



*Tracy tire site
burned more than
2 years before it
was suppressed
(estimated 7–8
million tires
burned).*

FIVE-YEAR PLAN

FOR THE

WASTE TIRE RECYCLING MANAGEMENT PROGRAM

(5th Edition Covering Fiscal Years 2009/10–2013/14)

Report to the Legislature



*CIWMB has
provided
more than
\$30 million to local
governments
for rubberized
asphalt concrete*

July 1, 2009

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Executive Summary

California is faced annually with the challenges of diverting the more than 44 million used and waste tires generated in the state, or safely managing the disposal of those that cannot be diverted. For 2006, an estimated 74 percent of generated waste tires, or 33 million tires, were diverted from disposal or stockpiles. This reflects steady improvement over previous years, but it still means that the remaining 11 million tires were landfilled.

Prompted by several disastrous tire pile fires in the late 1980s and illegal dumping, the Legislature recognized the need for waste tire management in passing the California Tire Recycling Act in 1989. Under the Act and subsequent amendments, the California Integrated Waste Management Board (Board) is mandated to regulate and manage waste tires within the state in order to protect public health and the environment and to develop new markets for waste tires. As part of its responsibilities, every two years the Board submits an updated Five-Year Tire Plan to the Legislature that identifies priorities, performance criteria, and allocations.

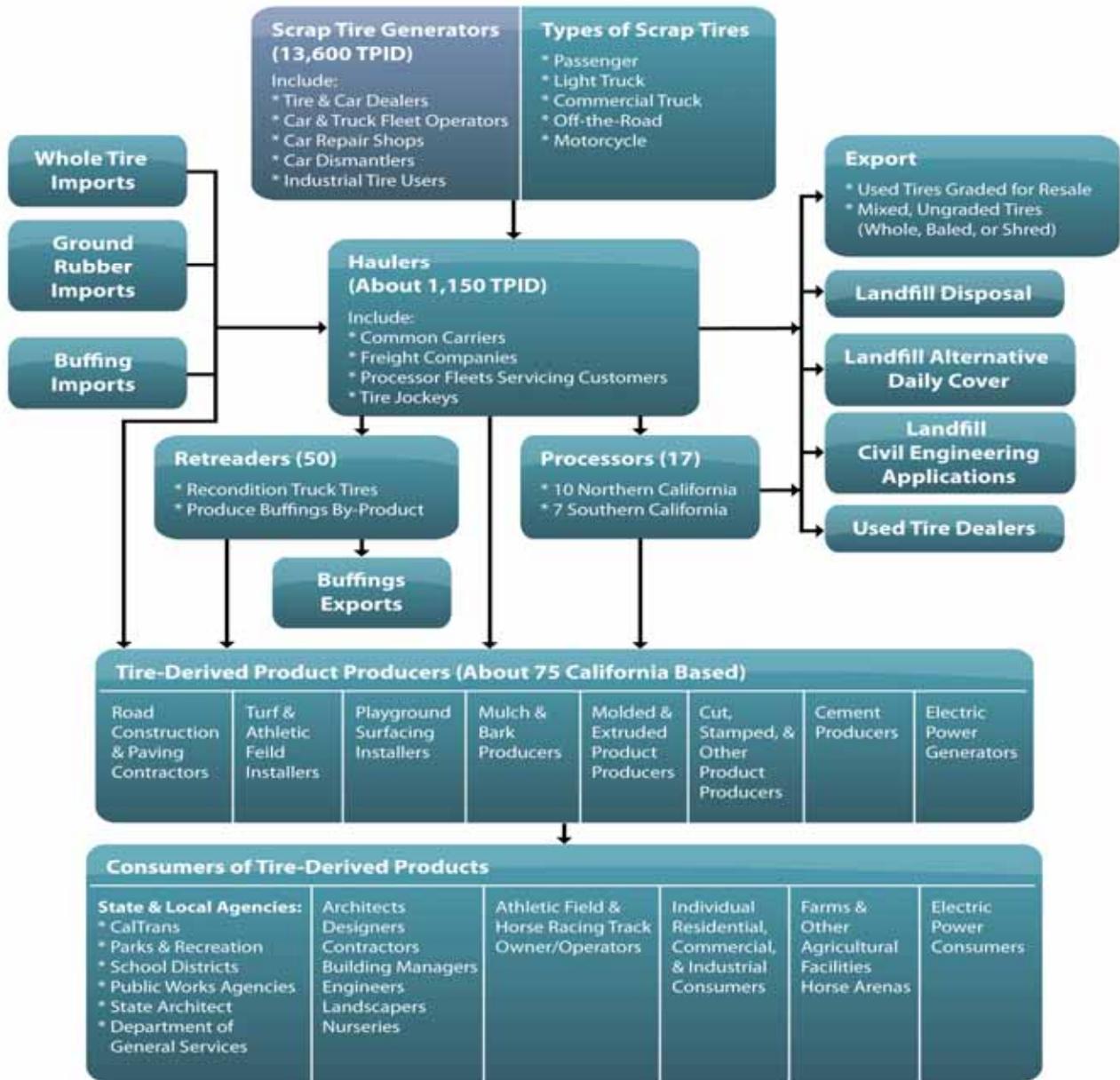
Accomplishing these broad mandates is an enormous task, in part because the industry itself is complex. As Figure 1 shows, the industry has numerous players – a mix of generators, transporters, processors, retreaders, manufacturers, and distributors and installers, some of whom play multiple roles. There also are many types of tire-derived products and potential end-uses, and a wide range of consumers.

The Board's overall tire management strategy continues to focus on the two interrelated fronts of enforcement and market development: 1) developing and implementing a strong and fair regulatory framework that protects the public's health and safety and the environment but does not stifle the flow and processing of tires; and 2) supporting and expanding the business and government infrastructure that manufactures and/or uses tire-derived products. The programs and projects in this Five-Year Plan are designed to reach the Board's strategic directive goals of raising the statewide tire diversion rate to 90 percent by the year 2015, and ensuring that 100 percent of waste tire facilities are in compliance or under compliance orders by 2009. These are complemented by the additional goals of eliminating all identified illegal tire piles by 2010 and reducing the number of tires generated by California motorists from 1.23 per person in 2006 to 0.75 per person by the year 2015.

Based on the last few years of data, we are seeing progress towards all of these goals. The diversion rate is climbing, fewer facilities are out of compliance, and fewer large illegal tire piles are being found. Figure 2 shows that the diversion rate has increased by several percentage points over the last few years, even while waste tire generation increased during the same time period. Of course, waste tire generation is in part a function of economic activity. Due to the current economic slowdown, the Board anticipates a short-term decline in the number of tires generated annually and in fees paid into the Tire Recycling Management Fund.

This positive diversion trend is happening because of more rigorous enforcement and because we have been successful in developing a more diverse array of end-uses for diverted tires. Diverting tires into value-added products helps bolster the state's economy and protect the state's environment and the overall health and welfare of its residents. Table 1 summarizes data from the Board's annual waste tire market surveys completed from 2002 through 2006.

Figure 1: California’s Waste Tire “Industry” (courtesy of R.W. Beck)



Note: TPID = Tire Program Identification Number

Figure 2: California Waste Tire Disposal, Diversion, and Diversion Rates (percent) for 2004 to 2006 (Legend: Stippled = disposal; Diagonal = diversion; PTE = Passenger Tire Equivalents)

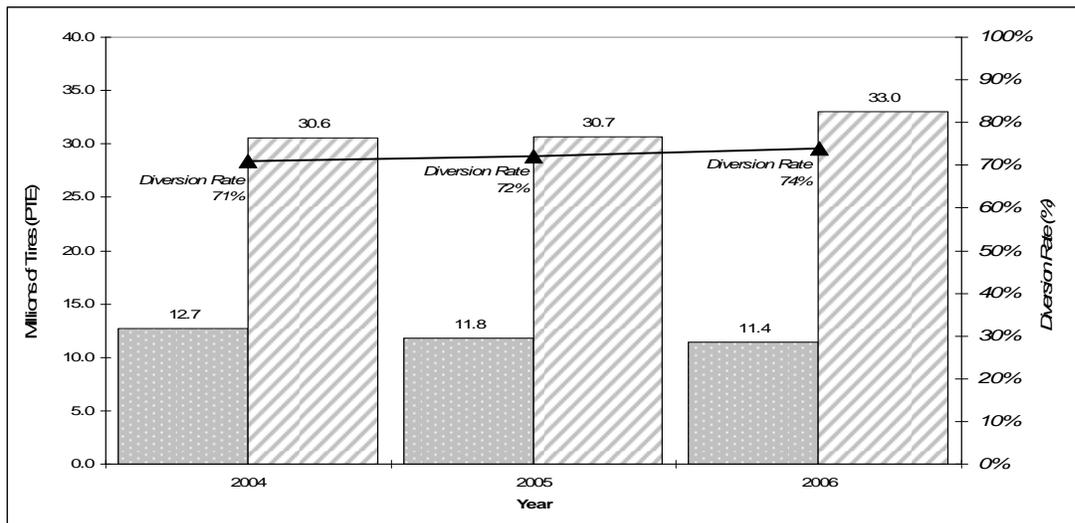


Table 1: Summary of California Used and Waste Tire End-Uses, 2002-2006

Category	2002	2003	2004	2005	2006
Reuse	1.5	1.8	1.6	1.2	2.1
Crumb Rubber	5.8 ¹	3.4	3.5	3.2	2.7
RAC		2.6	2.7	2.0	3.9
ADC	3.9	4.9	4.5	4.7	4.5
Civil Engineering activities	3.0	1.8	1.2	2.0	3.3
Tire Derived Fuel (TDF)	6.1	7.1	8.1	9.1	8.3
Agricultural and Other Uses	2.0	2.7	2.9	3.2	3.3
Retreading	2.3	4.4	4.4	4.4	4.4
Exported	2.0	1.8	3.1	2.3	1.9
Imported	1.5	2.0	2.0	1.5	1.4
Total California Generation	33.5	39.0 ²	40.2	40.8	44.4
Disposal	8.4	10.8	10.2	10.2	11.4
Disposal (Percent of Generation)	25.1%	26.9%	25.4%	25.0%	25.7%
Total Diversion	25.1	28.5	30.0	30.6	33.0
Total Diversion (Percent of Generation)	74.9%	73.1%	74.6%	75.0%	74.3%

Source: "California Waste Tire Generation, Markets and Disposal, CIWMB Staff Reports," 2002 – 2006.

