs 2005/06–2006/07\$780,237 per fiscal year*
 FYs 2007/08–2009/10\$960,079 per fiscal year*

* Estimate of staffing and administrative costs

- 2. National Product Stewardship Institute Sponsorship for Tires:** This sponsorship will help facilitate national product stewardship discussions with other states, USEPA, and other interested parties. Approaches to be discussed may include increased recycled content, rolling resistance, tire longevity, smart-tire technology, and other similar items. This \$10,000 will be applied annually to sponsor the Product Stewardship Institute, as needed.

Activity Funding

FYs 2005/06–2009/10\$10,000 per fiscal year

- 3. Social Marketing Campaign to Promote Sustainable Practices:** To follow up on the tire-care survey conducted by California State University, Chico and the community-based social marketing pilot project conducted by the California State University San Marcos Foundation, the social marketing campaign will develop a non-traditional media campaign, based in whole or part, on techniques developed to primarily reach the underserved minority communities statewide. Findings revealed in the San Marcos Foundation study show that providing a prompt in the form of a windshield decal, tire pressure gauge, or both, yielded an increase in intentions to check tire pressure. Using non-traditional media-based marketing concepts, the contractor will educate the public on buying longer-lived tires, proper tire care, use, and disposal, and will promote other tire-derived products. This project will be conducted in conjunction with Targeted Outreach for RAC and CE Projects.

Activity Funding

FYs 2005/06–2009/10\$300,000 per fiscal year

4. RAC Grants

Targeted RAC Incentive Program: This program will be for first-time users of RAC and will involve incentive grants to influence local government agencies to use RAC. In addition, the CIWMB will contract for a RAC technical expert to provide support to local governments and Caltrans. This program will be conducted in conjunction with Targeted Outreach for RAC and CE Projects.

Activity Funding

FY 2005/06.....\$3,827,000
 FY 2006/07.....\$2,432,818
 FY 2007/08.....\$2,847,817
 FY 2008/09.....\$2,622,817
 FY 2009/10.....\$3,112,817

Continuation of RAC Use Grant Program: This program will be similar in scope to grants provided through legislation (Chapter 671, Statutes of 2002 , Kuehl, SB 1346) for using RAC in local government paving projects; however, the CIWMB will have the ability to set criteria for this program to address changing market issues.

Activity Funding

FYs 2006/07–2009/10\$1,500,000 per fiscal year

- 5. **Civil Engineering Grants and Contracts:** These contracts and/or grants to State agencies and local governments will be used for project engineering, materials, and other costs associated with civil engineering projects. Projects in which TDA is used in applications such as lightweight fill, gas collection at landfills, drainage layers, erosion control, or vibration dampening layers in light rail applications will be targeted.

Activity Funding

FY 2005/06.....\$500,000
FY 2006/07.....\$1,500,000
FYs 2007/08–2009/10\$2,500,000 per fiscal year

- 6. **Tire-Derived Products Grants:** These grants replace the grants for playground cover and for track and other recreational surfacing programs by providing funds based on the number of California waste tires used. Grants would be provided to local government entities for playground covers, tracks, recreational surfaces, and other rubberized products, such as sidewalks, top hats (used in the transportation field), landscape covers, weed abatement, tree wells, and mulch.

This new grant program would involve a streamlined grant process. Local government entities would submit an application used to determine grant eligibility. Eligibility would be based on whether an applicant is an official government entity authorized to purchase products for the jurisdiction in which it is located. Grant award amounts would be determined based on the number of tires diverted by the proposed project. A cap amount would be set per tire used, such as \$10 per tire diverted. In this way, projects that diverted the most tires per dollar spent would receive the most benefit from the program.

Individual grant awards would be limited to \$100,000 per applicant. All eligible applicants would be funded unless the program were over-subscribed. At that point, a lottery system would be used to determine who would receive funding from that specific eligible applicant pool.

Activity Funding

FY 2005/06.....\$1,792,818
FYs 2006/07–2009/10\$2,400,000 per fiscal year

- 7. **Tire Business Assistance Program:** This program is designed to increase demand for tire-derived products by building the capacity and improving cost efficiencies of tire-derived product businesses. Business owners often have expertise in one or two major areas, but may lack experience in other critical areas. Eligible businesses may apply for assistance to: (1) evaluate and improve their business plan and operations, (2) enhance marketing efforts, (3) test and certify new products, and (4) purchase necessary equipment. Staff will use a two-phase approach to identify areas of need and to provide the appropriate assistance.

Phase 1 consists of an independent business consultant, under contract with the CIWMB, who will conduct a general business needs assessment. This consultant will work with the applicant and CIWMB staff to perform a comprehensive analysis of the business and prepare a business needs assessment. This assessment will identify opportunities for improvement and associated cost estimates. In phase 2, the applicant can request services or reimbursement for equipment identified in the needs assessment.

Service or reimbursement costs cannot exceed \$100,000 per applicant, per year. Examples of assistance include, but are not limited to:

- General Business Assistance (developing/adjusting a business plan, personnel issues, suppliers, business/capital structure, accounting systems and controls, website, etc.).
- Technical Assistance (efficient plant design, manufacturing process improvement or optimization, inventory control systems, etc.).
- Marketing Assistance (developing/modifying marketing plan, pricing, promotion, packaging, distribution, cooperative marketing, ad placement, trade shows, etc.).
- Product Testing and Certification (Caltrans, Underwriters Laboratory, etc.).
- Reimbursement for identified equipment purchase or upgrade.

This program will be run in cooperation with the Recycling Market Development Zone program.

Activity Funding

FY 2005/06.....	\$1,500,000
FY 2006/07.....	\$1,750,000
FY 2007/08-2009/10	\$2,000,000 per fiscal year

8. Targeted Outreach for Tire-Derived Projects: This is an integral component of the strategy to influence State and local government entities to increase the number of RAC and CE projects within their jurisdictions and, in general, to purchase tire-derived products. The CIWMB will contract with a public relations firm to perform outreach tasks and to coordinate other related efforts designed to promote the use of RAC, TDA, other tire-derived products, and other environmentally preferable products. This contractor will serve as the project director, coordinating all participants’ activities to ensure a cohesive program that makes efficient use of resources in the implementation of the marketing plan. Furthermore, funds will be available from the Integrated Waste Management Account to expand this effort to include other recycling content products, such as, compost, recycled plastic products, construction and demolition debris.

To initiate this program, the CIWMB will establish an advisory group consisting of local government associations (such as the League of California Cities and the California State Association of Counties), industry associations, academia, technical experts, and CIWMB staff. This group would first identify areas of the state that have not used RAC or TDA/civil engineering projects. Then the group would identify proposed conventional projects within those areas that could be replaced with RAC or TDA projects. At that point, a team of technical experts (including those from the two Rubberized Asphalt Concrete Technology Centers in the state—RACTC), public relations specialists, and Board members and staff would meet with decision-makers within the jurisdiction to provide information on why use of RAC or TDA projects would be a longer-term, more cost-effective alternative to more conventional methods. This team would also provide information on other incentive programs that would make their RAC or TDA project even more cost-effective. CIWMB technical experts (contracted and in-house staff) and RACTC representatives would also provide ongoing support. The targeted outreach program will be conducted in conjunction with the RAC and CE technical expert consultants and the Social Marketing Campaign to Promote Sustainable Practices activity.

Activity Funding

FYs 2005/06–2009/10	\$400,000 per fiscal year
---------------------------	---------------------------

- 9. Support of Other CIWMB Market Development Activities:** This is a combination of various activities (sustainable building, CIWMB’s annual Environmentally Preferable and Recycled Product Trade Show, CalMAX, and WRAP) into a single item. This will provide flexibility regarding program funding to management while demonstrating an ongoing commitment to other CIWMB activities. Funds will be allocated to the following projects:

Environmentally Preferable and Recycled Product Trade Show: This annual baseline funding will continue to support the Environmentally Preferable and Recycled Product Trade Show, aimed at increasing markets for recycled-content and environmentally preferable products of all kinds, including tire-derived products and materials.

Cal/MAX: CalMAX is a free service designed to help businesses find markets for non-hazardous materials they may have traditionally discarded. CalMAX helps businesses, industries, and institutions save resources and money. In a new section that includes tire haulers, CALMAX will include listers with wanted or available tire byproducts, crumb rubber, or waste tires. CalMAX will feature waste tire-related articles in its Creative Reuse or CalMAX Connections articles twice a year. Catalog distribution averages about 7,500 per quarter. The articles also appear on the CalMAX website, which receives about 33,000 hits per month.

Waste Reduction Awards Program: The State of California's Waste Reduction Awards Program provides an opportunity for California businesses to gain public recognition for their outstanding efforts to reduce waste through efficient use of resources and other waste prevention practices. All businesses and private nonprofit organizations with California facilities are encouraged to apply. The following question from the 2005 WRAP application on special wastes and vehicle efficiency asks applicants about use of recycled-content products or how applicants extend tire life.

“Special Wastes and Vehicle Efficiency

14. [i] Company cars and vehicle fleets can be hidden generators of solid waste and other special wastes—everything from tires and trim to fluids and filters. What consideration does your organization give to managing the vehicles in a more environmentally sound manner? Describe how your organization uses recycled-content products or extends the life of tires and oil. For example, the use of retread or high-mileage tires, re-refined oil, high-efficiency oil filters, proper interval oil changes, and non-mercury switches are more environmentally sound considerations.”

CIWMB staff will collect information detailing business policies in the area of business efficiency. Efforts would also include an increase in outreach efforts to automotive and tire-related businesses through WRAP.

Sustainable Building Projects: Green building projects funded through contracts and grants will promote the use and design of building products containing California-derived recycled rubber. This aim is to be accomplished through (1) the purchase of tire products for construction projects or (2) the expansion of an existing green building program to include a tire aspect or the implementation of a program that already includes the tire facet (funds to be used only for the tire aspect). The projects will be administered through CIWMB’s existing Sustainable Building Program.

Green Lodging Certifications: These certifications are part of the CIWMB's Greening of Government effort to ensure that hotels associated with the CIWMB’s tire forums are certified under the California Green Lodging Program.

Activity Funding

FY 2005/06.....	\$515,000
FY 2006/07.....	\$650,000
FYs 2007/08–2009/10	\$500,000 per fiscal year

10. Tire Forums: CIWMB will hold tire workshops, forums, and/or training. These tire events will provide attendees with up-to-date information on CIWMB’s waste tire management processes. They provide a venue to discuss all aspects of waste tire management, including hauling, manifests, cleanup, proper disposal, recycling technologies, and research and market development activities. These forums offer a venue for Board Members, staff, and stakeholders to meet and focus on issues of common concern.

Activity Funding

FY 2005/06.....	\$100,000
FY 2007/08.....	\$125,000
FY 2009/10.....	\$110,000

11. Rubberized Asphalt Concrete Technology Centers (RACTC): The RACTCs are located in Los Angeles and Sacramento and provide statewide technical assistance to local governments through direct consultation, conducting local and regional workshops, providing informational materials, and a website.

Activity Funding

FYs 2005/06–2009/10	\$225,000 per fiscal year for the Southern California RACTC
FY 2005/06.....	\$25,000 for the Northern California RACTC
FYs 2006/07–2009/10	\$125,000 per fiscal year for the Northern California RACTC

12. State Agency Partnerships to Promote the Use of Tire-Derived Products: CIWMB will partner with other State agencies to identify cost-effective tire-derived products that can replace existing products purchased. As part of this effort, these State agencies will be required to provide follow-up reports that detail how successful any replacement products perform, and also whether the product would be purchased in the future. Additionally, any rubber product purchased or manufactured would have to be made with 100 percent California waste tire rubber.

Activity Funding

FYs 2005/06–2006/07	\$400,000 per fiscal year
FYs 2007/08–2009/10	\$300,000 per fiscal year

13. Kuehl RAC Grant Program: Legislation passed in 2002 (Kuehl, SB 1346) directs CIWMB to offer grants to local governments for use of rubberized asphalt concrete. PRC section 42872.5 sets a subsidy of \$2.50 per ton of RAC projected to be generated. The code specifies that the project shall use a minimum of 20 pounds of crumb rubber per ton of asphalt and prescribes that eligible projects range in size from 2,500 to 20,000 tons. Grant awards shall be \$6,250 to \$50,000. (For comparison, conventional asphalt costs approximately \$40 per ton, while RAC ranges from \$35 to \$90 per ton.)

Activity Funding

FY 2005/06.....	\$1,663,000
-----------------	-------------

Waste and Used Tire Hauler Program and Manifest System

Hauler and Manifest Program Background and Status

The original waste tire manifest system was created in 1995 to provide documentation of waste tire transactions between the tire generator, tire hauler, and the end-use facility. A copy of the manifest form was left with each of the respective parties as proof of the tire transaction. The form was retained at the place of business for three years so it could be reviewed by CIWMB staff or authorized representatives if requested. Unfortunately, since the information was not provided directly to the CIWMB, there was no simple way to track tire movement.

To better track the flow of waste tires in California, the Legislature passed SB 876 in 2000, which required the CIWMB to develop and implement a uniform statewide waste and used tire manifest program. This legislation stated that every person who transported 10 or more waste tires would have to hold a valid tire hauler registration and use State-issued decals and manifests. Prior to obtaining registration, a prospective hauler would also be required to post a \$10,000 bond. Furthermore, tire haulers would have to register with the CIWMB annually, possess manifests during the transport of waste or used tires, transport only to legally authorized end-use facilities, and return the completed manifest to the generator of the waste tires, if so requested. The law also required that a person who received tires from an unregistered hauler had to report that hauler to the CIWMB by providing the name, address, phone number, and license plate number of the unlicensed hauler.

The hauler and manifest program consists of two separate components: (1) registration and manifesting and (2) enforcement. Enforcement efforts against haulers during fiscal year 2003/04 resulted in significant fines summarized in the Enforcement Program element. In a typical year, the CIWMB registers more than 800 California waste and used tire haulers and more than 7,000 vehicles. Registrations expire annually at the end of each calendar year. The CIWMB sends renewal packages to registered haulers well before the end of the year to ensure haulers can renew their registrations in a timely manner. Licenses of haulers who do not renew by the end of the calendar year are cancelled.

Current law allows exemptions from waste tire hauler registration requirements under certain conditions, which include:

- Persons hauling nine or fewer tires.
- Persons hauling using a government vehicle or persons employed by either local, State, or federal government and who are not hauling tires for hire.
- Persons hauling tires through the State without loading or unloading tires.
- Persons hauling tires for agricultural purposes, as defined in statute.
- Common carriers hauling tires on a back-haul.
- Haulers inadvertently carrying tires commingled with solid waste that are not economically feasible or safe to remove.
- Persons who receive a letter from the local enforcement agency (LEA) for a one-time haul to the landfills or permitted destination site.

The hauler and manifest program went into full scale operation in July 2003. Although this new system provided useful information on waste tire flow (including import and export data), and has proven useful as an enforcement tool to investigate potential violators, the full promise of a system to track waste tires from “cradle to grave” has not been fully realized to date. Among the problems encountered was the voluminous amount of paperwork that was required, which prompted numerous complaints from the regulated community and strained the CIWMB’s ability to compile and integrate the information.