¹ In 2002 crumb rubber and RAC were not separated.

² The apparent jump in generation beginning in 2003 is partly a result of changes in calculation method.

Enforcement

The enforcement elements of the program – enforcement and permitting, tire manifesting, and waste tire cleanup -- are designed not only to protect public health and the environment but also to provide for a fair and consistent marketplace for recycled tires. The Board has directed staff to expand tire enforcement efforts. Technical assistance and training are offered to the regulated community (tire haulers, tire generators, and permitted tire facilities). However, if a business demonstrates an unwillingness to comply, and is not responsive to technical assistance and training, then the Board initiates enforcement action. Tire

facility permitting, coupled with expanded and robust statewide enforcement efforts, is working to ensure a level playing field for tire facilities, haulers, and generators who operate within the law.

Enforcement and Permitting

Aggressive enforcement is now being applied if and when training and technical assistance do not assure compliance. This fifth edition of the Five-Year Plan continues to provide substantial waste tire enforcement grants to local governments designated by the Board as the enforcement authority for rules related to waste and used tires. Local tire enforcement grantees role in enforcement has increased. Recent efforts to increase reimbursement rates and streamline the local tire enforcement grant program have allowed us to recruit more local governments to participate as partners in the enforcement program. The local government tire grantee program has been very successful, with 39 grantees covering 77 percent of active sites in FY 2007/08 and 42 grantees covering 79 percent of active sites in FY 2008/09. This will ensure ongoing support to enforce tire hauling and disposal laws throughout California, including the California-Mexico border region.

Continuous improvements in the tire storage permit process and permit enforceability remain a key element of the permit program. Permit renewal timeframes are aggressively monitored and enforced. As permits are renewed, improvements have been made in clarity and the extent of the conditions in the permit relative to the accounting of tires on site, as well as local fire and vector prevention requirement. A multipronged effort is under way, through the permit and regulatory processes, to address changes to the fire codes relative to tire storage indoors and outdoors.

In 2008 California formally joined the U.S.-Mexico Border Scrap Tire Integrated Management Initiative. This initiative includes tire pile remediation in California that partially results from activities in Mexico.

The Board also is implementing two new innovative tire-related cleanup initiatives near the U.S.-Mexico border: the Imperial County New River Collaborative, and the Tijuana River Valley Trash and Sediment Working Group.

The New River Collaborative identified and is cleaning up and preventing reoccurrence of chronic mixed tire and solid waste illegal dumping sites in Imperial County. These sites were identified as a result of increased border area aerial surveillance activities utilizing the CHP under contract with the Board. The Collaborative is being assisted through an innovative pilot program master agreement awarded to the Local Enforcement Agencies under the Farm and Ranch Grant Program and an innovative grant under the Board's Solid Waste Disposal and Codisposal Site Cleanup Program to be considered for award to the Imperial Irrigation District.

Large quantities of trash, tires, and sediment are transported by storm water from Mexico into the Tijuana River Valley and estuary, adversely impacting the Border Field State Park and Tijuana River National Estuarine Research Reserve. The Tijuana River Valley Trash and Sediment Working Group is a collaborative partnership of agencies and organizations to address the broad range of issues affecting the entire Tijuana River Valley watershed. To spearhead this effort, the Board's Solid Waste Cleanup Program is developing a project to capture solid waste and tires currently discharged to Goat Canyon within the Border Field State Park. The Board also is conducting investigations in collaboration with partners to develop additional cleanup projects within the Tijuana Valley watershed.

In addition to cleanup and other activities near the border, the Board will continue to distribute a bilingual environmental curriculum to teachers in Baja California school districts. Contractor reports on tire flow in the border region and the use of satellite technology to identify tire piles will be available in the near future. These reports will provide an evaluation of feasibility of future use of satellite imagery to identify tire piles and clarify and quantify border tire flow issues.

Tire Manifesting

Improvements to the waste tire manifest program have vastly improved the Board's ability to track the flow of tires. This system both works to ensure waste tires are moving through the market system to appropriate management facilities and helps to prevent new, illegal stockpiles and/or disposal sites of waste tires. In 2007, six tire hauler/tire manifest cases were resolved through the administrative complaint and hearing process. During 2008, the Board adopted a zero tolerance policy regarding late tire hauler registration and tire manifest violations and a streamlined enforcement and compliance structure to ensure full compliance by the 1,076 registered waste tire haulers in California. During the last half of 2008, the streamlined tire penalty process for relatively noncontroversial cases resulted in 80 of 89 (or 89 percent) tire haulers paying penalties to quickly resolve the cases without going to administrative hearings. Ninety-four percent of those who paid streamlined penalties filed their 2009 tire hauler registration on time.

Waste Tire Cleanup

The waste tire cleanup program has successfully cleaned up the state's largest waste tire piles, including the two largest tire fire sites in Westley and Tracy (which combined burned more than 12 million tires, resulting in environmental damage that cost in excess of \$25 million to remediate) and most of the large illegal disposal sites in Sonoma County. This has enabled the Board to turn its attention to cleaning up smaller piles located in rural locations and along roadways and critical habitats. The Board is also addressing mixed piles (tires mixed with other solid or hazardous wastes), which present different challenges that require the expertise and resources of the Farm & Ranch and Solid Waste Disposal and Codisposal Site Cleanup programs. When practical the Board returns cleaned up tires to the recycling marketplace.

Since 1995 the Board has, through both short and long-term remediation of illegal waste tire sites, removed more than 650,000 tons of illegal waste tires and contaminated debris from 68 sites at a total cost of more than \$40 million. The Board has approved more than \$6 million for 254 amnesty program grants and \$5.4 million for cleanup grants of 107 sites and tires in public right-of-ways. The Board has approved more than \$5.2 million for the cleanup of 424 tire and mixed solid waste/tire sites under the Farm and Ranch Grant Program.

Despite these efforts, however, there is still more work to be done. Tires are still leaking from the collection and management system. Local government agencies are still finding significant numbers of illegally dumped tires. Demand for tire amnesty and cleanup grant funding to clean up these tires is expected to continue in the foreseeable future. Additional demand for such funding will be through outreach efforts to jurisdictions which have not yet applied to the programs. Over the past 12 years, the Board has found it more cost-effective to prevent tires from leaking out of the system, rather than cleaning up tire dump tires. The Board's increased focus on enforcement will help to a certain extent in the long term but cannot be expected to solve the entire problem.

The Board believes that a primary source of the leakage is that consumers of new tires can avoid paying dealers a waste tire handling fee by taking their waste tires with them. Currently, purchasers of new tires have the option of leaving the used tires with the tire dealer for a fee or taking the used tires away with them and avoiding the fee. Many of the tires that consumers take away are either illegally disposed or are stored for some time and then eventually taken to an amnesty event. To better control the leakage of tires from the established collection and management system, Board staff recommends statutory changes to mandate that all used tires removed from vehicles remain in the control of the tire dealers so that they can be properly managed under the law. Such a change would significantly reduce over time the number and the associated costs of illegally disposed tires and tires disposed at amnesty events.

Market Development and Research

Creating expanded and new markets for recycled tire materials is crucial for increasing waste tire diversion, and doing so will require developing strong in-state demand for value-added end uses. Markets for more tire-derived products continue to strengthen, and potential new market opportunities are being pursued, but more work is needed. In order to grow markets and make them sustainable, there must be a steady flow of materials, sufficient capacity, diverse product lines, and continuous viable uses entering the marketplace, as well as a fair and consistent regulatory framework as described above. State assistance is still needed to overcome economic, regulatory, technical, and institutional barriers that restrict growth. The market development elements of the Five-Year Plan include technical research, focused support for product use by local jurisdictions and State agencies, and support for individual business development.