Therefore in 2004 and 2005, the CIWMB conducted workshops to gather input from stakeholders on how best to improve the system. Working closely with stakeholders, the CIWMB streamlined and simplified the original process for complying with the manifest program requirements. For instance, participants are now able to transmit tire manifests and tire trip log information electronically to the CIWMB. In addition, further expansion of CIWMB's electronic data transfer process will allow web-based data entry capabilities. The current manifest and trip log forms were re-evaluated to identify opportunities for improvement. As a result, the CIWMB developed a revised comprehensive trip log (CTL) form, which was adopted in February of 2005. The revised CTL form contains the same information as the previous manifest and trip log forms; however, it condenses this information onto a single form for reporting purposes. Staff anticipates that the CTL form will reduce the total volume of paperwork by up to 60 percent and simplify the process for haulers.

Direction Provided by SB 876

SB 876 legislation mandated changes to the hauler and manifest program. In particular, it provides for a reform to the manifest system and the development of a new manifest form. SB 876 mandated the following:

1. "Close the loop" on accountability by requiring that copies of each manifest are returned to CIWMB for monitoring.
2. Increase from four to nine the maximum number of waste and used tires that can be transported without having to obtain a waste tire hauler permit.
3. Provide for "one-time hauls" to support amnesty days and individual cleanup of small tire piles.
4. Enhance the manifest system and make the manifest available in electronic format, which would make it possible to submit information to the CIWMB electronically.
5. Change the placement of the decal from the driver's side door to the lower right-hand corner of the windshield.
6. Increases the penalties levied for violations of the PRC pertaining to waste and used tire hauling from \$5,000 to \$25,000.

Under PRC section 42961.5, the manifest is referred to as the "California Uniform Waste and Used Tire Manifest" and must be originated by the generator. In the past, the manifest was distributed to registered haulers and it was their responsibility to provide a copy to the generator when the tires were picked up and after the tires reached the end-use destination (if the generator requested a copy).

With the new mandates put in place by SB 876 (PRC section 42950 et seq.), the California Uniform Waste and Used Tire Manifest is currently being distributed to generators and end-use facilities, in addition to haulers. One of the first tasks accomplished as a result of the new mandates was to identify waste and used tire generators, haulers, and end-use facilities, despite the fact that the number is always in a state of flux, since waste tire locations are constantly opening and closing during the year. Recent changes in the manifest program will retain manifest program accountability by generators, haulers, and end-use facilities, but will vest reporting responsibilities in the haulers, thus significantly reducing paperwork.

Objectives

The hauler and manifest program has the following objectives:

1. To complement and support the CIWMB's waste tire enforcement program by providing comprehensive and auditable data on waste tire transactions between generators, haulers, and end-use facilities, thereby reinforcing compliance with waste tire statute and regulation and reducing the incidence of illegal waste tire disposal.
2. To provide information on tire movements within the state and across borders to support tire diversion and market development activities.

Performance Measures

The hauler and manifest program will use the following measures to evaluate success in achieving its objectives:

1. By December 2006, determine the percentage of identified waste and used tire generators, haulers, and end-use facilities that are not submitting manifest information or that are showing discrepancies.
2. By 2006, determine the percentage of waste tire enforcement program cases where the manifest system information has been used to assist CIWMB staff and local enforcement agencies.
3. By 2006, track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling.
4. In 2006, determine the number of identified used and waste tires generated, using CIWMB’s historical data that reported under the paper and electronic manifest systems.
5. By December 2006, determine the quantity of waste or used tires being picked up or delivered for each county and through the borders of the state.

Activity Description and Budget

The hauler and manifest program will focus on implementing the new changes to the program and identify obstacles and opportunities for further improvements. Additionally, the CIWMB will provide ongoing training and assistance to all the stakeholders. Table 11 provides a list of activities and associated budgets for the Waste and Used Tire Hauler and Manifest System Element.

Table 10: Budget for the Waste and Used Tire Hauler Program and Manifest System

Program Area	FY 2005/06	FY 2006/07	FY 2007/08	FY 2008/09	FY 2009/10
Hauler/Manifest Staff	\$326,482	\$326,482	\$326,482	\$326,482	\$326,482
Hauler Program and Manifesting	\$550,000	\$450,000	\$450,000	\$450,000	\$450,000
Totals	\$876,482	\$776,482	\$776,482	\$776,482	\$776,482

1. **Staff and Administration:** The hauler and manifest program is currently staffed with 2-2/3 full-time permanent positions. Of these, 1-2/3 positions are located in the Special Waste Division. The other one is in the Administration and Finance Division to support the data management needs of the program.

Activity Funding

FYs 2005/2006–2009/10\$326,482 per fiscal year*

* Estimate of staffing and administrative costs

2. **Manifest System:** With the CIWMB approval of the CTL form, the overall cost factor for the manifest program will be reduced as less printing, postage, and processing time will be necessary; however, the initial outlay of expenditures will be near that of the original fiscal year 2005/06 allocation, as changes in the CTL form will require funds for training and outreach, printing of forms, and redevelopment of the manifest system. The numbers presented in Table 10 for “Hauler Program and Manifesting” adequately reflect this revision from the figures in the July 2003 *Five-Year Plan*. This line item may be lower depending on the initial development of this form.

Activity Funding

Proposed funding for ongoing program costs are approximately \$550,000 for fiscal year 2005/06 and \$450,000 for fiscal years 2006/07-2009/10.

CIWMB Administration

“CIWMB Administration” refers to the accounting of central management costs, such those pertaining to Executive Management, Accounting, Human Resources, Grants, Business Services, small-office support, and statewide Pro Rata[†] assessments that generally serve all of CIWMB (i.e., indirect or overhead costs). This Administration funding represents the distribution of “indirect costs” to direct program activities of the CIWMB that include the Tire program.

Activity Funding

FY 2005/06–2009/10\$1,500,000 per fiscal year

Mandatory Contracts

“Mandatory Contracts” includes allocation for the following: Attorney General’s Office, Board of Equalization, Department of Finance, Foundation of California Community Colleges, Governor’s Office of Planning and Research, Office of Administrative Hearings, Peters Shorthand Reporting, Professional Recovery Systems, and the University of California, Davis.

Activity Funding

FY 2005/06–2009/10\$1,373,650 per fiscal year

Program Evaluation

During fiscal year 2007/08, a third party will conduct a performance review of the Tire Program to determine whether adjustments should be made to enhance project selection and dissemination of results.

Activity Funding

FY 2007/08\$250,000

[†] Pro Rata is the sharing of general funded central service costs by funds other than the General Fund, as mentioned in the State Administrative Manual, Section 8753.

Appendix A: Accomplishments Based on Performance Measures From July 2003 Five-Year Plan

This section contains performance measures from the previous *Five-Year Plan*, dated July 2003, with accomplishments reported after each performance measure. Data collected is for fiscal year 2003/04.

Program-Wide Performance Measures

- 1. In conjunction with other environmental justice efforts of the CIWMB, the Tire Program will evaluate its progress in informing the public of proposed actions, attempting to overcome barriers to meaningful participation in the decision-making process, and providing technical assistance to communities on potential health and environmental impacts of tire-related activities.*

The Waste Tire Recycling Management Program (Tire Program) has made significant progress in its environmental justice efforts. In particular, program management and staff have conducted numerous workshops, open forums, and mass mailings designed specifically to inform stakeholders and the public of any proposed actions the Board may take regarding waste tire management issues. In November 2003, the Board published a study conducted by California State University, Chico, which explored consumers' tire purchase decision processes and behaviors and determined consumers' general knowledge about tires, tire maintenance, recycling, and disposal. To better gather input from California's diverse population, this study was conducted in five languages: English, Spanish, Vietnamese, Chinese (Mandarin dialect), and Tagalog. Finally, the Waste Tire Recycling Management Program oversees grant programs and other technical services (like the two Rubberized Asphalt Concrete Technology Center facilities) that are designed to help the general public and local jurisdictions deal with and avoid the problems associated with improper waste tire management. In many instances, local governments print outreach materials in the appropriate languages for their jurisdictions.

In addition, through the Board's enforcement, cleanup, and amnesty day grant programs for local governments, we are working with cities and counties to assist us in identifying illegal transport and disposal of waste tires and to clean up illegal waste tire piles. These aims are accomplished as we coordinate with, train, and engage in outreach to staff of local enforcement agencies (local health departments, code enforcement agencies, fire departments, and law enforcement agencies) and stakeholders participating in the Tire Program (generators, haulers, and end-users).

Finally, waste tire facility standards, hauler registration, and manifest regulations enforced in to this grant program are applied equally and uniformly to all parties throughout the State of California regardless of income, population density, race, or ethnic origin. In recognition of the importance of environmental justice and pursuant to Board direction, compliance with environmental justice principles is a grant program eligibility requirement and a term and condition of the grant application and grant agreement.

- 2. In concert with Cal/EPA and the U.S.-Mexico Border 2012 Program, CIWMB will develop a waste tire abatement plan with California and Mexico authorities, focusing on stockpiles posing an immediate threat of fire.*

A work group was formed to coordinate with the U.S.-Mexico Border 2012 Program to help develop objectives and an implementation strategy, which respects each country's own resources and sovereignty. This ad hoc work group consists of members representing U.S. EPA, Cal/EPA, CIWMB, , the U.S. Border Patrol, the U.S. Customs Service, PROFEPA—(*Procuraduría Federal de Protección al Ambiente*, Mexico's Federal Attorney General for Environmental Protection), and the Servicio de Aduanas (Mexico's Customs Service) to remove tires that had been illegally dumped in Mexico. The work group strengthens bi-national cooperation between institutions in Mexico and those in the U. S. that are responsible for enforcing their respective environmental laws.

Members have been working to increase efforts on solid waste issues, especially focusing on waste tires and creating a national tire recycling program in Mexico. This program would promote policies that minimize generation at the source. Further efforts would be made to persuade border region companies to apply the same environmental standards and control systems.

- 3. By January 2004, CIWMB will develop a training program/tracking system focusing on cross-border waste tire hauling. The program will include CIWMB conducting tire hauler training workshops with stakeholders from California and Mexico.***

Since the inception of Tire Program's waste tire manifest program, special attention has been given to the Mexican haulers. Cal/EPA representatives held two workshops in Tijuana and Mexicali, Mexico. In addition, hauler-training sessions in Spanish were conducted in San Diego and Los Angeles. The CIWMB, in conjunction with the California Highway Patrol, used border checkpoints to provide assistance to Mexican haulers by explaining the program requirements.

- 4. By January 2005, CIWMB will develop a plan to encourage greater use by State and local agencies of recycled-content tire products and assure that this plan aligns with the work of the State Agency Buy Recycled Campaign.***

Staff of the Tire Program's waste tire diversion section assisted the State Agency Buy Recycled Campaign staff in developing a plan to enhance the State Contract and Procurement Registration System (operated by the Department of General Services), which tracks and records contract purchases. The plan is described in the agenda item, "Scope of Work and Interagency Agreement with the Department Of General Services for the Development and Integration of State Contract and Procurement Registration System and the Electronic State Agency Buy Recycled Campaign Reporting System", which was approved by the CIWMB at its February 2005 meeting. Furthermore, the waste tire diversion section developed a set of plans to encourage greater use by State and local agencies of tire-derived products. This set of plans is embedded within the upcoming biennial update of the *Five-Year Plan* for the Tire Program. Specifically, the plans include the following activities: Social Marketing Campaign to Promote Sustainable Practices, Targeted RAC Incentive Program, Continuation of RAC Use Grant Program, Civil Engineering Grants and Contracts, Tire-Derived Product Grants, Targeted Outreach for RAC and Civil Engineering Projects, and State Agency Partnerships to Promote the Use of Tire-Derived Products. If approved by the CIWMB, these planned activities will be implemented in close cooperation with the State Agency Buy Recycled Campaign as well as other appropriate Waste Prevention and Market Development Division programs.

- 5. CIWMB will conduct periodic waste tire roundtable discussions with stakeholders to review progress of the Tire Program, solicit input from stakeholders, and answer questions.***

Roundtables were held in the summer of 2004 for the following topics:

- Commercialization Grants.
- Product Stewardship.
- Tire Manifest.
- *Five-Year Plan*.
- Rubberized Asphalt Concrete Technology Centers.

- 6. CIWMB will include the principles of environmental justice as requirements in all Tire Program grants and contracts.***

All grantees are contractually required to perform their grants in a manner consistent with the principles of Environmental Justice as defined in Government Code section 65040.12.

The terms and conditions of all the contracts include a provision that the contractor is to abide by the principles of environmental justice.

7. CIWMB will develop and submit a biennial report on product stewardship issues for adoption by the Board.

CIWMB commissioned the Product Stewardship Institute (PSI) to conduct a tire product stewardship project for the State of California. The objective of the project is to engage key stakeholders involved in the manufacture, sale, use, and disposal of tires to find solutions that would ultimately result in the reduction of tire disposal in landfills. PSI takes a life-cycle approach and identifies opportunities that will include both front-end solutions (such as the use of tires with longer operational life) and those at a product's "end of life" (such as developing new or expanding existing end-use applications).

PSI facilitated a Tire Product Stewardship Dialogue Meeting in Sacramento on July 28, 2004, bringing key stakeholders together to take a product stewardship approach in jointly solving tire management problems. The meeting included stakeholders from federal and State government, tire manufacturers, tire distributors and retailers, recyclers, waste management companies, and others as appropriate. PSI emphasized the benefits of reaching a voluntary consensus as an incentive for key groups to participate in this meeting.

PSI has developed the Tire Stewardship Draft Plan based on over 20 interviews with key stakeholders, as well as background research. The draft plan outlined the context for the meeting, a draft problem statement, proposed dialogue goals, and key issues and potential strategies that were discussed at the meeting. A final report was submitted to CIWMB and is currently being reviewed by staff.

Enforcement Performance Measures

To evaluate the program's success in achieving its objectives, the following measures were proposed in the July 2003 *Five-Year Plan* (baseline data was collected during fiscal year 2001/02 for those performance measures that were in effect in the original *Five-Year Plan*).

1. Increase the number of inspections conducted by program staff and local agency staff by 30 percent over the next three years.

Fiscal year 2003/04 will be the base year for this performance measure. CIWMB staff conducted 124 inspections of permitted and unpermitted waste tire facilities and sites, resulting in the issuance of 21 letters of violation, 15 cleanup and abatement orders, 8 administrative complaints, and 1 criminal complaint referral.

During this same period, 24 local jurisdictions conducted 6,611 inspections (5704 initial inspections and 907 re-inspections), resulting in the issuance of 438 letters of violation and 14 referrals to the Board. Additionally, grantee inspections resulted in 266 illegal sites being remediated or cleaned up and resulting in the removal of over 99,000 tires.

2. Increase the proportion of successful legal actions (those resulting in fines or penalties awarded).

Legal action is almost entirely dependent upon potential cases being referred by inspection staff. Legislation passed in 2001 (Chapter 649, Statutes of 2001, Committee on Environmental Quality, SB 649) gave the Board the right to attach a lien for recovery costs, thereby ensuring that any legal action taken will be "successful." Therefore, this is not a relevant performance measure.

Formal delivery of pleadings for legal action is what enables CIWMB to start the legal process. A performance standard, therefore, could call for increasing effectiveness in remediating sites and placing liens on properties where the responsible party is unable to be located and/or served.

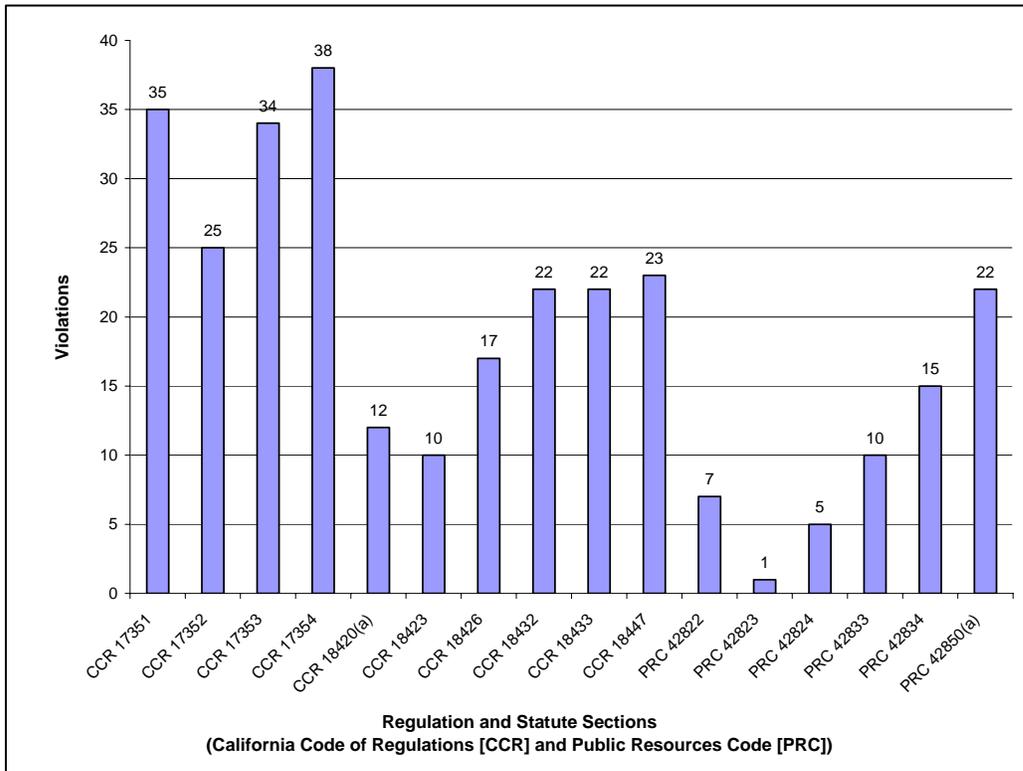
CIWMB's Legal Office has implemented a system whereby CIWMB takes a number of concrete steps to expeditiously establish its "due diligence" in attempting to locate responsible parties. The CIWMB is now allowed to access sites of property of owners it cannot locate after placing a legal notice in a periodical such as a newspaper. Thereafter, the CIWMB may place liens on the property for remediation costs.

This new system is expected to increase the number of sites CIWMB is able to expeditiously process from the initial inspection stage through remediation, regardless of the difficulties encountered in serving the responsible party with notices of legal action.

3. Track the number of documented violations to determine whether they are increasing or decreasing over time.

In fiscal year 2003/04, CIWMB staff documented 298 violations of waste tire statutes and regulations. These are broken down as shown in Figure A.

Figure A: CIWMB Inspection Violation Count: Fiscal Year 2003/04



4. Track and report annually the number of illegal sites that are closed or become permitted.

During fiscal year 2003/04, grantee inspections and letters of violation resulted in 266 illegal sites being remediated or cleaned up and over 99,000 tires being removed. Additionally, 15 illegal sites were brought into compliance by Board staff; 13 of them after the issuance of letters of violations; 1 after the issuance of cleanup and abatement orders, and 1 site after the issuance of administrative complaints.

5. Track number of newly discovered illegal sites to determine if occurrence is decreasing (through CHP surveillance or local enforcement) on an annual basis.

In fiscal year 2002/03, the number of sites discovered slightly decreased to 20 sites from the number in fiscal year 2001/02, and in fiscal year 2003/04 the number discovered decreased to 18 sites.

6. Increase the number of applications submitted in local government enforcement grant programs.

The grant program continued to grow in fiscal year 2003/04. In fiscal year 2002/03, the Board awarded grants to 24 local jurisdictions. In fiscal year 2003/04, 39 local jurisdictions applied for an enforcement grant, and 36 of those were awarded grants in the spring of 2004. The grants will reimburse the local jurisdictions for costs accrued during fiscal year 2004/05.

7. Before the next biennial update of the Five-Year Plan, conduct a performance review of enforcement efforts to determine whether adjustments should be made to enhance project selection and dissemination of results.

Board staff began an internal review of enforcement efforts after being directed to do so by the Board in its June 2004 meeting. During that meeting, the Board also asked staff to explore the idea of a third-party evaluation of the enforcement program as a whole. The Board focused on the evaluation of the grant program, since it was such a large portion of the enforcement budget. Elements of the program that the Board wanted reviewed included (1) the equitable and fair distribution of grant funds and of coverage throughout the state; (2) the number of inspections/enforcement actions taken by grantees; (3) the outcome of enforcement actions; (4) data on vehicle purchases and consistency with State policy; (5) CIWMB's measurement of the effectiveness of these grants; and (6) the cost-effectiveness of the grants.

Review of the Program

The goals of the program are summarized below:

- Providing a sufficient, stable, and non-competitive source of funding to these entities based on the available resources, pursuant to SB 876.
- Maintaining a cost-effective and efficient program.
- Providing consistent inspection coverage throughout the state.
- Providing an ongoing program evaluation to assure its effectiveness.
- Maintaining a high level of grantee performance.
- Continuing a streamlined application, grant annual renewal, and reporting process for grantees.

Staff's review of the program revealed the following:

- **Consistent Inspection Coverage and Cost-Effective Program:** Even if multiple cities and/or agencies within one county apply for a grant, the entire county may not be covered. Managing several smaller, individual grants is expensive and staff-intensive and results in spotty service. Also, if an LEA applied for a grant to cover the entire county where multiple cities and/or agencies already have a grant, an overlap in coverage could occur.
- **Cost-Effective and Efficient Program:** Currently, the grant does not set a cap on hourly rates, overall inspection costs, or surveillance costs. The grant also allows two inspections per site per year, even if there are no compliance problems.
- **Data on Vehicle Purchasing:** Currently, the grant instructions specify that all equipment, including office equipment, field equipment, and vehicle and mileage expenses, cannot exceed 20 percent of the requested grant amount. Vehicle expenses, including mileage and other related expenses, are capped at \$25,000 per grant cycle. These requirements could allow a grantee to purchase a vehicle one year and leave the program the next year and keep the vehicle for use in programs other than the Tire Program.

In addition, Board members have raised concerns and questions regarding: number of vehicles purchased under the grant, whether grantees have continued in the program after purchasing a vehicle, and whether the purchase of the vehicles was consistent with the Department of General Services' (DGS) directives for street vehicle purchases.

To date, 10 vehicles have been purchased by nine grantees who are still currently active in the program. The vehicles are dedicated to the grantees' tire enforcement programs.

Responding to concerns about whether grantees purchased vehicles in accordance to DGS directives, staff surveyed grantees. Since following DGS requirements was not a condition of the grant, grantees had difficulty providing information as to whether they had met all the DGS requirements. Only one out of nine grantees was able to state that it met all the State vehicle purchasing requirements of DGS. Few were able to comment on specific aspects of DGS requirements, such as California emission requirements. However, two out of five grantees that purchased SUV or truck and/or 4-wheel-drive vehicles did justify their need for such vehicles, consistent with DGS requirements. Of the 10 vehicles purchased, 2 are alternative fuel vehicles, 4 are sedans, and 5 are SUVs or truck and/or 4-wheel-drive vehicles.

- **Consistent Inspection Coverage and Cost-Effective Program:** Currently, if the program becomes over-subscribed, existing grantees receive priority, resulting in the possibility that new applicants could receive no funding. This practice is contrary to the goal of increasing inspection coverage throughout the state until all parts of the state are equally serviced. In order to accomplish these two goals with the current funding, work will need to be prioritized in each jurisdiction as more grantees come into the program and need resources.
- **Grant Effectiveness and Enforcement Data:** A preliminary review of fiscal year 2002/03 Grant Cycle (grant term, June 30, 2003 to June 30, 2004) final reports revealed the following:
 - 5,704 inspections conducted.
 - 907 sites re-inspected. to assure compliance with previous violations.
 - 438 letters of violation issued.
 - 276 letters of violation mitigated.
 - 14 enforcement referrals made to the CIWMB, 4 of which have been mitigated, and 10 for which cleanup and abatement orders have been or will be issued.
 - 266 illegal sites remediated as a result of inspections, surveillance, and initial enforcement activities.
 - More than 99,000 tires removed as a result of inspections, surveillance, and initial enforcement activities.

Table A-1 shows the CIWMB's historical inspection and enforcement activity during the grant terms from fiscal year 1996/97 to fiscal year 2001/02. Grantees inspected approximately 2,000 waste tire sites from 1997 through 2001.

Table A-1: CIWMB Inspection and Enforcement Activity for Fiscal Year 1996/97–2001/02 Grant Terms

	Fiscal Year					
	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02
No. of Inspections	52	97	180	435	336	245
No. of LOVs*	0	0	0	0	0	0
No. of CAOs**	40	53	99	56	66	22
No. of ACs***	11	34	46	26	19	10

* LOV: Letter of violation.

**CAO: Cleanup and abatement order.

***AC: Administrative complaint.

Table A-2 shows CIWMB and grantee inspection and enforcement data for grant terms from fiscal year 2002/03 and fiscal year 2003/04.

Table A-2: CIWMB and Grantee Inspection and Enforcement Data for Fiscal Year 2002/03 and 2003/04 Grant Terms

	Fiscal Year 2002/03 Grant Term		Fiscal Year 2003/04 Grant Term	
	CIWMB	Grantee	CIWMB	Grantee
No. of Inspections	188	1,475	124	6,611
No. of LOVs*	50	162	21	438
No. of CAOs**	21	N/A	15	N/A
No. of ACs***	9	N/A	8	N/A
Sites Remediated or Clean-Closed****	12	Unknown	15	266

* LOV: Letter of violation

**CAO: Cleanup and abatement order

***AC: Administrative complaint

****Clean-Closed: Site has been remediated and case is closed.

The table indicates that the number of grantee inspections increased more the fourfold, and the LOVs doubled, from one fiscal year to the next. In the grant term for fiscal year 2002/03, 1,475 grantee inspections were conducted and 162 LOVs were issued by grantees. In the grant term for fiscal year 2003/04, 6,611 Grantee inspections were conducted and 438 LOVs were issued by grantees.

In the fiscal year 2003/04 grant term, 266 illegal sites were remediated or clean-closed by the grantee's inspection and enforcement efforts alone. In addition, data from fiscal year 2003/04 indicates an increasing number of sites are being inspected by grantees and more compliance issues are being resolved by grantees at the LOV enforcement stage, which is more time- and cost-effective than higher levels of CIWMB enforcement such as cleanup and abatement orders, administrative complaints, and hearings. A successful enforcement program is one where industry maintains or quickly achieves compliance. Grantees have the ability, both because of their staffing levels and their close proximity, to follow up on compliance issues in a prompt manner.

- **Measurement of the Effectiveness of Grants and Grantee Performance:** Currently, satisfactory performance is determined by reviewing quarterly and final reports to determine if the grantee is meeting the terms and conditions of the grant. Staff considers the following:
 - On-time submittal of complete progress and final reports.
 - Completion of a reasonable number of site inspections and a significant amount of other tasks identified in the grant application.
 - Inspection forms completed with necessary information.
 - Use of a majority of the grantee's approved grant funds.
 - Complaints and referrals followed up on within required or reasonable timeframes.
 - Work cooperatively with CIWMB staff in submitting requested program information.
 - Make applicable enforcement referrals to the CIWMB in a timely manner.
 - Participation in joint training inspections with State field staff.
 - CIWMB field staff's assessment of grantee's ability to assure that waste tire statutes and regulations are being applied consistently to businesses in their jurisdictions (assessment made during joint field inspections).

Staff considered a grantee's payment requests from the previous year to determine whether its subsequent grant proposal and funding request was reasonable. For large discrepancies in the

grantee's use of previously approved funds, staff may request that the grantee provide further justification of the proposed budget for the next year to ensure it is accurate and reasonable. Staff recognizes that a new grantee's proposed budget will usually become more accurate in subsequent years of being in the program.

If a grantee is not meeting the above criteria, staff will work with the grantee, and if necessary, determine costs to be ineligible, or recommend to the Board that the grantee not be considered for the next year's funding. During the fiscal year 2003/04 grant award process, staff did recommend denial of funding for a grantee that had failed to perform inspections in the first three quarters of its previous grant term, and the Board agreed with the recommendation.

Changes to the Program as a Result of the Review

As a result of the review, the Board made the following changes to the grant program:

- **Consistent Inspection Coverage and Cost-Effective Program:** The Board limited applicant eligibility criteria to: California city and county LEAs and/or environmental health and code enforcement agencies with a minimum of 50 sites, including generators, end users, haulers, and permitted facilities, to be eligible to apply for this grant and with experience in the enforcement of laws and regulations and the protection of public health and safety and the environment may apply for a grant.
- **Cost-Effective and Efficient Program:** The Board supported a cap on the hourly rate at \$125 per hour, four hours per inspection, or a maximum of \$500 per inspection. After a maximum of one routine inspection and two re-inspections to resolve a compliance issue, grantees are required to refer any sites still found in violation to the CIWMB for further enforcement action, unless otherwise approved by the grant manager.
- **Cost-Effective and Efficient Program:** The Board supported implementing a cap for enforcement and surveillance costs at fifty percent of their inspection cost. Additionally, grantees will be asked to prioritize their workload based on the following priorities: unpermitted illegal tire piles; violations that pose an immediate risk to public health and safety and environmental threats (will be given highest priority); sites found in violation; and complaints and referrals from the public and the CIWMB.
- **Data on Vehicle Purchasing and Cost-Effective Program:** The Board directed staff to add language in the section on grant procedures and requirements (P&R) for applicants that wish to use funds to purchase vehicles. The grantees will be required to consider the guidelines included in the State Department of General Services (DGS) Management Memorandum related to the Vehicle Purchase and Lease Policy (MM 04-20), issued July 6, 2004, covering alternative fuels, gasoline and hybrid-electric vehicles, SUVs, 4-wheel-drive vehicles, and low emission vehicles. In addition, language will be added to the P&Rs requiring grantees that purchase or "lease-to-own" vehicles with grant funds to execute required documents giving the CIWMB a security interest in the vehicle for up to five years.
- **Consistent Inspection Coverage and Cost-Effective Program:** If the grant program is over-subscribed, CIWMB staff will modify grant requests as necessary—taking into account a county's population, the total number of priority sites, and any known threats to public health and safety or the environment—so the amount of funding (\$6 million) accommodates all reasonable grant applications.