Past and proposed research into new and promising technologies and support for new uses is forming a vision of a future with fewer waste tires generated and virtually all being recovered for higher and better uses. Over the years, the Board's numerous research projects and studies have helped develop strategies for mapping out the Tire Program future. These studies have examined markets for steel and fiber residue from tire processors; the economic viability of pyrolysis, liquefaction, gasification, and devulcanization; the use of recycled-content rubber in new tires; health effects of waste tires in playground and track products; specifications for rubberized asphalt concrete ; and the use of tire-derived aggregate in highway construction and other civil engineering applications. This research is crucial for verifying the technical feasibility of new technologies, products, and uses and for developing new programs that allow California to lead the nation in waste tire reduction.

In addition to research, the Board has used a combination of grants and contracts, primarily to local governments, to promote procurement and end-use of a diverse range of products in different applications. Board grants in particular promote products such as rubberized asphalt concrete and other tire-derived products. Over the past year, the Board has restructured the grant program to focus more on potential first-time rubberized asphalt concrete users, who need more assistance and start-up support. The Board has also introduced grant programs with paving options targeted for rural jurisdictions. For this reason, the Board also provides technical assistance through a contractor to provide support associated with roadway projects including rubber hot-mix, rubber chip seal, rubber cape seals, and other emerging paving applications that use tire-derived materials. In the same way, the Board investigates new uses for tire-derived aggregate in civil engineering applications. Once the applications have been determined to have merit, the Board provides State and local agencies with engineering services for project design, procurement, and construction management. The Board also has expanded its tire-derived products grant program to include both public entities and State agencies as eligible applicants. This program provides grants to purchase a variety of products, such as sport surfaces, rubberized sidewalks, weed abatement covers, mulch, sound barriers, and traffic safety products.

At the same time, the Board has greatly expanded its assistance to individual businesses through its Tire-Derived Product Business Assistance Program. This innovative program was designed to build an effective statewide infrastructure that can respond to the ebbs and flows of a changing market, through better production management and product diversification. The program goes well beyond the former Tire Product Commercialization and Applied Technologies Grant Program, which was limited to providing funds for equipment purchases only. The business assistance program helps businesses improve their ability to operate on a sustainable basis, specifically by helping streamline operations, reduce production costs, improve marketing efforts, and diversify product lines. In the program's first two cycles, 29 firms received marketing, product testing, technical, and general business assistance; a third assistance cycle will commence in April 2009.

The Board recognizes that some end-uses are more expensive than others on a dollar-per-tire basis, and that some tire-derived products do not consume large numbers of waste tires. Yet the Board believes it is important to have a rich variety of outlets and end-uses for waste tires in order ensure a long-term sustainable market. Targeted assistance to individual businesses is key, helping them to deal with the short- to medium-term financial and technical business needs necessary to establish sustainable markets.

The Board also recognizes that in order to make markets truly sustainable, much of this targeted assistance will eventually need to be phased out; as noted above, the Board has already restructured its rubberized asphalt concrete grant program to provide less assistance to experienced users and more to first-time users. As new products and fledgling industries emerge, the Board will develop programs accordingly.

The business assistance program also has been addressing key barriers that restrict expansion of waste tire recycling in California. The barriers are grouped around four key elements which are needed for a strong and vibrant waste tire market: 1) strong supply infrastructure to provide raw materials and tire-derived products; 2) diversified, expanding markets for a range of those products; 3) effective marketing and sales mechanism to move those products to customers; and 4) reliable, up-to-date market information.

The business assistance program and Recycling Market Development Zone loans, as well as other Board programs, are addressing these barriers through industry-wide projects. Together, these activities are focused on the working with stakeholders to create a strong and vibrant tire-derived business infrastructure. They promote the use of rubberized asphalt concrete, work closely with State and local public works departments to expand and diversify the use of tire-derived aggregate for civil engineering applications, promote the purchase of other existing tire-derived products, work closely with industry to create new products, and provide assistance to businesses to remove barriers that slow down private market expansion.

To assist in future planning efforts, the Board also is continuing a comprehensive market analysis that was approved in the previous Five-Year Plan, for a two-year assessment of market trends, performance indicators, raw material and supply flow, and future market conditions. This analysis will be completed in 2009 and will specifically address material and product flow through the marketplace and establish a mechanism to periodically update market data so that the most current information is available to decision makers. It also will be used to validate data gathered prior to 2006 on end-uses and provide new data for 2007 and 2008.

The Board has taken great strides to ensure that the local jurisdictions and State agencies are educated and informed about what it has to offer for tire-derived products. To continue these efforts, the Board is preparing to launch two major contracts in 2009. One will promote the use of the asphalt alternative in local government paving projects, building on an earlier “Green Roads” campaign and reaching out to both decision-makers and the general public to promote its many benefits. The second is to expand a tire sustainability outreach campaign to inform drivers how to increase fuel efficiency, improve safety, and extend tire life through proper tire inflation, regular rotations, and purchase of longer-life tires. This will be a partnership between the Board, California Air Resources Board, California Energy Commission, and Bureau of Automotive Repair.

Budget and Summary

This fifth edition of the Five-Year Plan presents the following budget for the Board’s Tire Program for Fiscal Years 2009/10 through 2013/14. Pursuant to the enabling legislation, the Tire Program has five major elements (Enforcement, Cleanup, Hauler and Manifest, Research, and Market Development), along with miscellaneous administrative functions. The proposed expenditures reflect the spending authority limit for the Tire Program as outlined in the Governor’s budget.

Table 2: Total Tire Program Funding for Fiscal Years 2009/10–2013/14

Program Areas	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14	Totals for All Fiscal Years
Enforcement	\$7,601,334	\$8,360,000	\$8,360,000	\$8,840,000	\$9,090,000	\$42,251,334
Cleanup*	\$4,500,000	\$4,100,000	\$4,100,000	\$4,000,000	\$3,900,000	\$20,600,000
Hauler and Manifest	\$325,000	\$450,000	\$450,000	\$450,000	\$450,000	\$2,125,000
Research	\$1,150,000	\$850,000	\$1,000,000	\$500,000	\$1,000,000	\$4,500,000
Market Development	\$21,457,666**	\$21,274,000**	\$21,124,000**	\$13,106,000	\$12,456,000	\$89,417,666
Program Staffing and Administration	\$4,924,000**	\$4,916,000**	\$4,916,000**	\$4,916,000**	\$4,916,000**	\$24,588,000
Administration	\$1,832,000	\$1,832,000	\$1,832,000	\$1,832,000	\$1,832,000	\$9,160,000
Mandatory Contracts	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$7,500,000
Totals	\$43,290,000	\$43,282,000	\$43,282,000	\$35,144,000	\$35,144,000	\$200,142,000

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

**Subject to approval by the Legislature and Governor.

The Governor's proposed budget dated January 2009 describes an additional \$8.6 million and 4.3 positions for a new equipment loan program, local assistance grants, and public outreach and education. The table above reflects these additional funds; however, they are subject to approval by the Legislature and Governor.

These proposed expenditures support the Board's drive to increase tire diversion to 90 percent, eliminate illegal tire piles, bring all facilities into compliance, and reduce waste tire generation. The activities described in this edition of the Five-Year Plan reflect the following priorities that support these goals:

1. Expand the statewide enforcement and surveillance program through cooperative efforts with local and State enforcement agencies.
2. Clean up and remediate the remaining tire piles identified through surveillance and enforcement programs.
3. Work with stakeholders to remove barriers that slow market expansion and to create a strong and vibrant tire-derived business infrastructure that supports a sustainable market for all tire-derived products.
4. Promote the use of rubberized asphalt concrete, particularly at the local level; work closely with State and local public works departments to expand and diversify the use of tire-derived aggregate for civil engineering applications; promote the use and purchase of other existing tire-derived products; and work with industry to create new products that will help divert waste tires from landfills.
5. Work with tire manufacturers, retreaders, and dealers to ensure that new tires last longer; retreaded tires are purchased by a wider range of consumers; and consumers learn about proper tire maintenance and leaving their old tires at the dealership for proper management.

This edition of the Five-Year Plan builds onto the Board's existing comprehensive and ambitious approach to managing California's waste tires. Our state cannot waiver from programs and policies designed to protect public health and safety and the environment from the hazards presented by discarded tires. The Board's enforcement and cleanup efforts must remain vigilant. The market development programs must send a strong signal in support of expanding the infrastructure that manages the reuse and recycling of waste tires. By building strong sustainable markets in California, we can view waste tires as a commodity that can be developed into value-added products, thereby offering an economically attractive alternative to landfilling and providing jobs for California. The ultimate measure of success will be how well these activities divert waste tires to higher and better uses, and how effective enforcement and cleanup are in protecting human health and the environment.

Introduction

This fifth 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. Many reports and studies have been undertaken since the Tire Program began. For instance, the report titled “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, the current market status and trends, and many more help provide guidance to the Board for setting priorities.

The Board adopted a strategic plan that guides executive and management staff in establishing priorities and designing programs. These documents helped define the parameters of this *Five-Year Plan*. Within that framework, the Board conducted numerous workshops, roundtable discussions, and conferences to solicit input and to share information. Furthermore, a public meeting in October 2008 obtained 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.
- The Waste and Used Tire Hauler Program and Manifest System.
- Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires.
- Market Development and New Technology Activities for Waste and Used Tires.

Each of the program elements consists 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

The Tire Enforcement Program's primary goal is to manage and mitigate the impacts of tires on public health and safety, and the environment, by ensuring that tire businesses comply with tire permitting, storage, and movement laws, regulations, and state minimum standards. Compliance is monitored through integrated and consistent permitting, inspection, and enforcement efforts. The Board works closely with state and local governments to:

- inspect tire businesses for compliance with permitting, storage, and movement laws, regulations, and state minimum standards;
- educate tire businesses and property owners on tire laws and regulations;
- look for illegal dumping, storage, and movement of tires; and,
- take enforcement actions as needed to correct violations.

The Board's waste tire enforcement program is closely aligned and cooperatively administered with other cleanup-related components in the Five-Year Plan. For example, enforcement actions against the largest known waste tire sites in Sonoma County resulted in negotiated settlements with cleanups administered by the Board's Cleanup Branch. Vigorous waste tire enforcement pursuant to Board members' Strategic Directives minimizes the chances for large tire sites to develop and to go unaddressed and for subsequent environmental crises like the Westley and Tracy tire fires to occur. The costs for long-term remediation as part of the Five-Year Plan's Cleanup and Remediation element has been significantly reduced and is expected to continue to be positively impacted in future years.

The Tire Enforcement Branch also cooperates with the Cleanup Branch on the administration of Farm and Ranch, Amnesty and Local Government Tire Cleanup grant programs. For example, when enforcement staff discovers waste tire piles are on privately owned agricultural property, and the tire piles are determined not to be the responsibility of the landowner, the Tire Enforcement Branch brings them to the attention of Farm and Ranch staff for potential grant consideration. Conversely, grant applications for Farm and Ranch grants, which are independently received, where landowner certifications of non-responsibility cannot be obtained, are referred to the Tire Enforcement Branch for appropriate follow-up. Over time, concerted enforcement action to reduce illegal waste tire disposal is expected to reduce the need for grant funds in the Amnesty and Local Waste Tire, and Farm and Ranch cleanup funds.

The Tire Enforcement Branch administers the Local Waste Tire Enforcement Grant program that supports the activities of 42 local jurisdictions in the Board's waste tire enforcement efforts and also coordinates with and provides support for the Board's illegal dumping initiatives. Waste tires are often illegally dumped along with other solid waste. Therefore, waste tire program field personnel and the surveillance support available through the Local Waste Tire Enforcement grant program can, in many instances, be leveraged to address both waste tire and other illegal dumping objectives.

The Board's Tire Enforcement Branch is aligned with Cal/EPA's enforcement initiatives, which include a progressive enforcement program. When a violation is first identified (the first offense) a standard Notice of Violation is issued. If the violation is not corrected or is a repeat of past violations, the following enforcement actions are taken until the violation has been resolved:

- Cleanup and Abatement Orders (for illegal tire piles only);
- Administrative Complaints; and,
- Referrals to local district attorney's offices and the State Attorney General's office.

Civil and criminal actions are reserved for egregious violations and/or repeat offenders.

Since many of the initial legacy piles have been brought into compliance, the Board 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.

Prior to 2002, most of the inspections, investigations, and enforcement efforts were conducted by five Board field staff, and their efforts focused on enforcement of cases identified through complaints and referrals from other agencies. Since that time, the Board has significantly increased the number of local agencies engaged in tire enforcement activities through the Waste Tire Enforcement Grant Program.

Objectives

The enforcement program has the following objectives:

1. Support existing and new waste tire enforcement grantees by providing stable funding, training, and ongoing technical assistance.
2. Inspect tire businesses on a routine basis to assure compliance with all State tire permitting, storage, and movement laws, regulations, and state minimum standards.
3. Provide ongoing surveillance for illegal tire sites. Identify and investigate all suspected illegal tire sites through ground and aerial surveillance and respond to complaints.
4. 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.
5. Manage a tire database that will collect and store the necessary information for an effective program.

Performance Measures

The 4th Edition of the Five-Year Plan contained seven performance measures for the Enforcement Element, which are listed along with accomplishments for the previous fiscal year in Appendix A. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

1. Inspections:

- a. Inspect all active major and minor permitted facilities at least once every fiscal year. *As of June 30, 2008, there were 33 active permitted facilities and 32 (97 percent) of them had been inspected.*
- b. Inspect all active registered haulers at least once every two fiscal years. *As of June 30, 2008, there were 1,076 active haulers and 723 (68 percent) of them had been inspected.*
- c. Inspect all active generators at least once every three fiscal years. *As of June 30, 2008, there were 18,399 active generators and 11,224 (61 percent) of them had been inspected.*
- d. Monitor the results of inspections by compiling comparative annual data of the number of inspections performed, Notices of Violations issued, sites brought into compliance after a

notice was issued, and referrals made to the Board which resulted in an enforcement action. *From July 1, 2006 through June 30, 2008, 21,341 inspections were performed, 1,563 notices were issued, and 21 referrals resulted in an enforcement action. From July 1, 2006 through June 30, 2007, 540 sites were brought into compliance after the NOV was issued.*

2. Surveillance:

- a. Monitor the effectiveness of surveillance activities by compiling comparative annual data of illegal tire piles identified via grantee or CHP surveillance. *From July 1, 2006 through June 30, 2007, surveillance activities identified 472 illegal tire piles.*

3. Non-Compliant Tire Businesses:

- a. Monitor the effectiveness of progressive enforcement actions by compiling comparative annual data of enforcement actions initiated and resolved. *From July 1, 2006 through June 30, 2008, 27 Enforcement Actions were initiated, and 14 from this period and earlier were resolved. The unresolved items are under active enforcement orders.*

4. Grant Program:

- a. Increase or maintain waste tire enforcement grantee coverage in the state to 80 percent or more of active tire businesses for each fiscal year. *For 2007/08 awards, 20,462 of 25,821 (79 percent) active California tire businesses are covered by grantees.*
- b. Conduct at least two grantee roundtables per fiscal year. *The Tire Enforcement Branch conducted grantee roundtable meetings in the spring and fall of 2008. Subjects included Inspection and Enforcement procedures, tire enforcement legal issues, and general grant management and administration.*
- c. Participate in the Annual Tire Conference. *The Tire Enforcement Branch participated in the Annual LEA Conference held in November 2008.*
- d. Monitor the effectiveness of the grant program by compiling comparative annual data of grant funds awarded and expended. *Grantees were awarded \$11,370,000 for the 12th and 14th Grant Cycles for work performed July 1, 2006 through June 30, 2008. Grantee expenditures have been 59-63 percent of the funds awarded. The Board approved changes in the program for the 15th Grant Cycle which should help to address the under-expenditure issue include the following: the removal of the “cap” on grant-related administrative costs and the conditional allowance for a portion of grant funds to be utilized for cleanup of small tire piles of less than 500 tires.*

Activity Description and Budget

The enforcement program will implement a two-pronged approach to statewide enforcement which will use local enforcement entities wherever possible and State resources in “gap” areas. The waste tire enforcement program will provide ongoing assistance to local jurisdictions and oversee the entire effort. Table 3 provides a list of activities and associated budgets for the Enforcement and Regulations Relating to the Storage of Waste and Used Tires Element.

Table 3: Budget for Enforcement and Regulations Relating to the Storage of Waste and Used Tires

Program Area	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14
Waste Tire Enforcement Support Activities	\$245,000	\$370,000	\$370,000	\$375,000	\$375,000
Enforcement Case Assistance	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Local Government Waste Tire Enforcement Grants	\$7,141,334	\$7,775,000	\$7,775,000	\$8,250,000	\$8,500,000
Database Development and Maintenance	\$165,000	\$165,000	\$165,000	\$165,000	\$165,000
Totals	\$7,601,334	\$8,360,000	\$8,360,000	\$8,840,000	\$9,090,000

- 1. Waste Tire Enforcement Support Activities:** This line item has changed over time based on needs and lessons learned and is a combination of several activities and agreements that will support the overall mission of enforcing the laws regarding the hauling and disposal of waste and used tires in the State of California and along the California/Mexico border region. This combined activities approach will provide flexibility with respect to program funding for each activity. Approximately one-third of the budgeted amount allocated per fiscal year for these activities will be used for activities along the Mexican border region in California. The temporary reduction of \$125,000 in funds for FY 2009/10 reflects the fact that several projects were delayed in FY 2007/08 and FY 2008/09 due to the restriction on resource use and unavoidable contractor delays which have caused a one-year delay in implementing some of the border activities. The delayed work will be completed by FY 2009/10, so that full funding will need to resume in FY 2010/11. Funds will be allocated to the following projects:

CHP Agreement to Support Enforcement Activities: This effort continues to enhance the working relationship that has been established between the Board and the California Highway Patrol. Under this agreement the Highway Patrol will continue to support the Board’s field efforts in the areas of ground and aerial surveillance, covert and overt investigations, inspector security, training for state and local law enforcement officers, and roadside checkpoints to assist the Board as well as local enforcement personnel. This effort includes a surveillance and enforcement support focus in the California/Mexico border region.

Satellite Surveillance Project: This project, if implemented, will be the third contract using currently available satellite imagery to review and analyze large sections of land. This feature has been proven to work and can be used as a resource for field staff in locating and monitoring tire piles that are not easily accessible by other means. This activity is useful in finding tire piles located in remote and isolated areas of Central and Northern California having limited visual access and the large desert regions in Southern California including the California/Mexico border region. This project has shown promise in both locating both tires and illegal disposal activities. Additionally, there may be an option to use this technology to remotely monitor permitted, closed, illegal, and abandoned landfills.