Cleanup Performance Measures

To evaluate the program's success in achieving its objectives, the following measures were proposed in the July 2003 *Five-Year Plan* (baseline data was collected during fiscal year 2001/02 for those performance measures that were in effect in the original *Five-Year Plan*).

1. *Complete the long-term waste tire remediation projects within five years.*

The contract for the Tracy tire fire remediation was awarded in January 2003 and removal began in November 2003. To date, the CIWMB's contractor has excavated and removed 130,000 tons of California hazardous waste at a cost of \$8 million. The second of the three cleanup phases was completed in December 2004. It is anticipated that the final remediation will be completed by spring 2006 at a total cost of \$18 million.

2. *Complete the short-term remediation projects referred by the CIWMB's waste tire enforcement program and report status of projects to the Board on an annual basis.*

In fiscal year 2003/04, the Board approved remediation of eight sites in Sonoma County and entered into agreements with the landowners to satisfy the environmental compliance issues in order to remediate these sites. CIWMB will begin remediation of the first of these sites in June 2005.

3. *Increase the number of waste tire cleanup grants issued to local governments on an annual basis.*

In fiscal year 2002/03, the Board awarded 10 grants for a total of \$606,642. For fiscal year 2003/04, the Board awarded 14 grants for a total of \$712,286.

4. *Increase the number of waste tire amnesty grants issued to local governments on an annual basis.*

For fiscal year 2003/04, 29 grants were awarded, totaling \$924,674. The grants required no matching funds. The awarded amount exceeds the allocated amount by \$524,674, due to additional funding made available through the Board-approved annual reallocation process. Staff will recommend that for the fiscal year 2004/05 cycle, applicants must provide at least 25 percent in matching funds to better ensure requested fund are more in line with available funding.

5. *Increase the percentage of tires remediated through the farm and ranch cleanup grants issued to local governments on an annual basis.*

During FY 2003/04, 2,994 tires were collected, compared to 1,112 tires collected in the previous fiscal year, which is a 169 percent increase.

6. *With the cooperation of the Office of the State Fire Marshal (OSFM), develop a tire fire response protocol and update and amend the Uniform Fire Code.*

In January 2002, the Board entered into an interagency agreement with OSFM to update the tire-fire training program. As of August 2004, tire-fire training program has been updated and training by the OSFM has commenced throughout the state. The Office of the State Fire Marshall continues to work toward promulgating changes to the California Fire Code pertaining to waste tire storage so that enforcement of the Fire Code will be consistent with enforcement of the Public Resources Code and the California Code of Regulations.

7. *Track the CIWMB's tire site remediation efforts to determine the percentage of sites remediated in low-income or minority neighborhoods.*

Reconsideration of this performance measure is indicated. Tire staff experience is that with some exception (such as Sonoma waste tire cleanup sites), a large percentage of cleanups occur in low-income or low-property value areas (such as in rural desert areas) or on impacted public areas or rights-of-way in and around urban areas with significant minority populations. Although no statistics have been compiled to date, staff has the firm conviction that environmental justice considerations which are ostensibly

addressed with this performance measure are being met. Staff feels that waste tire remediation efforts are properly based upon the potential threat to public health or safety and the proximity to sensitive receptors (schools, residences) or environmentally sensitive areas. To this end, the other enforcement-related performance measures listed in this document on page 12 more properly and appropriately provide for evaluation and tracking of program effectiveness.

Research Performance Measures

To evaluate the program's success in achieving its objectives, the following measures were proposed in the July 2003 *Five-Year Plan* (baseline data was collected during fiscal year 2001/02 for those performance measures that were in effect in the original *Five-Year Plan*).

1. *Through work on procurement and through direct work with tire manufacturers, seek to increase the amount of recycled content in new tires.*

The CIWMB awarded a contract for \$228,770 to Nevada Automotive Testing Center (NATC) to study the feasibility of increasing recycled content in new tires. NATC presented its findings at the May 11, 2004, Board meeting. The publication *Increasing the Recycled Content in New Tires* (publication #622-04-001) has been finalized and is available to our stakeholders and the general public. The report concluded that to increase crumb rubber use in new-tire production would require technological advances and strong market incentives which do not currently exist. Future efforts will include addressing technological feasibilities and market incentives through a national product stewardship dialogue that will begin in mid-2005.

2. *Determine the viability of pyrolysis-type conversion processes.*

In May 2003, the Board awarded a contract to the University of California at Riverside to determine the viability of pyrolysis-type conversion processes by identifying technology changes and how the current economic environment for tires affects this technology. As part of this investigation, the contractor will update the report prepared by CalRecovery Inc., which was funded by the Board in July 1995, *Effects of Waste Tires, Waste Tire Facilities, and Waste Tire Projects on the Environment* (publication #432-96-029). Since there are no commercially operating pyrolysis systems in the U. S., the proposed technology evaluation and economic analysis report will help to establish a baseline for evaluating future proposals received by staff. The final report for this study will be available by July 2005.

3. *Determine the viability of energy recovery from waste tires and establish optimum operational parameters.*

Recent legislative changes have precluded the Board from funding energy recovery from the combustion of tires. AB 1756 (Committee on Budget, Chapter 228, Statutes of 2003) stated in part "The plan may not propose financial or other support that promotes, or provides for research for the incineration of tires."

4. *Determine the viability of devulcanization.*

The study *Evaluation of Waste Tire Devulcanization Technologies* (CIWMB publication #622-04-008) was completed in 2004. This report concluded that under current and likely near-term future conditions, devulcanization faces an uphill struggle to be competitive with virgin rubber. In terms of the potential of producing high-quality devulcanized rubbers, the best technology appears to be ultrasonic devulcanization, based on the current state of the art.

5. *Increase the number of projects awarded to promote civil engineering applications of waste tires.*

As part of the Board's effort to develop and promote civil engineering applications for waste tires, the Board has provided technical oversight and shredded tires for two Caltrans projects. The first project to use tire shreds in a civil engineering application was located on Hwy 880 and the Dixon Landing interchange (2001). That project used 660,000 waste tires and saved the State approximately \$240,000

dollars over using conventional lightweight fill material. The second project for which the Board supplied technical assistance and supplied the tire shred material is on Route 91 in Riverside County (2003). This pilot project demonstrates how using tire shreds as lightweight fill behind a retaining wall can reduce the pressure on the wall therefore saving money. Tire shreds exert about half the pressure on a wall as conventionally placed soil does. By reducing the pressure on the wall, Caltrans was able to reduce the size of the wall required to hold back the embankment, therefore using less steel and concrete. This project used 80,000 tires. It is estimated that these projects have the potential to use 1 million tires for every mile of wall constructed.

In another civil engineering application, the CIWMB partnered with the Valley Transportation Authority (VTA) in San Jose to investigate the use of tire shreds as a vibration-dampening material in VTA's light-rail system (2001). The results of the investigation were very favorable, and VTA used tire shreds in a section of its light-rail section that was constructed in the fall of 2002. The Board is continuing to explore this technology with other local governments that use light-rail systems, such as Sacramento Regional Transit District and San Francisco Municipal Railway.

To date, the Board has focused the majority of its efforts to promote the Board's RAC and civil engineering programs working with Caltrans. While there has been some success from their efforts, the Board is proposing to more aggressively promote these programs with local governments. This will be accomplished with focused outreach efforts that might include a marketing campaign, technical assistance, pilot projects, and award of grants to first-time users of RAC.

6. *Investigate and evaluate potential methods within three years that could increase the life span of tires.*

In October 2001, SB 1170 (Sher, Chapter 912, Statutes of 2001) authorized the California Energy Commission (official title—State Energy Resources Conservation and Development Commission) to investigate opportunities for increasing the usage of low-rolling-resistance (LRR) tires in the state. It has been common knowledge in the auto industry that original equipment (OE) tires have significantly lower rolling resistance and better fuel economy than the average replacement tires. In February 2004, the Board approved a two-year contract with the Energy Commission for this task. The objective of the interagency agreement was to provide for the testing of replacement tires to determine any relationships between tire rolling resistance and other tire characteristics, and to make recommendations regarding environmentally sound tire purchasing decisions.

New capabilities for investigating and evaluating additional methods of increasing the life span of tires now exist within the University of California, Davis (UC Davis) Institute of Transportation Studies. The Institute has the capability to:

- Identify potential opportunities for the use of waste tires in new products and other rubberized products.
- Investigate the use of tire rubber in noise-absorbing structures.
- Develop an undergraduate/graduate program for asphalt mixtures containing recycled tire rubber and for uses of recycled tires in civil engineering applications.
- Engage with the UC Davis Mechanical Engineering and Business School to offer technical advice and support to Board grantees.

7. *Investigate and identify potential methods to recycle and reuse byproducts created from the processing of crumb rubber.*

The Board awarded a contract for \$99,567 to CalRecovery Inc. The contractor presented findings to the Board in August 2003 and at the 5th Annual Waste Tire Conference in September 2003. The publication (Assessment of Markets for Fiber and Steel Produced From Recycling Waste Tires, CIWMB publication #622-03-010) is available to our stakeholders and the general public. This contract has been completed. Future efforts may include grants to further markets of fiber and steel.

8. *Increase the percentage of RAC used in highway projects in California over the next five years.*

In June 2003, the Board entered into an interagency agreement with Caltrans to evaluate the performance of various RAC application processes. This performance information will assist in promoting the use of RAC in future projects. The final report for this study is due to CIWMB in May 2005. In addition, the Board has begun the implementation of the grant program mandated in 2002 by SB 1346, in which grants are awarded to local governments for the use of RAC in road projects. The Board awarded 70 grants for this program for fiscal year 2003/04.

9. *Assure that third-party peer review is conducted on all research activities.*

Third-party peer review has been incorporated into the scopes of work of all research contracts. In addition, Cal/EPA has an interagency master agreement (IMA 98-004) with the University of California to conduct third-party peer reviews. All boards, departments, and offices within Cal/EPA are eligible to use this agreement at no cost.

10. *Before the next biennial update of the Five-Year Plan, conduct a performance review of research efforts to determine whether adjustments should be made to enhance project selection and dissemination of results.*

The CIWMB has researched various areas and aspects related to tires and used tire management. This research has enabled the CIWMB to answer many questions and focus its future efforts. The CIWMB believes that, with a few exceptions noted below, sufficient research has been completed at this time on tires and used tire management. Efforts should now be focused on assisting the private sector in developing self-sustaining markets for waste tires.

Sufficient research and testing has been completed to validate the use of RAC on streets and highways. The only areas that may benefit from additional research are the recyclability of RAC and specialty uses (such as street repairs).

Sufficient research has been done on pyrolysis, gasification, and liquefaction. Any additional issues or questions should be resolved within the context of the Board's conversion technology effort.

Sufficient research and testing has been completed to demonstrate the effectiveness of using tire shreds as lightweight fill and sound wall material. However, the CIWMB should continue to provide engineering and construction support (including incentives) for civil engineering applications. Additional research may be necessary to determine any potential long-term effects on the environment of tire shreds as lightweight fill. Research and testing may be needed to determine the effectiveness of civil engineering applications such as vibration dampening material in light-rail applications and seismic dampening in bridge abutments.

Market Development Performance Measures

The performance measures for market development directly relate to the objectives stated under "The Plan" in this section on market development and new technology activities of the July 2003 *Five-Year Plan*. Baseline data was collected during fiscal year 2001/02 for the quantitative measures that were in effect in the original *Five-Year Plan*, using the annual waste tire survey, grant and contract results, and end uses reported in the enhanced manifest system.

1. *Percent of increase in public awareness of proper care and purchase of tires, use of products made from recycled waste tires or purchase of retreaded tires, and proper disposal of waste tires. These educational attributes will be measured by contracting with an organization to conduct a survey of California residents every few years and comparing the results with baseline data obtained from the survey conducted during fiscal year 2001/02.*

Increase public awareness of proper care, use, and purchase of tires, products made from recycled waste tires, and retreaded tires and increase awareness of proper disposal of waste tires. Establish a baseline for public knowledge of these areas. Update and continue implementation of a marketing plan to reach the public on these issues.

CIWMB contracted with California State University, Chico (CSUC), which conducted a literature review and tire survey, and developed a marketing research plan. CSUC produced the report Consumers' Tire Buying Habits and Their Knowledge of Tire Maintenance, Recycling, and Disposal, CIWMB publication #622-03-004, and presented the report to the Board in May 2003.

In addition, the program has contributed funding towards the State's Flex Your Power campaign. Flex Your Power is California's statewide energy-efficiency marketing and outreach campaign. Initiated in 2001, Flex Your Power is a partnership of California's utilities, residents, businesses, institutions, government agencies, and nonprofit organizations working to save energy. The campaign includes retail promotions, a comprehensive website, an electronic newsletter, educational materials, and advertising. Flex Your Power has received national and international recognition, including an ENERGY STAR Award for excellence. The Keep California Rolling segment of the campaign educates the public on keeping their tires inflated to the recommended pressure.

- 2. Increase public and private sector awareness of the availability of recycled-content and longer-lived tires and implement a program to encourage their purchase and use. In regard to lower-rolling-resistance tires, work with the CEC to assure that longer-lived and recycled-content tires are simultaneously encouraged, while keeping tire safety paramount.***

At its May 2003 meeting, the Board reallocated funding remaining from the fiscal year 2002/03 allocation and directed staff to join with the Board's Used Oil Program by means of a contract that focused on social marketing. As a result, staff developed a media campaign to educate the public on proper tire care to encourage a longer-lived tire. In addition, at its September 2003 meeting, the Board contracted with the Caltrans to purchase molded rubber landscape mats as part of Caltrans' Integrated Vegetation Management program for roadsides. This will enable Caltrans to develop and approve specifications for landscape mats, demonstrate its efficiency for weed control, and evaluate the aesthetics of the mats on a typical project scale. If successful, the project could provide significant opportunities for recycling of California waste tires and purchases of rubber molded products. Further, in February 2004 the Board entered into a contract with the California Energy Commission to study the characteristics of rolling resistance in tires.

- 3. Percent of increase in level of recycling as described in the "Objectives" section, as measured from the survey and data from the enhanced manifest system.***

In 1990, the diversion rate was calculated at 34.1 percent, and in 2003, 73.3 percent.

- 4. Percent of increase of appropriated grant funds that are used by the end of the grant term, obtained by conducting an analysis after all grants are closed.***

The tables below indicate the available percents of increase.

Table A-3: Local Government Amnesty Day Grants

Fiscal Year	Total Funds Allocated	Total Funds Awarded	Total Funds Spent	Percent of Grant Funds Spent
2001/02	\$500,000	\$330,817	\$287,157	86.8%
2002/03	\$500,000	\$321,247	\$267,193.77	83%
2003/04	\$400,000	\$400,000	To Be Determined	To Be Determined
2003/04	Reallocation Item	\$524,675	To Be Determined	To Be Determined
2004/05	\$500,000	\$500,000	To Be Determined	To Be Determined
2004/05	Reallocation Item	\$204,793	To Be Determined	To Be Determined

Table A-4: Playground Cover Grants

Fiscal Year	Total Funds Allocated	Total Funds Awarded	Total Funds Spent	Percent of Grant Funds Spent
2001/02	\$800,000	\$565,648	\$470,304.75	83.1%
2002/03	\$800,000	\$752,791	\$664,753.31	88%
2003/04	\$800,000	\$791,843	To Be Determined	To Be Determined
2003/04	Reallocation Item	\$124,020	To Be Determined	To Be Determined
2004/05	\$800,000	\$798,919	To Be Determined	To Be Determined
2004/05	Reallocation Item	\$37,000	To Be Determined	To Be Determined

Table A-5: Track and Other Recreational Surfacing Grants

Fiscal Year	Total Funds Allocated	Total Funds Awarded	Total Funds Spent	Percent of Grant Funds Spent
2001/02	\$1,000,000	\$954,879.66	\$752,050.50	78.7%
2001/02	Reallocation Item	\$894,409	\$688,948.45	77%
2002/03	\$1,000,000	\$925,000	\$732,975.02	79%
2002/03	Reallocation Item	\$935,545	\$727,000	78%
2003/04	\$800,000	\$800,000	To Be Determined	To Be Determined
2003/04	Reallocation Item	\$700,125	To Be Determined	To Be Determined
2004/05	\$800,000	\$800,000	To Be Determined	To Be Determined
2004/05	Reallocation Item	\$460,000	To Be Determined	To Be Determined

Table A-6: Product Commercialization Grants

Fiscal Year	Total Funds Allocated	Total Funds Awarded	Total Funds Spent	Percent of Grant Funds Spent
2001/02	\$2,000,000	\$1,929,389	\$1,524,143.41	79%
2001/02	Reallocation Item	\$250,000	\$250,000	100%
2002/03	\$2,000,000	\$1,714,799	\$1,314,940.97	77%
2002/03	Reallocation Item	\$1,250,000	\$499,980.03	40%
2003/04	\$1,600,000	\$1,482,780	To Be Determined	To Be Determined
2003/04	Reallocation Item	\$1,000,000	To Be Determined	To Be Determined
2004/05	\$1,600,000	\$1,600,000	To Be Determined	To Be Determined
2004/05	Reallocation Item	\$400,000	To Be Determined	To Be Determined

5. *Percent of increase in use of waste tire products by public agencies and Indian tribes, including RAC, measured by analyzing annual reporting requirements and grant/contract final reports to CIWMB. Quantify the estimated use of recycled-tire products by public agencies and Indian tribes and work to achieve an annual increase of at least 5 percent.*

Achieve a 5 percent annual reduction in the number of waste tires disposed in landfills annually, based on data collected for the annual report and from the enhanced manifest system.

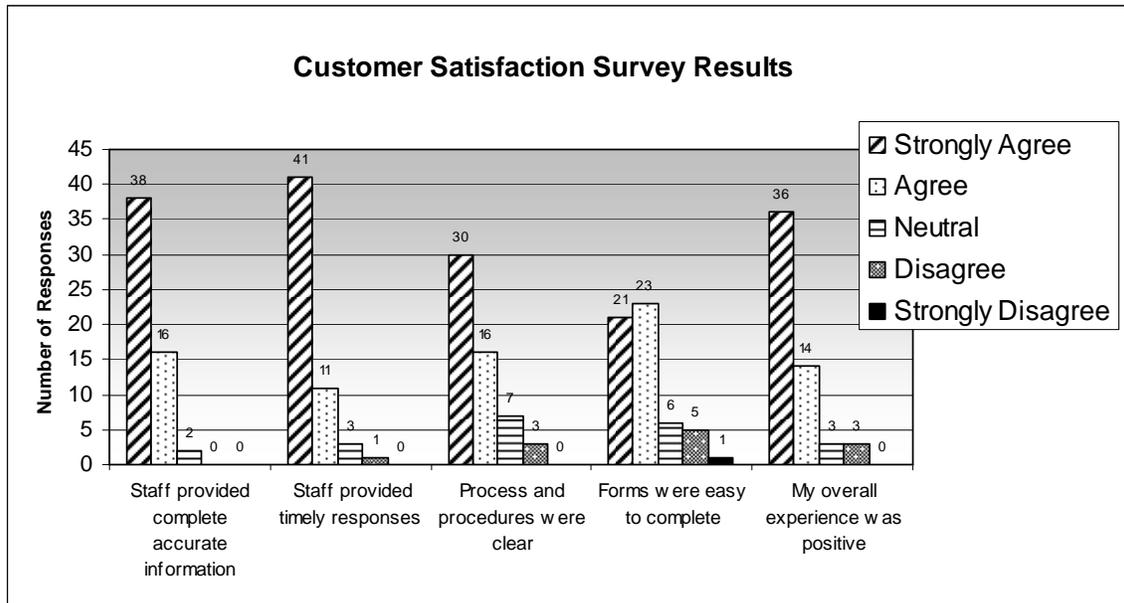
The Tire Program reported that in fiscal year 2003/04, \$1,833,010 in grant money was spent on tire-derived products; compared to only \$312,333 in grant funds spent during fiscal 2002/03, representing an increase of approximately a 487 percent.

The Tire Program reported no data for its contracts during fiscal year 2003/04. Caltrans reported 766,196 tires were used for RAC in 2003 compared to 500,000 in 2002, which is a 53 percent increase.

6. Level of satisfaction with grant or contract management based on staff surveys conducted when the grants or contracts close.

On June 1, 2004, a customer satisfaction survey (CIWMB form 187) was sent out to 139 grantees and contract recipients, whose grants and contracts were closed in fiscal year 2003/04. Customers were asked to share their opinion about complete and accurate service, timely responses, process and procedure clearness, ease of form completion, and overall experience. As of August 10, 2004, CIWMB received 63 responses, reflected in the chart below.

Figure B: Customer Satisfaction Survey Results



7. Improve grant administration by streamlining the grant administration process by identifying time-consuming and/or unnecessary steps.

During fiscal year 2003/04, staff participated in the newly created Grants Policy and Documentation Team, which focused on documenting the Board's current grant policies and identifying and implementing areas where processes could be streamlined. Program staff and/or the CIWMB's grants administration unit have implemented all streamlining opportunities that could be adopted without Board or Executive Staff involvement. Opportunities where Executive Staff's approval was required were presented to the Grants Executive Office Committee, a committee created by the Executive Office and consisting of executive-level staff from every division within the Board. All approved streamlining opportunities were implemented, such as combining grant programs, conducting multi-year grant awards, and using simplified grant applications.

8. Begin a program to implement SB 1346. Educate potential recipients on the availability of the program and seek to distribute a minimum of 22 grants in fiscal year 2003/04 and at least 24 grants starting in fiscal year 2004/05 and beyond.

In FY 2003/04, the Board awarded 70 grants totaling \$1,189,480. The notice of funds available (NOFA) for the FY 2004/05 cycle was distributed by the end of September 2004.

9. *Review and follow up on RACTC [Rubberized Asphalt Concrete Technology Center] program evaluation. Establish a more visible and publicized Web-based presence for the services of the RACTCs and related use of RAC.*

Board staff conducted a roundtable discussion with stakeholders of the Board's RAC program, with the intent to use ideas generated at the roundtable in shaping the RAC program services offered in the future. In the process of developing the future RAC program, a determination was made regarding the role, if any, that the RACTC's will play in assisting the Board's delivery of RAC services.

10. *Work with Caltrans to ensure the effective implementation of SB 1346.*

This did not appear to be necessary, since the grant program was over-subscribed.

11. *In the next two years, increase the advertisement of tire products listed in the CalMax publication by conducting additional outreach.*

CalMAX is a free service designed to help businesses find markets for nonhazardous materials they have traditionally discarded. CalMAX helps businesses, industries, and institutions save resources and money. Since items are placed into the CalMAX database, activity is conducted online with businesses interacting with other businesses; therefore, it is impossible to track the amount of tire-related material that is exchanged.

Examples of recent ads:

USED TIRES (Wanted)

We continue to buy used tires from fleets that have been told they have to pay to have them removed. We are licensed & bonded in CA as a Waste Tire Hauler & a Waste Tire Facility, permits # 11. Call for an appointment.

Carl Atkinson - Southern California, - 909-350-8200, hubcap-kid@wheels-etc.com

County: San Bernardino

Listing ID: 19456-2

SCRAP ROAD TIRES (Wanted)

Very large scrap tires, no fees, no tipping. 5 foot diameter with a 24 inch tread width or bigger.

Ranch Rubber Resources.

Tracy Kelley - King City, CA - 831-385-5383

County: Monterey

Listing ID: 26606-1

CRUMB RUBBER (Available)

30 minus crumb rubber used for injection molding, golf courses, putting greens. Call for pricing and delivery dates.

Cameron Wright - Gilroy, CA - 408-842-2401, sales@groundrubber.com

County: Santa Clara

Listing ID: 26261-2

RUBBER CRUMB RUBBER (Available)

Crumb rubber available for use in concrete, asphalt, new rubber compounds, polymeric paints, elastomeric coatings.

Robert Konopke - Los Angeles, CA - 602-670-2556, sales@egomain.com

County: San Diego

Listing ID: 27528-1

12. *In the next two years, increase by 10 percent the number of successful applicants receiving WRAP awards from waste tire companies.*[‡]

The Waste Reduction Awards Program (WRAP) is a voluntary program to demonstrate what successes businesses have made in reducing, reusing, recycling, and buying recycled.

Examples of recent recipients:

2003

Nissan Motor Corporation, USA, is the sales, marketing, and distribution affiliate for Nissan automobiles and products in the United States. In addition to recycling paper, cardboard, plastics, aluminum, toner cartridges, and auto parts for over seven years, Nissan recently began a program to eliminate used tires from being landfilled. The tires are taken to a recycler who grinds the tires into fine particles which are added to construction materials for building roads.

2002

U.S. Rubber Recycling, Inc. makes unique and useful flooring from recycled crumb rubber. Nearly 900 tons of automotive tires were diverted in 2001 from the area landfills.

Mitsubishi Cement Corporation manufactures Portland cement for the construction industry in southern California and Nevada. In 1999, Mitsubishi Cement Corporation recycled 16,451 tons of waste tires and 18,456 tons of treated biosolids. The waste tires provided an energy supplement, and the use of both wastes resulted in significant nitrous oxide emissions reductions.

Ecology Tire, Inc. is a small company specializing in recycling of used car and truck tires. Each year, Ecology Tire diverts over 6,462,000 pounds of waste tires from southern California landfills by collecting and shipping the tires, tubes, and liners to specialized recyclers. These recyclers turn the unwanted tires and tubes into such diverse products as bowling ball cores, playground mats, and indoor/outdoor carpet tiles, or they reuse them as retreads or slow-moving equipment tires.

13. *Increase by 10 percent each year the number and variety of vendors that display waste tire products at the Recycled Product Trade Show.*

The Board's annual Environmentally Preferable and Recycled Product Trade Show is a unique opportunity for product suppliers, government staff, and private sector buyers to meet and discuss recycled-content products (RCP) and other environmentally preferable products (EPP).

During the April 10–11, 2003, show at the Sacramento Convention Center, 17 out of 101 booths exhibited tire-related material (13 companies and entities and 4 CIWMB programs).

During the March 10–11, 2004, show at Sacramento Convention Center 16 out of 112 booths exhibited tire-related material (12 companies and entities and 4 CIWMB programs).

14. *During the next five years, increase the use of waste tire products in green buildings that are purchased and installed without CIWMB funding.*

Since June 2003, the Sustainable Building Program has dispersed \$300,000 in the form of two contracts. Both contracts are for the purchase, installation, and measurement of tire products. It is impossible to quantify the impacts that our grants and contracts have on the building community. We are only able to track the projects that we are either directly involved with or those that we fund.

Since the building industry is a fairly new market for the Tires Program, CIWMB is definitely encountering some challenges, some of which can be resolved with time. Others require more research. One challenge we are finding is that not many building products made from tire-derived materials exist,

[‡] This performance measure was incorrectly worded and should have referred to a desired 10 percent increase in waste tire companies receiving WRAP awards.

and even fewer products exist that are made from California waste tires. Currently, the Board requires that products made by a company receiving tire funding be made from California waste tires. One option to mitigate this challenge is for the Board to be more flexible in the California waste tire requirement until the market expands to meet the needs of California builders.

Another challenge is the concern over indoor air quality when incorporating tire-derived materials into interior building space. This issue is a big concern to those involved in the building industry, and most recently discussed again in the Building Material Emissions Study (BMES, CIWMB publication #433-03-015), funded by the Board. To address these concerns and the recommendations in the BMES, CIWMB has entered into a new contract with the Office of Environmental Health Hazards Assessment (OEHHA) to study acceptable indoor reference exposure levels (IRELs) and how they relate to use of tire-derived materials indoors.

15. During the next three years, increase the amount of successful waste tire businesses that receive RMDZ loans.

The Recycling Market Development Zone program combines recycling with economic development to fuel new businesses, expand existing ones, create jobs, and divert waste from landfills. During fiscal year 2002/03, \$2 million was allocated for the RMDZ loans. Two waste tire businesses applied for loans, and two loans were awarded, totaling \$1,745,000. During fiscal year 2003/04, \$1,500,000 was allocated for RMDZ loans. Three waste tire businesses applied for loans and two loans were awarded, totaling \$1,500,000.

16. Each year increase by 10 percent the amount of tire-derived products purchased by public agencies.

The State Agency Buy Recycled Campaign (SABRC) is a joint effort between the California Integrated Waste Management Board (CIWMB) and the Department of General Services (DGS) to implement State law requiring State agencies and the Legislature to purchase products with recycled content. It complements the efforts of the California Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989 as amended), which was enacted to reduce the amount of waste going to California's landfills.

Fiscal year 2003/04 is the baseline year. During this period, public agencies reported that of the \$2,292,840.40 spent on tire-derived products, \$2,008,825.84 (87.6 percent) was spent on recycled content products. Public agencies also reported spending \$636,085.42 on tires 15 inches or smaller. Of this amount, \$24,429.37 (0.9 percent) was spent on retreaded tires, and \$2,906,716.97 was spent on tires larger than 15 inches. Of the amount spent on tires larger than 15 inches, \$616,102.78 (15.4 percent) was spent on retreaded tires.

17. CIWMB shall continue to participate in the Cal/EPA environmental indicators program to track waste tire disposal and diversion. Staff will report on the success and challenges facing the waste tire industry in the marketplace, including issues such as competition from importing tire crumb rubber and costs of energy.

Staff continues to participate in the Cal/EPA Environmental Protection Indicators for California (EPIC) project. During fiscal year 2003/04, staff provided information to EPIC regarding the tire cleanup projects.

Hauler and Manifest System Performance Measures

To evaluate the program's success in achieving its objectives, the following measures were proposed in the July 2003 *Five-Year Plan* (baseline data was to be collected during calendar year 2004):

1. Percent of generators identified and contacted by program staff by March through June 2003.

In May and June 2003, CIWMB staff contacted 13,866 known waste tire generators, haulers, and end-use facilities. Staff mailed out contact letters, guidance manuals, and manifest and/or log forms to these participants. In addition, a second mailing was conducted in May 2004 to send tire program identification number (TPID) certificates to more than 16,000 participants. It is anticipated that some businesses may close but others will open, keeping this number of 16,000 somewhat stable. Through inspections and manifest collection, closed locations or duplicative TPID numbers will be removed from CIWMB's list of waste tire generators, haulers, and end-use facilities.