ARB Surveillance Assistance: This activity will support field investigative efforts by the Board and local enforcement waste tire grantees. The Air Resources Board has extensive experience in assisting other agencies in the purchase, maintenance, monitoring, and use of both covert and overt surveillance equipment. ARB’s expertise has aided and should continue to aid the Board and local waste tire grantees in their efforts to find and prosecute those individuals who illegally haul or

dispose of tires. Additionally, work should be done toward procuring more sophisticated surveillance equipment for covert activities allowing real-time remote monitoring and sensing.

Analysis of Targeted Study Areas for Waste Tire Enforcement: Provide site/topic specific studies that target issues relating to the enforcement of used and waste tire laws in California. This activity will provide the Board with the flexibility to respond to situations that arise, which may not have been previously under consideration. For instance, Senate Bill 772 (Ducheny, Chapter 214, Statutes of 2005) required the Board to track the flow of both legal and illegal waste and used tires through the California/Mexico border. *Note: The California/Mexico border tire flow report will be completed and there are no plans to do another report at this time.*

Training Support for Waste Tire Enforcement Inspectors and Managers: This activity continues work with Office of Emergency Services and the California Specialized Training Institute to provide comprehensive and up-to-date training that focuses on tire enforcement and environmental compliance in support of training for both CHP and local law enforcement. In addition, funds will be used to supplement the tire portion of the Board’s annual enforcement conference for local agencies. Training provides inspectors and managers with up-to-date information on the Board’s waste tire management programs and grants, as well as a venue to network and discuss other items of interest. Other outreach activities may also be held during the year. The Board held a series of in-depth workshops for a limited number of CHP and local grantees in 2008. The training was successful and additional training should be considered to increase the number of trained CHP and grantees.

Activity Funding

FY 2009/10.....	\$245,000
FYs 2010/11–2011/12.....	\$370,000 per fiscal year
FYs 2012/13–2013/14.....	\$375,000 per fiscal year

- 2. Enforcement Case Assistance:** The Board’s Legal Office generally prosecutes administrative enforcement penalty actions to ensure uniformity of enforcement and to expedite processing. However, criminal and certain civil enforcement cases must be referred to 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 Board established a two-year pilot program with the California District Attorneys Association to assist these jurisdictions. This pilot project proved successful. Therefore, the Board will continue to work with authorized enforcement organizations as contractor(s) or grantee(s) for investigative and prosecutorial services to pursue criminal or civil enforcement actions.

Activity Funding

FYs 2009/10- 2013/14.....	\$50,000 per fiscal year
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- 3. Local Government Waste Tire Enforcement Grants:** PRC section 42889(b)(4) allows the Board “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 Board 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 Board’s enforcement efforts in overseeing the proper management and flow of waste tires throughout the state. Eligible county and city jurisdictions can use these grant funds to identify waste tire sites, conduct waste tire facilities inspections, investigate illegal tire disposal activities, review waste tire hauler documents, issue Notice of Violations, 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;
- Ensure 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 continues to increase. There were just eight grantees in fiscal year 2001/02, and 42 in fiscal year 2007/08. As a direct result of the waste tire enforcement grants, local agencies have a much more vital and expanded role in enforcement.

The Board expanded program criteria for the 2007/08 fiscal year program. Grantees will be reimbursed for a higher hourly personnel rate, increased surveillance costs, and cleanup of small tire piles.

Activity Funding

FY 2009/10.....	\$7,141,334
FYs 2010/11-2011/12.....	\$7,775,000 per fiscal year
FY 2012/13.....	\$8,250,000
FY 2013/14.....	\$8,500,000

- 4. Database Development and Maintenance:** Over the past three to four years, the Board has developed the Waste Tire Management System to track tire enforcement and manifest program activities. The database system was developed per the requirements defined in the approved Feasibility Study Report. The system tracks waste tire generators, registered haulers, permitted and unpermitted end use facilities, manifest forms, inspection forms, and enforcement actions.

The system was initially released to “production” in July 2003. While the system meets the requirements outlined in the feasibility report and has been in production for several years, several enhancements are needed to improve functionality and integration of information within the system. In addition, improved reporting capabilities and improvement to the local and business access portals is still needed. Additional development of the database is needed along with continuous improvements to better service our staff and external customers. Upcoming modifications and advancements to the system will include:

- Creation of a portal whereby local grantees can access the database, which will assist them with their initial inspection and enforcement activities, merging local and state active business lists, and coordinating with the State on enforcement cases.
- Enhancement of enforcement tracking capabilities of penalties and other legal information by reconciling the database’s enforcement module which tracks penalties assessed with the Board’s Serialized Invoice Reporting System, which tracks funds received.
- Development of standard reports to track inspection data, permit data, grantee referrals, and Notice of Violations to ensure performance measures are achieved. Compliance reports will be available to grantees to assist them in inspection prioritization and planning.
- Ongoing maintenance that includes revising inspection forms, entering into contracts to have inspections forms and other documents scanned and entered into the database on an ongoing basis. Additionally, periodic upgrades to the system are anticipated as the program continues

to grow and change to meet the needs of our internal and external stakeholders as well as reporting requirements requested by Cal/EPA.

Activity Funding

FYs 2009/10–2013/14.....\$165,000 per fiscal year

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 Board staff or authorized representatives if requested. Unfortunately, since the information was not provided directly to the Board, there was no simple way to track tire movement.

To better track the flow of waste tires in California, the Legislature passed SB 876 (Escutia, Chapter 838, Statutes of 2000), which required the Board to develop and implement a uniform statewide waste and used tire manifest program. The California Uniform Waste and Used Tire Manifest System developed pursuant to this law went into full-scale operation in July 2003. This legislation stated that every person who transported 10 or more waste or used 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. In addition, tire haulers would have to register annually with the Board, possess manifests during the transport of waste or used tires, and transport only to legally authorized end-use facilities. Tire generators, haulers, and end use facilities all had to submit the completed manifest forms to the Board. The law also requires that a person who received waste/used tires from an unregistered hauler had to report that hauler to the Board by providing the name, address, phone number, and license plate number of the unlicensed hauler, and the amount of tires.

The Hauler and Manifest Program consist of two separate components: 1) registration and 2) manifesting. Enforcement efforts against haulers have resulted in significant fines summarized in the Enforcement Program element. Currently, the Board registers more than 1,150 California waste and used tire haulers and more than 6,500 vehicles. Registrations expire annually at the end of each calendar year. The Board 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 that are commingled with solid waste but 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.

Although the manifest system implemented in 2003 provided useful information on waste tire flow (including import and export data), and proved useful as an enforcement tool to investigate potential

violators, the full promise of a system to track waste tires from “cradle to grave” was not fully realized. The main problem encountered with this new manifest system was the voluminous amount of paperwork that was required, which prompted numerous complaints from the regulated community and strained the Board’s ability to compile and integrate the information.

Therefore, in 2004-2005, the Board conducted workshops to gather input from stakeholders on how best to improve the system. Working closely with stakeholders, the Board streamlined and simplified the original process for complying with the manifest program requirements. Board staff developed a revised Comprehensive Trip Log form, which was adopted in February 2005. Utilizing this form, the tire hauler submits manifest information on behalf of all parties in the tire transaction, significantly reducing paperwork. During the first year of implementation, the total volume of paperwork was reduced by 67 percent by using this new trip log form; in 2007, this percentage increased to 78 percent. The revised 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.

The tire haulers also have other non-paper based alternatives for reporting manifest information. Haulers are now able to transmit tire manifests information electronically through the Board's electronic data transfer process using both batch mode and web-based data entry capabilities. The expansion of electronic data transfers in 2006 resulted in additional program efficiency and cost effectiveness as 46 percent of all manifest records are submitted electronically; in 2007, that percentage grew to 51 percent. Currently, 20 haulers are utilizing the electronic transfer method; three are using the batch mode and 17 using the web-based mode.

As an additional program improvement, in 2007 Board members approved implementation of a Portable Hand Held Device Pilot Program. This pilot program will evaluate the feasibility of transmitting manifesting information via electronic data transmission from field personnel. Similar devices are used by personnel and car rental establishments to provide receipts to customers returning cars and to automatically link with central computer operations. The hand held device pilot program is in the initial development phase. Program staff may be requesting additional funds in upcoming years to support the use of this device.

Improvements in the efficiency and reliability of the manifest program have greatly contributed to and supported our enhanced enforcement efforts as required by Strategic Directive 8.3. Indeed, in 2008, the number of prosecutions of hauler manifest and registration violations, and the demands on Legal and Program staff was such, that a more expeditious method for processing these violations was required. To this end, a six-month Streamlined Enforcement Pilot Program was presented to, and approved by, the Board in April 2008 and fully implemented in July 2008. The Streamlined Enforcement Process, modeled on similar protocols utilized by other State agencies, consists of a penalty letter sent to the violator informing them of the violations and giving two payment options: 1) pay a reduced penalty amount based upon pre-approved Board criteria and not challenge Board allegations, or 2) contest the findings of the Board and have the case presented before an Administrative Law Judge where significantly higher penalties will be requested.