Originally, CIWMB knew of 12,000 business locations for waste tire handling. The current number exceeds 16,000 locations, is a 33 percent increase over the original contact list.

2. Percent of identified and contacted generators trained on registration and manifest requirements by December 2003.

By December 2003, more than 13,866, or approximately 115.5 percent of the waste tire generators, waste tire haulers, and waste tire end-use facilities initially identified, were sent waste tire manifest guidance manuals, tire program identification numbers, and manifest and/or trip log forms in an effort to notify and train all parties concerning the new waste tire manifest system.

In addition to sending out manuals and training materials to all participants of the waste tire manifest system, staff held one to two training sessions (some sessions in both English and Spanish) at eight locations throughout the state during May and June 2003 to reach as many potential users of the manifest system as possible. Approximately 436 individuals, or 3 percent, of the known participants attended these training sessions.

In addition, starting in January 2003, the waste tire hauler program established a quarterly newsletter to waste tire haulers in an effort to educate the hauler population, which is the pivotal point of the manifest system, so that they can educate their customer base.

Changes to the manifest system are currently being made in order to simplify the reporting requirements for all parties and to implement an electronic web-based report for haulers who are able to meet the criteria for electronic data transfer (EDT). CIWMB staff anticipates that these changes will be implemented and extensive training will once again be initiated, in the summer of 2005.

3. Percent of identified used and waste tires generated, using CIWMB's historical data that are reported under the paper manifest system in 2004.

Since the inception of the waste tire manifest system in July 2003, more than 27,337,505 passenger tire equivalents (PTE) have been generated according to the paper manifests submitted to CIWMB. A 2004 baseline of 27,481,364 PTEs is established by the doubling the projection of 13,740,682 PTEs generated between January and June 2004.

4. Percent of identified used and waste tires generated, using CIWMB's historical data that are reported under the paper and electronic manifest systems in 2005.

Since the inception of the new manifest program in July 2003, EDT was pushed ahead of the projected time frame, as two large haulers were ready and able to implement this system. From the start of the new manifest program in July 2003, more than 12,731,557 PTEs have been generated, according to EDT documentation. A 2004 baseline of 6,759,244 PTEs, reported by EDT, is established by doubling the projection of 3,379,622 PTEs generated between January and June 2004.

In total, 2004 baseline results for both paper and EDT documentation are as follows:

Table A-7: Tires Generated (2004 baseline)

Paper Manifest	EDT Reported	Total Reported
27,481,364	6,759,244	34,240,608

5. *Amount of penalties levied for violation of the PRC pertaining to waste and used tire hauling.*

Penalties levied against two haulers in fiscal year 2003/04 totaled \$2,000. In addition, CIWMB recently issued two administrative complaints against haulers for penalties. Judgment for penalties will not be obtained until fiscal year 2004/05.

Table A-8: Fiscal Year 2003/04 Funding Allocated and Amounts Spent

Note: Some amounts are projections. Items in italics were not listed in the July 2003 Five-Year Plan. Items in shaded cells indicate programs managed by CIWMB divisions other than the Special Waste Division, which the Tire Program is a part of.

Program	Allocated	Remaining*	Reallocated**	Total Spent
ENFORCEMENT				
LEA Grants	\$6,000,000	\$1,287,450		\$4,712,550
<i>California District Attorney Association</i>			\$100,000	\$100,000
REMEDIATION				
Long Term Remediation	\$4,000,000		\$1,865,154	\$5,865,154
Short Term Remediation	\$1,200,000	\$1,200,000		
Cleanup Grants	\$800,000	\$87,713		\$712,287
Amnesty Grants	\$400,000		\$524,675	\$924,675
Emergency Reserve	\$1,000,000	\$1,000,000		
Farm and Ranch Grants	\$333,000			\$333,000
Subtotals	\$7,733,000	\$2,287,713		\$5,445,287
LRF, Inc. Contract			\$250,000	\$250,000
RESEARCH				
Pyrolysis	\$300,000	\$300,000		
Energy Recovery	\$300,000	\$300,000		
Civil Engineering Uses	\$500,000			\$500,000
Increasing Tire Life Span	\$200,000			\$200,000
Fire Responder Health Effects	\$200,000	\$200,000		
Third-Party Peer Review	\$75,000	\$75,000		
Caltrans Support	\$1,100,000			\$1,100,000
Subtotals	\$2,675,000	\$875,000		\$1,800,000
MARKETS				
Tire Recycling Conference	\$100,000			\$100,000
Social Marketing Campaign	\$250,000			\$250,000
Playground Cover Grants	\$800,000	\$8,157	\$124,020	\$915,863
Track Grants	\$800,000		\$700,125	\$1,500,125

Program	Allocated	Remaining*	Reallocated**	Total Spent
Commercialization Grants	\$1,600,000	\$117,220	\$1,000,000	\$2,482,780
Green Building	\$300,000			\$300,000
RACTC	\$500,000	\$500,000		
RMDZ Loan	\$1,500,000			\$1,500,000
State Agency Purchasing	\$300,000			\$300,000
Recycled-Product Trade Show	\$80,000			\$80,000
CalMAX and WRAP	\$40,000			\$40,000
Tire Database	\$100,000			\$100,000
Buy Recycled Certification Audits	\$50,000			\$50,000
Product Stewardship	\$100,000	\$100,000		
RAC Grants	\$1,100,000		\$89,480	\$1,189,480
Subtotals	\$7,620,000	\$725,377		\$6,894,623
<i>Evaluation of Playgrounds and Tracks</i>			\$120,000	\$120,000
<i>Kid Ease Child Care Center Inc. (at Cal/EPA building)</i>			\$32,000	\$32,000
<i>DGS State Fleet Management</i>			\$250,000	\$250,000
<i>OEHHA – Sustainable Building</i>			\$400,000	\$400,000
MANIFEST				
CHP Contract	\$400,000	\$400,000		
Manifest Contract	\$1,110,000			\$1,100,000
Subtotals	\$1,510,000	\$400,000		\$1,110,000
Student Contract			\$120,000	\$120,000
Totals	\$25,538,000	\$5,575,540	\$5,575,454	\$25,537,914

* \$86 of this amount cannot be spent for contract and professional services.

** Reallocation of Fiscal Year 2003/04 Funding: In May 2004, the Board approved the reallocation of \$5,575,454 of fiscal year 2003/04 funding that remained unencumbered. The Board reallocated funding to 13 projects. Of these, eight had been listed in the July 2003 Five-Year Plan and received additional funding, and five were new projects not listed in the July 2003 Five-Year Plan.

Appendix B: Legislative History

The following section describes major legislation that affects the CIWMB's Waste Tire Recycling Management Program.

1989: To address the need for better waste tire management in California, the Legislature enacted Assembly Bill (AB) 1843 (Brown, Chapter 974, Statutes of 1989) known as the California Tire Recycling Act, which promoted recycling of the annual flow of waste tires, as well as stockpiled tires. The act specified that the program promote and develop markets as an alternative to landfill disposal and stockpiling of whole tires. To accomplish these provisions, the act allowed the CIWMB to award grants and loans to businesses, enterprises, and public entities involved in tire recycling activities. It also required the CIWMB to develop waste tire facility regulations for the safe storage of waste tires and established a permitting system for waste tire facilities. A \$.25 fee on waste tires left for disposal funded these programs. The fee was to be deposited in the California Tire Recycling Management Fund and appropriated to CIWMB annually by the Legislature.

1993: As an additional effort to ensure waste tires are disposed of at authorized sites, SB 744 (McCorquodale, Chapter 511, Statutes of 1993) was enacted, creating the CIWMB's waste tire hauler registration program. This program is also financed through the California Tire Recycling Management Fund.

1996: To change the point of collection from a return fee to a fee on purchased retail tires, AB 2108 (Mazzoni, Chapter 304, Statutes of 1996) was enacted. This bill also provided for any traffic or peace officer to enforce the waste tire hauler registration requirements, thus causing further reduction of the illegal hauling and disposal of waste tires.

1998: AB 117 (Escutia, Chapter 1020, Statutes of 1998) was enacted to extend the sunset date for the California Tire Recycling Act, including fee provisions, from June 30, 1999, to January 1, 2001, AB 117 (Escutia, Chapter 1020, Statutes of 1998) was enacted. AB 117 also required the CIWMB to submit a preliminary and final waste tire report by May 1, 1999 and June 30, 1999, respectively, to the Governor and the Legislature. The resulting report published in June 1999 and entitled *California Waste Tire Program Evaluation and Recommendations: Final Report* (Pub. #540-99-006), included recommendations needed to address such waste tire issues as elimination of waste tire stockpiles; protection of public health, safety, and the environment; and an increase in sustainable economic markets for waste tires in California.

1999: To provide access for cleanup, abatement, and remediation purposes to a property that contains unlawfully disposed of waste or used tires when the owner does not voluntarily consent to such access, SB 1055 (Bowen, Chapter 292, Statutes of 1999) was enacted, which added section 42846.5 to the Public Resources Code. Specifically, a property owner is required to allow the CIWMB or its contractor reasonable access to perform activities necessary to clean up, abate, or otherwise remedy illegally stored, stockpiled, or accumulated waste tires on the property if an order setting civil liability has been issued and the CIWMB finds that there is a significant threat to public health or the environment.

1999: SB 115 (Solis, Chapter 690, Statutes of 1999), also known as the California Environmental Justice Act, was enacted. The California Environmental Justice Act requires the Office of Planning and Research, in consultation with State agencies, local agencies, and affected communities, to develop a State interagency environmental justice strategy that addresses any disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations. In addition, the act requires each State agency to make the achievement of environmental justice part of its mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in California.

2000: SB 876 (Escutia, Chapter 838, Statutes of 2000) was enacted as a comprehensive measure to extend and expand California's regulatory program related to the management of waste and used tires. The measure's key provisions include the following:

1. Increasing the tire fee from \$0.25 to \$1.00 per tire (bringing California in line with other large states) until December 31, 2006, and reducing it to \$0.75 thereafter.
2. Extending the California tire fee to tires on new motor vehicles.
3. Revising the definition of "waste tire" and adding other definitions designed to provide regulatory relief for several thousand used tire dealers and waste tire recyclers.
4. Expanding the tire manifest system.
5. Increasing funding for recycling and recovery efforts.
6. Strengthening enforcement by making changes to the waste tire hauler and waste tire facility permit programs.
7. Developing a five-year plan to implement the provisions of SB 876.

2001: SB 649 (Committee on Environmental Quality, Chapter 625, Statutes of 2002) was enacted to provide cost recovery from property owners for costs and damages incurred by the CIWMB.

2001: SB 828 (Alarcon, Chapter 765, Statutes of 2001) was enacted to create deadlines for the Working Group on Environmental Justice and require all boards, departments, and offices within the California Environmental Protection Agency (Cal/EPA) to review their programs, policies, and activities and identify and address any gaps related to environmental justice, SB 828.

2002: SB 1346 (Kuehl, Chapter 671, Statutes of 2002) was enacted to encourage the use of rubberized asphalt concrete (RAC) in public works projects and assist with establishing markets for waste tires. The measure provides authority until June 30, 2006, to the CIWMB, which may implement a program to award grants to cities, counties, districts, and other local government agencies for the funding of public works projects that use RAC. Grants shall be awarded to projects that are projected to generate between 2,500 and 20,000 tons of RAC during the life of the project and that will use 20 pounds or more of crumb rubber per ton of RAC. To the extent possible, depending on the number of qualified applications and whether there is sufficient supply of crumb rubber, funds allocated shall be equal to 16 percent of the funds budgeted in the five-year plan for market development and new technology activities.

2003: AB 1756 (Budget Committee, Chapter 228, Statutes of 2003) was enacted to prohibit the CIWMB from providing support to efforts related to the use of waste tires as fuel.

2003: AB 844 (Nation, Chapter 645, Statutes of 2003) was enacted to require the California Energy Commission, in consultation with the CIWMB, to adopt by July 1, 2007, and implement by July 1, 2008, a replacement tire efficiency program of statewide applicability for replacement tires for passenger cars and light trucks. Further, this program must ensure that replacement tires sold in the State are at least as energy efficient, on average, as the tires sold as original equipment on these vehicles in the State.

2004: AB 923 (Firebaugh, Chapter 707, Statutes of 2004) was enacted to increase the amount every person who purchases a new tire shall pay on or after January 1, 2005, to \$1.75 and to decrease the amount on or after January 1, 2007, to one \$1.50. Commencing January 1, 2005, and until December 31, 2006, \$0.75 of every tire fee imposed shall be transferred by the State Board of Equalization to the Air Pollution Control Fund. Commencing January 1, 2007, the State Board of Equalization shall transfer \$0.50 of every tire fee imposed to the Air Pollution Control Fund. The Air Resources Board (ARB) shall expend funds to local air districts for programs and projects that mitigate or remediate air pollution caused by tires in the state. This disbursement will continue until the ARB or the local districts determine that the program or projects remediate air pollution harms created by tires. This bill will sunset on January 1, 2015.

2005 Pending Legislation: This bill would require the Department of Transportation to use, in its highway construction and repair projects, asphalt containing not less than 20 percent crumb rubber by January 1, 2007, not less than 25 percent by January 1, 2010, and not less than 35 percent by January 1, 2013 (Levine, Assembly Bill 338).

Appendix C: California Waste Tire Generation, Markets, and Disposal: 2003 Staff Report

(CIWMB pub. #620-05-007)

Introduction

California is faced with the challenge of safely managing 39 million reusable and waste tires generated annually in the state. In addition, an estimated 1.5 million tires remain in unpermitted stockpiles in California. The number of waste tires diverted nearly tripled between 1990 and 2003. However, the number of waste tires generated annually continues to exceed the number of tires diverted. CIWMB staff estimates that in 2003, 28.5 million of the 39 million reusable and waste tires generated (73.1 percent) were diverted from stockpiling or disposal.

This report focuses only on waste tires generated and markets for these tires. The report provides estimates of reusable and waste tire generation, consumption, and disposal in California for 2003.

For additional information on CIWMB's Tire Program, please visit our website at www.ciwmb.ca.gov/Tires/.

Estimate of Waste Tires Generated

California has struggled with the task of estimating how many waste tires have been generated during the calendar year. During the years between 1990 and 2000, CIWMB used the factor of 0.915 tires per person per year, which was developed by an industry survey in 1991 and 1992. In 2001, CIWMB staff reassessed the validity of this method of calculating the generation rate and determined that the 0.915 factor needed to be updated. Staff therefore selected the number 0.958 as the waste tire generation factor for 2001 and 2002. This number is halfway between the previous California factor of 0.915 and the U.S. factor of 1. For 2003, to calculate the number of reusable and waste tires generated in the state, CIWMB primarily used population statistics and state industry trends and approximations. Because of the changing economic infrastructure and the variety of tire-derived products available on the market, staff determined that the adjustment factor should be slightly higher than the U.S. Environmental Protection Agency number. The U.S. EPA calculates the number of waste tires by using the formula of one waste tire per person per year to obtain an average for the nation.

One issue that has come to CIWMB's attention is how the number of retreaded tires has been calculated in the past. According to information provided by the Tire Retread Information Bureau (TRIB—www.retread.org), an estimated 757,000 retreaded truck tires (with an average weight per medium-truck tire [11R22.5] of 120 pounds) were sold by 59 retread plants in 2003.[§] Staff previously calculated retreaded tires by using the passenger tire equivalent (PTE) of 20 pounds as the average weight. By using the new calculation of 120 pounds, the amount of tires retreaded increases.

Staff anticipates that data from waste tire manifests^{**} will eventually give a more accurate waste tire generation number; however, data will not be available until the year 2005. Once the data from the CIWMB's waste tire manifest system is available, staff may adjust the California factor again.

Based on a survey of major industry stakeholders and on other available sources, CIWMB staff estimated that of the approximately 39 million reusable and waste tires generated in 2003, approximately 28.5 million of the tires (73.1 percent) were diverted through various alternatives, including reuse, retreading, and combustion. Table C-1 and Figure C present waste tire generation, diversion, and disposal in California for 2003. Further, because of the lack of a uniform reporting system in past years on tire recycling activities in California,

[§] Brodsky, Harvey <info@retread.org>, Tire Information Retread Bureau. E-mails sent to CIWMB staff (Boxing Cheng) on July 12, 2004, and July 15, 2004.

^{**} Waste tire manifests are forms that accompany shipments of waste or used tires and that are completed by waste or used tire generators, haulers of waste and used tires, and operators of end-use facilities.

CIWMB has also relied on estimates to quantify tires recycled or diverted from landfill disposal and stockpiling. Staff arrived at these estimates by using information from industry contacts that transport, process, and/or recycle large quantities of waste tires.

Markets for Waste Tires

Reuse

An alternative to disposal is tire reuse. After the purchase of new tires, the remaining reusable tires that still have a legal tread depth can be resold by a dealer, rather than being disposed of or recycled prematurely. Based on information from industry contacts, 1.8 million tires, or 4.6 percent of the estimated 39 million reusable and waste tires generated in 2003, were reused.

Crumb Rubber, Rubberized Asphalt Concrete, Alternative Daily Cover, and Civil Engineering Uses

Based on information from industry contacts, CIWMB staff estimates about 3.4 million tires were used to generate crumb rubber to manufacture crumb rubber products,^{††} including playground cover, speed bumps, carpet tile, mats, sound walls, and other various cut, stamped, or molded products. In addition, 2.6 million tires were used for rubberized asphalt concrete (RAC). Staff estimates 7.5 million tires were used for other activities, including 4.9 million tires for alternative daily cover (ADC). Approximately 1.8 million tires were used for civil engineering projects, such as landfill gas collection trenches, lightweight fill, and a levee reinforcement project.

Recycling and Other Uses

Staff estimated that 2.7 million waste tires were recycled (and used in products such as those made from ground rubber products) and put to other uses (such as agricultural uses).

Retreading

Tire retreading is a viable option for renewing reusable tires by reusing the tire casing after the legal tread has worn off. Based on surveys, industry contacts, and information obtained from the Tire Retread Information Bureau (TRIB—www.retread.org), there are 59 active retread plants in California, and an estimated 757,000 retreads were sold in 2003 by these plants. Most of these retreads were medium- and light-truck tires, with a very small percentage for industrial, farm, small aircraft, and passenger tires. Using an average weight of 120 pounds per medium-truck tire for retreads, CIWMB staff has determined that approximately 4.4 million PTEs were retreaded tires and sold in 2003 in California.^{‡‡}

Exported Tires

Tire export (both reusable and waste tires) reduces the number of tires requiring eventual disposal in California. According to industry contacts and staff estimates, approximately 1.8 million reusable and waste tires were exported in 2003.

Combustion

Tire combustion significantly reduces the number of tires requiring landfill disposal or stockpiling. In 2003, about 7.1 million tires were combusted as fuel in California (5.8 million were consumed by the cement manufacturing industry, and 1.3 million were consumed by a cogeneration plant in Stockton).

Imported Tires

CIWMB staff estimates that in 2003, approximately 2 million waste tires were imported into California for recycling from Utah, Oregon, Nevada, Arizona, and Canada. Imported waste tires were used in combustion

^{††} In actuality, more tire rubber is used for RAC or crumb rubber products. However, the extra rubber used consists of tire buffings from tire retread operations. These tires are already accounted for as retreaded tires.

^{‡‡} Information in this paragraph from (1) Brodsky, Harvey, Tire Retread Information Bureau, July 12, 2004, and July 15, 2004, e-mails to CIWMB staff (Boxing Cheng) and (2) surveys and industry contacts.

as a fuel supplement and to generate crumb rubber. Imported tires have also been disposed of in landfills. While not all disposal facility operators kept track of data on imported tires disposed of in landfills in 2003, staff is now working with industry to track these imports more accurately. The interstate transport of waste tires is market-driven; neither State nor local governments can regulate import and export of tires. Factors influencing importation are geographic proximity to end users and subsidies provided by other states or countries to facilitate collection, recycling, and disposal of waste tires.

Summary

Figure C displays information pertaining to waste tire reuse, recycling, diversion, and disposal in California. In 1990, CIWMB staff estimated that 11.3 million of the 33.8 million California waste tires generated were diverted from landfill disposal and stockpiling (34 percent). For 2003, staff estimates that approximately 28.5 million of the 39 million waste tires California generated were diverted from the annual waste stream (73.1 percent).

Table C-1: California Waste Tire Generation, Diversion, and Disposal, 2003

(Numbers except for diversion percent in millions of passenger tire equivalents¹)

A	B	C	D	E	F	G	H	I	J		K	L	M	N
Generated	Reused	Crumb Rubber	RAC	Civil Engin. Applic.	Alternative Daily Cover	Recycling and Other Uses ²	Retreads ³	Exported	TDF		Imported	Diverted ⁷	Disposed Of ⁸	Diversion Percent ⁹
									Cogen-eration ⁴	Cement ⁵				
39.0	1.8	3.4	2.6	1.8	4.9	2.7	4.4	1.8	1.3	5.8	2.0	28.5	10.5	73.1%

¹ Based on an average weight of 20 pounds per passenger car waste tire. One passenger car waste tire generates 12 pounds of crumb rubber.

² "Recycling and Other Uses" includes tires used in ground rubber products and other products made from waste tires. It does not include tire buffings from retreading operations because buffings are accounted for in the "Retreaded Tires" category. However, tire buffings are recycled. Therefore, the number of waste tires recycled is greater than shown here.

³ Retreaded tires are mainly medium- and light-truck tires. CIWMB staff used an average weight of 120 pounds per retreaded tire.

⁴ Represents the number of tires combusted in power plants primarily from the annual waste tire stream, but may also include some stockpiled tires from site cleanups.

⁵ Represents the number of tires combusted as fuel supplement in cement kilns, primarily from the annual waste tire stream, but may also include some stockpiled tires from site cleanups.

⁶ Includes tires imported for combustion as fuel supplement or used to generate crumb rubber.

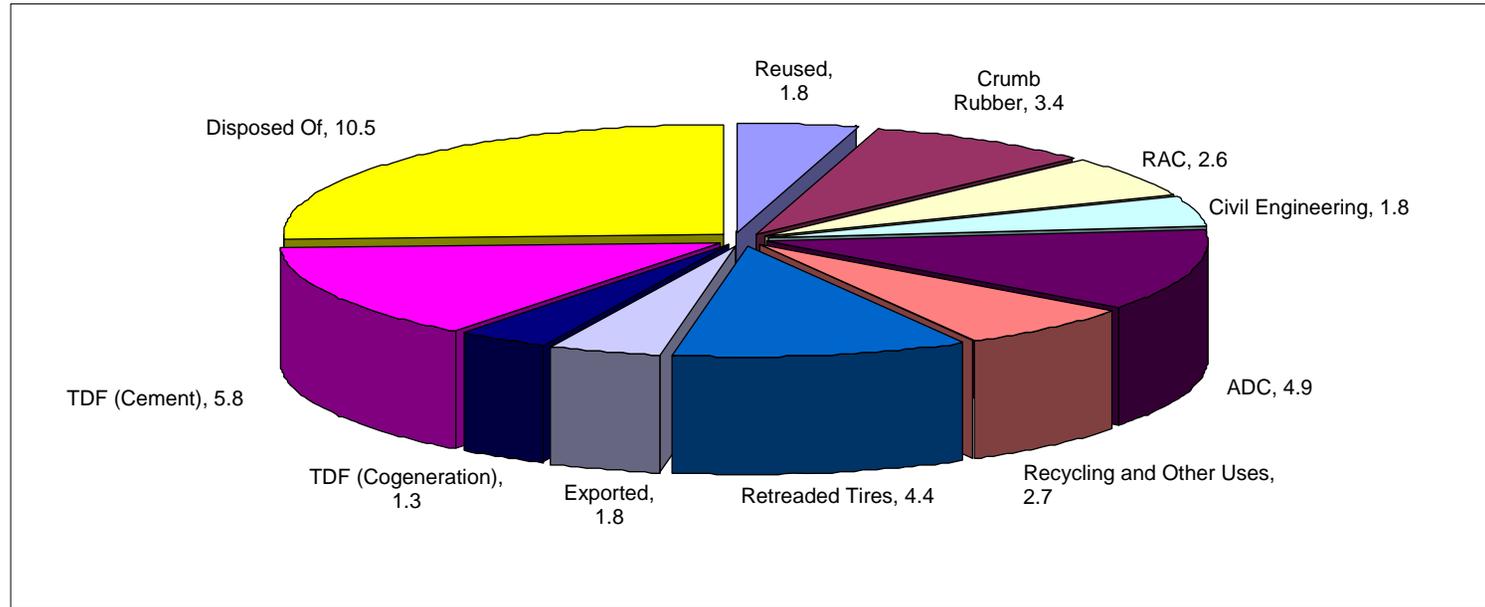
⁷ Determined by summing Columns B, C, D, E, F, G, H, I, J, and K, and subtracting Column K.

⁸ Determined by summing the number of tires disposed of at landfills and mono-fills, primarily from the annual waste stream.

⁹ Represents the percentage of waste tires diverted primarily from the California-generated annual waste stream.

Figure C: Estimated Reusable and Waste Tire Recycling and Disposal, 2003

(Numbers in millions of passenger tire equivalents)



Appendix D: Waste Tire Recycling Management Program's Publications

Listed below, in alphabetical order, are publications produced by or for the California Integrated Waste Management Board regarding various aspects of managing waste and used tires in California. You may download or order these publications at www.ciwmb.ca.gov/Publications/ or by calling (916) 341-6306 or (800) 229-2783 (California only).

1997 RAC and Crumb Rubber Products Workshop

Date Published/Last Revised: May 23rd and May 30th 1997

Publication Type: Program/Workshop Information

Description: This workshop provided participants with the information needed for making sound decisions regarding the purchase of products containing crumb rubber.

CIWMB Publication Number: Not Available

An Analysis of Subsidies and Other Options to Expand the Productive End Use of Scrap Tires in California

Date Published/Last Revised: November 2002

Publication Type: Report

Description: 87 page(s). Summarizes the history of California's waste tire management legislation, disposal, and recycling activities, and presents ways to recycle more tires through market intervention subsidies. Includes survey of tire recycling programs in 11 other states and British Columbia, Canada. The report was commissioned by the California Integrated Waste Management Board.

CIWMB Publication Number: 620-02-006

Analysis of Emissions Test Results and Residual By-products from Facilities Using Tires as a Fuel Supplement

Date Published/Last Revised: October 1997

Publication Type: Report

Description: The objective of this analysis was to compare the differences in air emissions from industrial processes operating with and without tires as a fuel supplement. The goal of this analysis is to assess (in a quantifiable manner) the potential for changes in air emissions when using tire-derived fuel and its potential impact on air quality and health risk.

CIWMB Publication Number: Not available. Other information: Contract No. IWM-C5064.

Ash Quantification and Characterization Study--Co-firing and Dedicated Combustion of Waste Tires

Date Published/Last Revised: January 1995

Publication Type: Report

Description: 79 page(s). Evaluation of ash from waste tire combustion for use in road construction applications.

CIWMB Publication Number: Not Available

Assessment of Markets for Fiber and Steel Produced From Recycling Waste Tires

Date Published/Last Revised: August 2003

Publication Type: Report

Description: 182 page(s). CIWMB report defining the status of recycling of tire-derived steel and fiber and performing an in-depth analysis of issues related to marketability of these materials. Background data and information were collected from waste tire processors, the tire industry, and the marketplace. Evaluation of information resulted in numerous findings and recommendations.

CIWMB Publication Number: 622-03-010

California's Waste Tire Challenge

Date Published/Last Revised: Revised April 2003

Publication Type: Fact sheet

Description: 4 page(s). Overview of California's tire problems and the Board's tire programs (recycling as well as permitting and enforcement and cleanup), with staff contacts for each program.

CIWMB Publication Number: 400-94-012

California Waste Tire Generation, Markets, and Disposal: 2002 Staff Report

Date Published/Last Revised: October 2003

Publication Type: Report

Description: 11 page(s). This report provides estimates of reusable and waste tire generation, consumption, and disposal in California for 2002.

CIWMB Publication Number: 620-03-015

California Waste Tire Program Evaluation and Recommendations: Final Report

Date Published/Last Revised: June 1999

Publication Type: Report

Description: 102 page(s). As required by statute, a report to the Governor and the Legislature examining the status of waste tires in California, as well as programs needed to provide sustainable end uses for the tires generated in the state and reduce existing waste tire stockpiles.

CIWMB Publication Number: 540-99-006

Consumers' Tire-Buying Habits and Their Knowledge of Tire Maintenance, Recycling, and Disposal

Date Published/Last Revised: November 2003

Publication Type: Report

Description: 182 page(s). Presents survey data on tire purchasing habits of consumers in California and consumers' general knowledge about tires, tire maintenance, recycling, and disposal. Study funded by the California Integrated Waste Management Board.

CIWMB Publication Number: 622-03-004

Criteria Pollutant Tests During the TDF Trial Burn at Stockton Cogen, Inc. (Final Report—1997)

Date Published/Last Revised: September 1997

Publication Type: Report

Description: Air Products and Chemicals, Inc. performed a trial burn of tire derived fuel (TDF) blended with coal and coke at the Stockton Cogen, Inc. plant located in Stockton, California. The project was partially funded by the Integrated Waste Management Board of the California EPA (IWMB) to determine to the feasibility of using TDF as a supplementary fuel in fluidized-bed boilers. The trial burn program included sampling and analysis of the fuel and other commodities added to the boiler, of the ash produced by the boiler, and of the stack emissions.

CIWMB Publication Number: Not available.

Designing Building Products Made With Recycled Tires

Date Published/Last Revised: June 2004

Publication Type: Report

Description: 24 page(s). Provides technical information on physical tire properties for designers of buildings who use tire-derived products. Includes cross-section illustration of a tire and appendix listing tire-derived building and landscape products.

CIWMB Publication Number: 433-04-008

Don't Waste Tires!

Date Published/Last Revised: October 2003

Publication Type: Fact sheet

Description: 2 page(s). Fact sheet provides tips on tire maintenance, encourages use of tire-derived products and retreaded tires, and promotes the reuse or recycling of tires.

CIWMB Publication Number: 620-03-014

Effects of Waste Tires, Waste Tire Facilities, and Waste Tire Projects on the Environment

Date Published/Last Revised: April 1996

Publication Type: Report

Description: 82 page(s). An outline (through available literature) of the conditions in which waste tires, waste tire facilities, and waste tire projects would create adverse effects on the environment. Attachments are not currently available with downloadable version.