If the violator decides to accept the reduced penalties, a Stipulated Decision and Order informing the violator of the allegations, the penalty amount, and their waiver of rights to an Administrative Hearings is signed by the responsible party and then sent back to the Board with payment, and the decision is final. To date, 89 penalty letters have been issued, of which 80 (89 percent) have been signed and returned with the Stipulated Decision and Order and payments. Board staff will be presenting the results of the pilot program in January 2009 and requesting direction from Board members to make the program ongoing.

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 the Board 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 Board 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.

Currently PRC section 42961.5, the trip log manifest form is referred to as the “California Uniform Waste and Used Tire Manifest” and must be originated by the hauler and it was their responsibility to provide a copy to the generator when the tires were picked up or to the end use facility after the tires reached the end-use destination.

With the new mandates put in place by SB 876 (PRC section 42950 et seq.), the California Uniform Waste and Used Tire Manifest is used by all parties. 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.

Objectives

The Hauler and Manifest Program has the following objectives:

1. To complement and support the Board’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 4th Edition of the Five-Year Plan contained five performance measures for the Hauler and Manifest Element, which are listed along with the attendant accomplishments for the previous fiscal year in Appendix A. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

The Hauler and Manifest Program will use the following measures to evaluate success in achieving its objectives:

1. **Reduce the number of registered waste tire haulers that do not submit manifests by 50 percent by December 2011.** *Currently, the Board registers more than 1,150 waste tire haulers; however, approximately 106 of these tire haulers (9 percent) have failed to submit any Comprehensive Trip Log forms to the Board since 2005. Staff is now investigating these haulers and will be taking more aggressive actions against these haulers as appropriate.*
2. **Reduce the percentage of manifest form errors that are submitted by waste tire haulers by 45 percent by December 2010.** *Ninety-two percent of the manifest forms submitted from June 2003 to January 2007 by waste and used tire haulers had errors. From January 2007 to September 2008, this error rate has been reduced to 25 percent.*
3. **Track the percentage of waste tire enforcement program cases where the manifest system information has been used to assist Board staff and local enforcement agencies and report annually.** *For 2006, 98 percent (44 out of 45) of the enforcement cases used manifest information. During the time period from January 2007 to September 2008, approximately 84 percent (93 out of 111) of the enforcement cases used manifest information to assist in the enforcement actions*.*
 - a. **Track the number of the Board's 204 Form entries where the end-use facility operators are required to report unregistered waste tire haulers transporting tires to their facilities.** *During the time period from January 2007 to September 2008, approximately 2,151 complaints (204 Form) were submitted; of this number, 12 enforcement actions* were taken against repeat violators.*
4. **Track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling and report annually.** *This is an ongoing performance measure to track the enforcement actions and penalties sought by the Board against waste tire haulers. Since 2004, Board staff have taken enforcement actions against 133 waste tire haulers. The Board has assessed penalties of \$311,392 and an additional \$129,575 was held in abeyance pending satisfactory compliance with waste tire laws and regulations.*
5. **Determine the quantity of waste or used tires being picked up or delivered for each county by December 2010.** *During the time period from January 2006 to September 2008, a total of 170,035,689 waste or used tires were picked up and 197,997,862 waste or used tires were delivered within the state. Chart 9 in Appendix A shows the individual county tire flow information. Additionally, Chart 10 shows the total amounts of tires picked up or delivered to other states and Mexico for the same time period. In theory, the pickups and deliveries overall should balance; however there is a large discrepancy which may be attributed to the waste tire database conversion factors (i.e., one tire reported as "whole tire count" could be either a passenger tire weighing 20 pounds or a large "Off The Road" tire weighing as much as 2,000 pounds. However, the database will report both as one Passenger Tire Equivalent or convert tire counts to tire equivalents using a weight conversion factor of 20 pounds/PTE or the failure to manifest every load).*

In addition, the table will show that many smaller counties have significantly more tire pickups than deliveries. Many of these situations can be attributed to tires being generated and picked up within the county but disposed of outside the county into a larger county jurisdiction where there may be several end use facilities that accept tires.

**Enforcement actions include Administrative Complaints and Streamline Penalty cases.*

Activity Description and Budget

The Hauler and Manifest Program is a general line item budget as shown in Table 4 Budget for the Waste and Used Tire Hauler Program and Manifest System. The costs associated with this budget are printing and mailing of the Comprehensive Trip Log forms; training and educational materials; contracting with an outside source for data entry of the trip log forms; an Information Management Branch annual budget for manifest and hauler registration related upkeep and maintenance of the Waste Tire Management System. Additionally, funds provide printing of the waste tire hauler decals and certificates as well as Tire Program Identification Number certificates.

Table 4: Budget for the Waste and Used Tire Hauler Program and Manifest System

Program Area	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14
Hauler Program and Manifest System	\$325,000	\$450,000	\$450,000	\$450,000	\$450,000
Totals	\$325,000	\$450,000	\$450,000	\$450,000	\$450,000

- Hauler Program and Manifest System:** With Board approval of the trip log form, the overall costs for the manifest program has been reduced as less printing, postage, and processing time is necessary. In addition, the amount needed to support these activities in FY 2009/10 was further reduced to reflect activities performed in FY 2007/8 and FY 2008/9 in anticipation of the economic shortfall and subsequent freeze. These activities have resulted in a reduced, one-time need for funds in FY 2009/10. The numbers presented in Table 4 for “Hauler Program and Manifesting” adequately reflects this revision.

Activity Funding

FY 2009/2010.....\$320,000
 FYs 2010/2011–2013/14.....\$450,000 per fiscal year

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

Cleanup Program Background and Status

The Cleanup Program consists of:

1. Short-Term Remediation Projects Program;
2. Local Government Waste Tire Cleanup Grant Program;
3. Local Government Amnesty Event Grant Program;
4. Emergency Reserve Account;
5. Farm and Ranch Solid Waste Cleanup and Abatement Grant Program; and
6. Border and Tribal Area Cleanup Program Initiatives.

The Board's waste tire cleanup activities remain closely aligned with enforcement actions. For example, enforcement actions against the largest known waste tire sites in Sonoma County resulted in negotiated settlements with cleanups. Illegal waste tire sites for which the responsible parties have failed to take appropriate action may be referred to the Short-Term Remediation Projects Program for action. The Enforcement Branch also cooperates with the Cleanup Branch on the implementation of the cleanup grant programs.

When enforcement staff discovers waste tire piles on privately owned agricultural property and the tire piles are determined not to be the responsibility of the landowner, Enforcement Branch brings them to the attention of Farm and Ranch Solid Waste Cleanup and Abatement Grant Program staff for potential grant consideration. Conversely, grant applications which are independently received where landowner certifications of non-responsibility cannot be obtained are referred to the Enforcement Branch for appropriate follow-up. Over time, concerted enforcement action to reduce illegal waste tire disposal is expected to reduce the need for cleanup funds.

As indicated in Table 5, since 1995 the Board has, through both short- and long-term remediation on illegal waste tire sites, removed more than 650,000 tons of illegal waste tires and contaminated debris from 69 sites at a total cost of more than \$40 million. While the number of sites remediated each year has generally decreased since 1999, the cleanup costs have varied significantly depending on the number of large and/or complex projects undertaken in any given year. Beginning in 2001, remediation efforts were focused on the long-term remediation of the Westley tire fire site. Later in 2003, the Board was involved in extinguishing the smoldering tires at the Tracy tire fire site and beginning the long-term remediation efforts at that site. Both long-term remediation projects have been completed. Since then, there has been a decrease in the number of short-term remediation completed due to complicated enforcement and/or permitting issues surrounding the remaining waste tire sites.

Table 5: California Intergrated Waste Management Board 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	28,329	\$1,367,760
1998	8	43,565	\$2,515,592
1999	15	11,867	\$1,442,688
2000	6	46,029*	\$3,340,505
2001	1	36,209*	\$2,162,000
2002	2	214,417*	\$11,624,345
2003	1	27,707*	\$1,849,943
2004	1	148,833*	\$9,836,885
2005	10	72,941*	\$4,300,000
2006	2	1,285	\$506,405
2007	0	0	\$0
2008	2	881	\$235,011
Totals	69	657,721	\$40,441,453

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

The purpose of the Local Government Waste Tire Cleanup 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 rights-of-way. This is done by providing grants to local governments and Native American reservations and rancherías. Table 6 summarizes the Local Government Waste Tire Cleanup Grant Program, which has increased steadily since 1998/99.

Table 6: Local Government Waste Tire Cleanup Grants

Fiscal Year	Number of Sites	Amount Awarded
1997/98	8	\$171,286
1998/99	4	\$51,768
1999/00	6	\$213,126
2000/01	0	*
2001/02	8	\$449,889
2002/03	11	\$646,260
2003/04	14	\$712,286
2004/05	16	\$735,511
2005/06	20	\$778,044
2006/07	20	\$845,867
2007/08	**	\$790,923
Totals	107	\$5,394,960

* No funds available—sunset of tire fee. ** Previously the program had provided grants for cleanup of specific sites. The program currently awards grant funds to cleanup areas where illegal dumping has occurred along public rights-of ways.

Since 1992, the Board has provided more than \$6 million to the Local Government Amnesty Event Grant Program, awarding 254 grants 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 events where the public can drop off waste tires for free. Table 7 summarizes the amnesty event grants.