CIWMB Publication Number: 432-96-029

Environmental Factors of Waste Tire Pyrolysis, Gasification, and Liquefaction

Date Published/Last Revised: July 1995

Publication Type: Report

Description: Pyrolysis, gasification, and liquefaction (PGL)² are three related technologies that could potentially recover usable resources (i.e. energy, chemical feedstocks, steel, and fiber) from waste tires. Tire PGL would also reduce the volume of residue material remaining for disposal; thus, the California Integrated Waste Management Board (CIWMB) wished to study tire PGL as a waste tire management strategy. This report serves as background for assessing PGL in terms of the environmental consequences of the technologies.

CIWMB Publication Number: Not available. Other information: CalRecovery Report No.1364.

Evaluation of Waste Tire Devulcanization Technologies

Date Published/Last Revised: December 2004

Publication Type: Report

Description: 99 page(s). Survey of chemical, ultrasonic, microwave, biological, and other tire devulcanization technologies now in use. Covers cost, market, and environmental analysis and barriers to devulcanization. Published by the California Integrated Waste Management Board.

CIWMB Publication Number: 622-04-008

Five-Year Plan for the Waste Tire Recycling Management Program: Fiscal Years 01/02--05/06

Date Published/Last Revised: September 2001

Publication Type: Report

Description: 54 page(s). The California Integrated Waste Management Board is required to adopt a five-year plan establishing goals and priorities for the waste tire program. This plan includes programmatic and fiscal issues as well as performance objectives and measurement criteria for the waste tire recycling program. The plan is to be revised and resubmitted to the State Legislature every two years.

CIWMB Publication Number: 620-01-004

Five-Year Plan for the Waste Tire Recycling Management Program: Fiscal Years 03/04--07/08

Date Published/Last Revised: July 2003

Publication Type: Report

Description: 75 page(s). Second edition of five-year plan the CIWMB is required to adopt establishing goals and priorities for its waste tire recycling management program. The plan includes programmatic and fiscal issues as well as performance objectives and measurement criteria for the tire program. The plan is to be revised and resubmitted to the State Legislature every two years.

CIWMB Publication Number: 620-03-007

Increasing the Recycled Content in New Tires

Date Published/Last Revised: May 2004

Publication Type: Report

Description: 93 page(s). The California Integrated Waste Management Board's five-year tire plan allocated funds to research increasing the recycled content in new tires in an effort to further reduce the number of waste tires requiring disposal. This report examines the potential for increasing recycled content, addressing technology and market issues, what barriers exist, and what has been done to date on this subject. Report recommendations were presented at CIWMB's May 2004 Board meeting.

CIWMB Publication Number: 622-04-001

LEA Advisory #46: Evaluation of Employee Health Risk From Open Tire Burning

Date Published/Last Revised: November 1997

Publication Type: Information advisory

Description: 8 page(s). Provides guidance on safety issues for employees working near burning tires.

CIWMB Publication Number: 232-97-019

Market Status Report: Waste Tires

Date Published/Last Revised: October 1996

Publication Type: Report

Description: 6 page(s). One of a series of reports that examine market barriers to recycling post consumer materials and strategies to overcome these barriers. These reports were produced in conjunction with the market development plan, "Meeting the 50 Percent Challenge: Recycling Market Development Strategies Through the Year 2000."

CIWMB Publication Number: 421-96-067

New Uses for Old Tires: Options to Reduce Waste and Stretch Public Works Dollars

Date Published/Last Revised: July 2002

Publication Type: Case study

Description: 12 page(s). Describes practical applications for using tires in local public works projects, with examples given for communities in California and Maine. Includes cost-benefit analyses. One of 24 studies showcasing successful recycling and waste reduction programs developed by local and regional government to achieve California's 50 percent waste diversion goals. The studies were developed with the support of the California Integrated Waste Management Board.

CIWMB Publication Number: 310-02-010

Overview Report on California's Waste Tire Program

Date Published/Last Revised: September 1998

Publication Type: Report

Description: 14 page(s). Includes a summary of the Board's accomplishments in implementing the California Tire Recycling Act and an analysis of expenditures from the California Tire Recycling Management Fund from 1990/91 through 1997/98.

CIWMB Publication Number: 540-98-007

Second Biennial Tire Recycling Conference (5/95)

Date Published/Last Revised: June 1995

Publication Type: Conference proceedings

Description: 150 page(s). Complete proceedings of the conference, including such topics as market development, tires as fuel, rubberized asphalt, local government issues, waste tire facility permit and remediation program, new technologies, waste tire hauler registration program, and tire recycling outlook.

CIWMB Publication Number: 432-96-073

Shredded Tires as Alternative Daily Cover at Municipal Solid Waste Landfills

Date Published/Last Revised: October 1997

Publication Type: Guidance manual

Description: 35 page(s). A summary of recommended procedures for use of tire shreds as alternative daily cover at municipal solid waste landfills.

CIWMB Publication Number: 212-97-024

Tire Facilities

Date Published/Last Revised: Updated September 1999

Publication Type: Compendium

Description: 74 page(s). Information from Solid Waste Information System (SWIS) database--includes name of facility; county; geographical location; names, addresses and phone for enforcement agency, operator/business owner, and land owner; classification, category, activity, regulatory status, and operational status. On-line database is searchable and updated regularly.

CIWMB Publication Number: 251-97-021

Tire Fire Smoke: Major Constituents and Potential for Public Health Impacts

Date Published/Last Revised: May 2002

Publication Type: Report

Description: This report is prepared in response to a mandate from the California State Legislature. SB-876 (statues 2000, chaptered 2000; Public Resources Code, Chapter 838) requires "...preparation of a report by the Office of Environmental Health Hazard Assessment in consultation with the State Air Resources Board, the Integrated Waste Management Board, and the State Department of Health that includes, at a minimum, the major chemical constituents of smoke from burning tires, the toxicity of those chemicals, and the potential effects on human health from exposure to smoke from the tire fires. The report shall be submitted to the Governor, the Legislature and the board by December 21, 2001" (SB-876). The report addresses the risk from airborne toxicants and not issues associated with the cleanup of a site after the tire fire is extinguished, such as potential ground water contamination from site runoff.

CIWMB Publication Number: Not Available

Tire Recycling Program 1995 Annual Report

Date Published/Last Revised: May 1996

Publication Type: Report

Description: 14 page(s). Annual report on the Board's tire recycling programs. Includes information on tire generation, consumption, and disposal in California; grant program awards and projects; and other activities such as tire facility and hauler registration, public education, and marketing and technical research.

CIWMB Publication Number: 432-96-042

Tire Recycling Program Annual Report, 1994

Date Published/Last Revised: May 1995

Publication Type: Report

Description: 16 page(s). Fulfills reporting requirements of Public Resources Code section 42885 on used tire program. Includes estimates of generation, consumption, and disposal, information on waste tire facility regulation, and hauler registration as well as business development, research, grants, and public education.

CIWMB Publication Number: 432-95-007

Tire Recycling Program Evaluation

Date Published/Last Revised: January 1997

Publication Type: Report

Description: 17 page(s). This report, required by the Supplemental Report of the 1996 Budget Act, provides results of all grants, loans, and contracts completed in the most recent fiscal year, including the resulting diversion of waste tires from landfills and stockpiles. It also identifies the kinds of activities that have been particularly effective for achieving diversion.

CIWMB Publication Number: 432-97-002

Tire Shreds as Final Cover Foundation Layer Material at Municipal Solid Waste Landfills

Date Published/Last Revised: December 1998

Publication Type: Guidance manual

Description: 38 page(s). Provides a summary of recommended procedures for use of tire shreds as final cover system foundation layer material at municipal solid waste landfills.

CIWMB Publication Number: 212-98-002

Tire Shreds as Gas Collection Material at Municipal Solid Waste Landfills

Date Published/Last Revised: December 1998

Publication Type: Guidance manual

Description: 40 page(s). Provides a summary of recommended procedures for using tire shreds as landfill gas (LFG) collection material at municipal solid waste landfills, including horizontal LFG collection layers, horizontal trenches, and vertical boreholes.

CIWMB Publication Number: 212-99-006

Tire Shreds as Leachate Drainage Material at Municipal Solid Waste Landfills

Date Published/Last Revised: December 1998

Publication Type: Guidance manual

Description: 36 page(s). Provides a summary of recommended procedures for using tire shreds as landfill leachate drainage material, including leachate injection pits within the waste mass, at municipal solid waste landfills.

CIWMB Publication Number: 212-99-005

Tire Shreds as Operations Layer Material at Municipal Solid Waste Landfills

Date Published/Last Revised: December 1998

Publication Type: Guidance manual

Description: 33 page(s). Provides a summary of recommended procedures for using tire shreds as operations (protective) layer material at municipal solid waste landfills.

CIWMB Publication Number: 212-99-007

Tire Shreds: Solutions in Civil Engineering Applications

Date Published/Last Revised: July 1999

Publication Type: Brochure

Description: 2 page(s). Informs civil engineers of opportunities to use tire shreds in place of other lightweight fill in projects such as roads, bridges, highway embankments, landslide stabilization, and landfill liners and caps.

CIWMB Publication Number: 212-99-004

Tires as a Fuel Supplement: Feasibility Study

Date Published/Last Revised: January 1992

Publication Type: Report

Description: 98 page(s). A report to the legislature on the feasibility of using waste tires as a fuel supplement for cement kilns, lumber operations, and other industrial processes. Prepared in cooperation with the California Air Resources Board and the California Energy Commission.

CIWMB Publication Number: 401-93-001

Waste Tire Commercialization Grant Program: Abstracts and Status Updates, FY 1998/09 through 2003/04

Date Published/Last Revised: December 2004

Publication Type: Report

Description: 45 page(s). Status report on the California Integrated Waste Management Board's tire product commercialization grant program. Includes a summary, covering fiscal years 1998-99 through 2003-04, describing grants made to businesses and public entities for activities that could expand markets for waste tire-derived products.

CIWMB Publication Number: 622-04-012

Waste Tire Hauler Program NEWS-LINE, Fall 2003 Edition

Date Published/Last Revised: September 2003

Publication Type: Newsletter

Description: 4 page(s). Fall 2003 edition of the quarterly newsletter from the California Integrated Waste Management Board's Waste Tire Hauler Program, geared to help circulate regulatory information to California's waste tire haulers.

CIWMB Publication Number: 623-03-013

Waste Tire Hauler Program NEWS-LINE, Spring 2004 Edition

Date Published/Last Revised: April 2004

Publication Type: Newsletter

Description: 4 page(s). Spring 2004 edition of the quarterly newsletter from the California Integrated Waste Management Board's Waste Tire Hauler Program, geared to help circulate regulatory information to California's waste tire haulers.

CIWMB Publication Number: 623-04-006

Waste Tire Hauler Program NEWS-LINE, Summer 2003 Edition

Date Published/Last Revised: July 2003

Publication Type: Newsletter

Description: 4 page(s). Summer 2003 edition of the quarterly newsletter from the California Integrated Waste Management Board's Waste Tire Hauler Program, geared to help circulate regulatory information to California's waste tire haulers.

CIWMB Publication Number: 623-03-005

Waste Tire Hauler Program NEWS-LINE, Summer 2004 Edition

Date Published/Last Revised: August 2004

Publication Type: Newsletter

Description: 4 page(s). Summer 2004 edition of the quarterly newsletter from the California Integrated Waste Management Board's Waste Tire Hauler Program, geared to help circulate regulatory information to California's waste tire haulers.

CIWMB Publication Number: 623-04-009

Waste Tire Hauler Program NEWS-LINE, Winter 2003 Edition

Date Published/Last Revised: January 2003

Publication Type: Newsletter

Description: 4 page(s). First issue of a quarterly newsletter from the California Integrated Waste Management Board's Waste Tire Hauler Program, geared to help circulate regulatory information to waste tire haulers in the state.

CIWMB Publication Number: 623-03-001

Waste Tire Hauler Program NEWS-LINE, Winter 2004 Edition

Date Published/Last Revised: January 2004

Publication Type: Newsletter

Description: 4 page(s). Winter 2004 edition of the quarterly newsletter from the California Integrated Waste Management Board's Waste Tire Hauler Program, geared to help circulate regulatory information to California's waste tire haulers.

CIWMB Publication Number: 623-04-002

Waste Tire Hauler Program NEWS-LINE, Winter 2005 Edition

Date Published/Last Revised: December 2004

Publication Type: Newsletter

Description: 4 page(s). Winter 2005 edition of the quarterly newsletter from the California Integrated Waste Management Board's Waste Tire Hauler Program, geared to help circulate regulatory information to California's waste tire haulers.

CIWMB Publication Number: 623-04-011

Waste Tire Management Grant Abstracts: Fiscal Year 1998-99

Date Published/Last Revised: June 2002

Publication Type: Report

Description: 70 page(s). Summarizes 58 waste tire grants awarded by the CIWMB for FY 98-99 (totaling \$1,518, 522.44) for playground cover/track surfacing, tire products promotion/processing, public education/amnesty, enforcement, and cleanup projects. Summaries include project results, final amount paid, and contact information. Project results monitor the success of waste tire management alternatives and practices and are the basis for further research and commercialization.

CIWMB Publication Number: 622-02-003

Waste Tire Management in California

Date Published/Last Revised: January 1997

Publication Type: Fact sheet

Description: 1 page(s). Brief description of waste tire management programs at the IWMB, including recycling (financial assistance, marketing research, and technical assistance) and permitting and enforcement (safe handling and disposal and site cleanup).

CIWMB Publication Number: 432-97-007

Waste Tire Management Program: 1999 Annual Report

Date Published/Last Revised: October 2000

Publication Type: Report

Description: 22 page(s). This report provides an overview of California's waste tire program, including a summary of the Board's accomplishments in implementing the California Tire Recycling Act during fiscal year 1998-99.

CIWMB Publication Number: 620-00-006

Waste Tire Management Program: 2000 Annual Report

Date Published/Last Revised: July 2001

Publication Type: Report

Description: 29 page(s). An overview of California's waste tire program, including a summary of the California Integrated Waste Management Board's accomplishments in implementing the California Tire Recycling Act during fiscal year 1999/2000.

CIWMB Publication Number: 620-01-006

Waste Tire Management Program: 2001 Staff Report

Date Published/Last Revised: May 2003

Publication Type: Report

Description: 21 page(s). This report provides an overview of California's waste tire program, including information on markets for waste tires and permitting, enforcement, and hauler registration programs. Also includes the CIWMB's accomplishments in implementing the California Tire Recycling Act during fiscal year 2000/01.

CIWMB Publication Number: 620-03-003

Waste Tire Manifest System Guidance Manual

Date Published/Last Revised: May 2003

Publication Type: Guidance manual

Description: 72 page(s). This guidance manual provides practical, step-by-step instructions for waste tire generators, haulers, and end use facilities on complying with the new CIWMB waste tire manifesting requirements that become effective July 1, 2003. Topics covered include: background information, specific responsibilities, how to fill-out the forms, instructions for different business scenarios, FAQs, and much more.

CIWMB Publication Number: 623-03-002