Table 7: Local Government Amnesty Event Grants

Fiscal Year	Number of Grants	Amount Awarded
1992/93	4	\$59,100
1993/94	8	\$177,720
1994/95	13	\$387,989
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
2005/06	31	\$808,879
2006/07	33	\$807,416
2007/08	43	\$1,198,594
Totals	254	\$6,284,559

* No funds available—sunset of tire fee.

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

Border and Tribal Area Cleanup Program Initiatives

The Board also is implementing two new innovative tire-related cleanup initiatives near the U.S.-Mexico border: the Imperial County New River Collaborative and Tijuana River Valley Trash and Sediment Working Group.

The New River Collaborative identified 64 chronic mixed tire and solid waste illegal dumping sites in Imperial County and is cleaning up and preventing reoccurrence. These sites were identified as a result of increased border area aerial surveillance activities utilizing the CHP under contract with the Board. An innovative pilot program master agreement awarded to the Local Enforcement Agency under the Farm and Ranch Grant Program will clean up 13 of these sites and an innovative grant under the Board's Solid Waste Disposal and Codisposal Site Cleanup Program will be considered for award to the Imperial Irrigation District to clean up 10 sites. As of December 2008, the Collaborative has cleaned up 27 of these sites and removed approximately 5,300 waste tires and more than 1,860 tons of solid waste.

Large quantities of trash, tires, and sediment are transported by storm water from Mexico into the Tijuana River Valley and estuary, adversely impacting the Border Field State Park and Tijuana River National Estuarine Research Reserve. The Tijuana River Valley Trash and Sediment Working Group is a collaborative partnership of local, State, and federal agencies and nonprofit organizations to address the

broad range of trash, waste tire, and sediment issues over the entire Tijuana River Valley watershed. To spearhead this effort, the Board's Solid Waste Cleanup Program is developing a project to capture solid waste and tires that is currently discharged to Goat Canyon within the Border Field State Park. Board staff also is conducting investigations in collaboration with partners to develop additional cleanup projects within the Tijuana Valley watershed.

Additional targeted efforts at cleanup and prevention of illegal dumping of tires and solid waste within Indian tribal lands is being conducted by the Board's Cleanup Programs. In 2006-2007, the Board cleaned up the four largest open dump sites in the Torres Martinez Reservation, Riverside County, in partnership with the tribe and federal, State, and local agencies. A similar effort is in progress for the Yurok Reservation in Humboldt County.

Direction Provided by SB 876

PRC section 42889(b) provides that:

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

(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 board. 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.

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

(10) To pay the costs of cleanup, abatement, or other remedial action related to the disposal of waste 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 waste tire stockpiles throughout California, either directly or through grant assistance, where the responsible parties have failed to take appropriate action. *This is a new performance measure.*
- 2.** Decrease illegal waste tire dumping by assisting local governments through grant funds in developing public education materials on proper maintenance and disposal of automobile tires and promoting waste tire amnesty events for the general public. *This is a new performance measure.*
- 3.** Assist victims of illegal dumping on farm and ranch properties in cleaning up waste tires. *This is a new performance measure.*
- 4.** Direct tires from cleanup to productive end use rather than landfill disposal to the greatest extent possible within reasonable cost parameters. *This is a new performance measure.*

Performance Measures

The 4th Edition of the Five-Year Plan contained five performance measures for the Cleanup Element; these are listed along with the attendant accomplishments for the previous fiscal year in Appendix A. The

performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan:

1. Complete the short-term waste tire remediation projects referred by the Enforcement Program in a timely manner and report status of projects to the Board on an annual basis.
2. Increase the number of sites remediated through the Waste Tire Local Government Cleanup Grant Program by 5 percent annually through 2012.
3. Increase the number of waste tire amnesty grants issued to local governments by 5 percent annually through 2012.
4. Increase the number of sites remediated through Farm and Ranch Cleanup Grants issued to local governments by 10 percent annually through 2012.

Activity Description and Budget

The cleanup program will continue to remediate sites with Board-managed contractors and grants to local governments for amnesty events and cleanup of illegal piles. In addition, the Board will provide funding to the Farm and Ranch Solid Waste Cleanup Grant Program to further mitigate future accumulations of waste tires. Also, the Board will establish an emergency reserve account, which cannot exceed \$1 million, as directed by SB 876. Table 8 provides a list of activities and associated budgets for the element titled “Cleanup, Abatement, or Other Remedial Actions Related to Tire Stockpiles throughout the State.”

Table 8: Budget for Cleanup, Abatement, and Remedial Action

Program Area	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14
Short-Term Remediation Projects	\$1,000,000	\$500,000	\$400,000	\$400,000	\$300,000
Local Government Waste Tire Cleanup Grant Program	\$1,100,000	\$1,100,000	\$1,100,000	\$1,000,000	\$1,000,000
Local Government Amnesty Grants	\$1,000,000	\$1,100,000	\$1,200,000	\$1,200,000	\$1,200,000
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*	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000
Totals	\$4,500,000	\$4,100,000	\$4,100,000	\$4,000,000	\$3,900,000

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

1. **Short-Term Remediation Projects:** [PRC section 42846](#) allows the Board 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 include stabilizing piles until removal, removing all waste tires, and/or remediating the site after the tires have been removed. The Board funds short-term remediation of illegal waste tire sites with Board-managed contracts. Funds allocated to remediation efforts may roll over from one fiscal year to the next. Board staff will continue to move aggressively to remediate the sites on the short-term projects list as they become known through enforcement actions or by other means. Currently, there are two sites that have been identified for short-term remediation. Both

sites have been approved for Board-managed remediation and will be cleaned up after permitting, CEQA, site access, and/or enforcement issues have resolved.

Vigorous waste tire enforcement pursuant to Board members' Strategic Directives minimizes the chances for large illegal waste tire sites to develop and to go unaddressed. The costs for long-term remediation as part of the Five Year Plan's Cleanup and Remediation element have been reduced and are expected to continue to be positively impacted in future years.

Activity Funding

FY 2009/10.....	\$1,000,000
FY 2010/11.....	\$500,000
FYs 2011/12- 2012/13.....	\$400,000 per fiscal year
FY 2013/14.....	\$300,000

- 2. 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, irrigation districts, and qualifying Indian tribes are eligible for funding. Grants are awarded to pay for the cost of cleanup, abatement, or other remedial actions related to the illegal disposal of waste tires.

For the period including FYs 2005/06-2008/09, demand for the program has averaged approximately \$805,000 fiscal year. During the next three years this activity is proposed to increase to \$1,100,000 per fiscal year.

Activity Funding

FYs 2009/10–2011/12.....	\$1,100,000 per fiscal year
FYs 2012/13–2013/14.....	\$1,000,000 per fiscal year

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

For the period including FYs 2005/06-2008/09, demand for the program has averaged approximately \$938,000 fiscal year. This program is expected to see an increase in demand as more local governments attempt to address problems associated with illegal dumping by offering amnesty events. Funding for FY 2009/10 is proposed at \$1,000,000 with slight increases in funding planned for FYs 2010/11–2013/14.

Activity Funding

FY 2009/10.....	\$1,000,000
FY 2010/11.....	\$1,100,000
FYs 2011/12–2013/14.....	\$1,200,000 per fiscal year

- 4. Emergency Reserve Account:** SB 876 required the Board to create and maintain an emergency reserve account which shall not exceed \$1 million. Funding for FYs 2009/10–2013/14 is proposed at \$1,000,000. These funds will be used to respond to emergencies involving waste tires (e.g., tire fires). This emergency reserve account is subject to change depending on the need for emergencies that arise. While the Board is required to maintain \$1,000,000 in this account with expenditure authority

for emergency purposes, more than \$1,000,000 may be expended on a yearly basis. If allocated funds are not expended, funds may be carried forward to the fund balance in the following fiscal year.

Activity Funding

FYs 2009/10–2013/14\$1,000,000 per fiscal year

- 5. **Farm and Ranch Solid Waste Cleanup and Abatement Grant Program:** Tire funds are transferred to the Farm and Ranch Solid Waste Cleanup and Abatement Grant Program to remediate solid waste that has been illegally dumped on farm or ranch properties. SB 876 requires that transferred tire funds be allocated to pay the costs of cleanup, abatement, or other remedial action related to the illegal disposal of whole waste tires on farm or ranch properties. Other non-tire cleanup costs are paid for using other program funding sources. 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 continue at \$400,000 for this program.

Activity Funding

FYs 2009/10–2013/14\$400,000 per fiscal year

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

Research Program Background and Status

The Board has investigated a variety of waste tire diversion alternatives through internally generated research contracts and literature searches of research throughout the world. These research efforts have assisted the Board in focusing on a rich mixture of strategies that will ultimately divert the majority of waste tires from landfills. To date, projects involving rubberized asphalt concrete, civil engineering uses, energy recovery, molded rubber products, and other tire-derived product applications have been explored. So far, rubberized asphalt concrete and civil engineering uses have shown the greatest promise for diverting the most tires from landfills.

However, those two applications cannot by themselves divert the remaining 11 million tires still currently being landfilled. Therefore, the Board continues to refine its knowledge of existing uses and products, but will also investigate and research new and innovative applications. Furthermore, the Board has partnered with educational institutes to ensure that knowledge gained through its research is passed on to engineers and engineering students and becomes part of the curriculum for their licenses, as well as through continuing education credits.

The Board has promoted the use of tire-derived aggregate in various civil engineering applications, including 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 tire-derived aggregate in highway construction, and provided both technical and environmental information to regulatory agencies responsible for the oversight of these projects.

Through the Board's previous efforts, Caltrans identified several potential highway projects in which shredded tires could be used as lightweight fill. One of the first 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. Two other projects consisted of the construction of retaining walls that used the tire aggregate as a lightweight backfill material. The first wall was built in 2003 on Route 91 in Riverside County and used 84,000 tires. The second wall was completed in 2006 on Highway 215 in Riverside County and used 150,000 tires. Due to the success of these projects, Caltrans has accepted tire-derived aggregate as a viable lightweight construction material. In fact, Caltrans is currently in the process of realigning U.S. 101 at Confusion Hill in Northern California (Mendocino County) and it has included the tire aggregate in the design of this project. It is being utilized for its lightweight properties and approximately 350,000 tires are expected to be used.

The Board, in coordination with Caltrans, also 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. Once completed, this new design will be used in future retaining wall projects, resulting in significant cost savings to the State. Currently, through its environmental services contract, the Board is working on the design for the new wall. Once the design has been finalized and reviewed by Caltrans, a test wall will be constructed and monitored for performance.

While Caltrans is an important player in this effort, the Board has also partnered with local governments in tire-derived aggregate projects. The Board partnered with Mendocino and Sonoma counties to complete two projects in which the aggregate was used as lightweight fill to repair landslide damage on

two different highways: The Marina Drive project used 133,000 tires and the Geysers Road Project used 150,000. These projects were completed in the summers of 2007 and 2008, respectively.

Thanks to the success of its first project, Sonoma County is currently working on a second landslide repair project that will use tire-derived aggregate as lightweight fill material. This project will use an estimated 470,000 tires and is scheduled to be completed in early 2009. In another civil engineering application, the Board partnered with the Valley Transportation Authority in San Jose to investigate the use of the tire aggregate as a vibration-damping material in its light-rail system. The results of this investigation were very favorable, so the transit agency used 100,000 tires as aggregate 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; the aggregate costs only \$150 per foot. The Board is exploring a similar partnership with the Bay Area Rapid Transit Authority to use tire-derived aggregate as a vibration mitigation measure in one of its future expansion projects.

Another area in which the Board will be doing further investigations is civil engineering applications for use at landfills. Preliminary investigations in 2007 showed that tire-derived aggregate could be used successfully in landfill applications in place of materials commonly used in drainage layers (i.e., in layers containing landfill gas and leachate collection systems). However, it was not an economically viable alternative at that time, because the price of aggregate was relatively low. Since then, it has become increasingly more difficult to site new gravel quarry operations in California; therefore, the price for aggregate has increased to the point where it has now become a viable alternative for landfills in certain parts of the state.

The Board funded a landfill gas collection project at the Badlands Landfill in Riverside County. Phase I included the construction of several gas collection lines utilizing the aggregate as a substitute for gravel. Phase II, which should occur in the next year or two, will consist of the activation of the lines and evaluation of their performance. Staff will continue to promote the use of the aggregate in landfills by providing assistance that will demonstrate its performance in various landfill applications. Staff will continue to conduct research on its performance as an engineering material to assist in the development of technical standards for civil engineering applications. This research will require actual monitoring of pilot and field studies to demonstrate and promote civil engineering applications of waste tires.

The Board has a long history of supporting the development and use of rubberized asphalt concrete. The Board entered a contract with CSU Chico Research Foundation to evaluate terminal blend rubberized asphalts and warm mix asphalt. Over the past decade terminal blend rubberized asphalts, which uses a fine (minus 40 mesh) gradation of crumb rubber modifier, have been developed and used by Caltrans and several local agencies. To date, the Board has not endorsed the use of terminal blend rubberized asphalts due to the lack of data supporting the performance of the material as compared to conventional asphalt paving. Similarly, warm mix asphalt (which allows asphalt mixes to be batched at lower process temperatures) is an emerging technology that needs to be investigated to determine the possible applications of this technology to terminal blend and asphalt rubber processes. The purposes of the CSU Chico Research Foundation contract are to acquire data and evaluate the performance of terminal blend materials as used in existing projects, evaluate the use of terminal blend materials in other pavement applications, develop the knowledge base for terminal blend use, and investigate warm mix asphalt technology and its feasibility for use with rubberized asphalt concrete.

Additionally, the Board has also partnered with the City of Thousand Oaks to construct a test section to evaluate rubberized asphalt concrete's recyclability. Currently, Board and city staff are working to develop parameters and scheduling of the project, which should occur in summer 2009.

Another study with the Office of Environmental Health Hazard Assessment is currently researching the human health impacts and gathering data on the human health risks associated with artificial turf related to Volatile Organic Compound and Particulate Matter smaller than 2.5 microns in diameter inhalation hazards as well as skin abrasion infection hazards. Additional reports on the Board's research efforts can be found in Attachment D.

Direction Provided by SB 876

SB 876 includes legislative intent language as follows (from 2000 uncoded 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(b):

“The remaining moneys collected pursuant to Section 52885 shall be used to fund the waste tire program, and shall be appropriated to the board in the annual Budget Act . . . [and] shall be expended...for the following purposes:

6) To make studies and conduct research directed at promoting and developing alternatives to the landfill disposal of waste 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. 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.
3. Identify research gaps in existing data and determine what areas need further investigation.

Performance Measures

The 4th Edition of the Five-Year Plan contained five performance measures for the Research Element, which are listed in Appendix A along with the attendant accomplishments for the previous fiscal year. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

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

1. **Investigate and evaluate obstacles to existing and emerging highway construction and civil engineering applications that use tire-derived materials.** *As noted above, there has been much progress made in identifying the obstacles and educating both local and State governments evidenced by the fact that the Board has conducted several successful civil engineering applications and awarded grants for numerous rubberized asphalt concrete projects. The successes of these projects over the past few years demonstrate that environmental obstacles and concerns can be overcome.*
2. **Develop in-house capabilities to track the market for various tire-derived products on an on-going basis.** *The Board has contracted for a market analysis that will be completed in 2009. Once the analysis is completed, staff will refine the Board's in-house tracking system for market uses and disposal data.*

Activity Description and Budget

The research program will concentrate on activities that support increased use of rubberized asphalt concrete, civil engineering applications, and other tire-derived products. Table 9 provides the budget for the element titled “Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires.”

Table 9: Budget for Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires

Program Area	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14
CE Applications for Waste Tires	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Research on Highway Construction Applications Using Waste Tires	\$500,000	\$0	\$500,000	\$0	\$500,000
Minimum Energy Efficiency Standards for Replacement Tires Analysis	\$150,000	\$150,000	\$0	\$0	\$0
Artificial Turf Study (Phase 2)	\$0	\$200,000	\$0	\$0	\$0
Totals	\$1,150,000	\$850,000	\$1,000,000	\$500,000	\$1,000,000

- 1. Civil Engineering Applications for Waste Tires:** Although the Board has made significant progress promoting the use of tire-derived aggregate in civil engineering applications, there is still much work that needs to be done to establish this use of waste tires as an accepted material. This activity will continue the Board’s program of investigating new civil engineering uses for waste tires, including partnering with State, local, and private-sector engineers to conduct research and educate them on the use of tire-derived aggregate in these projects. For research projects focusing on specific civil engineering uses of waste tires, project-specific contracts may be implemented. These projects could include, but are not limited to, erosion control, earthquake damping, vibration mitigation, retaining and sound walls. Once a project is constructed, the associated contract is also used for ongoing monitoring to determine the long term performance of the aggregate in the civil engineering application.

Activity Funding

FYs 2009/10–2013/14\$500,000 per fiscal year

- 2. Highway Construction Applications Using Waste Tires:** The Board has made significant progress promoting rubberized asphalt concrete and, as a result, its use continues to increase statewide. However, there are several applications that the Board is continuing to study to gain additional information regarding benefits and drawbacks. Nevertheless, these applications do have the potential to use waste tires. Some of these applications include: terminal blend asphalt concrete, warm mix asphalt rubber, and rubberized slurry seals. Under this program element, the Board will research these applications in order to determine their benefits. For example, the Board funded three rubberized slurry seal pilot projects, which have been completed. The final report on these projects should be completed this year under the Rubberized Asphalt Concrete Engineering and Technical Assistance contract. Further, the Board has also initiated a warm mix asphalt and terminal blend study with CSU

Chico. If these studies demonstrate the technical effectiveness of rubberized slurry seal, warm mix and terminal blend, then additional research would not be needed. If not, however, additional research may be needed. A pilot study may be conducted for one or all of these applications if it is deemed necessary to further evaluate their benefits.

If the ongoing research supports the benefits of these applications, then the Board can continue to include these applications in future grant offerings, with the aim of enhancing sustainable markets for additional waste tires. Additionally, Board staff will evaluate current design standards and investigate pavement preservation strategies that use rubber and increase the lifespan and performance benefits (i.e., resistance to reflective cracking, skid resistance, noise reduction) of pavements. For example, it is well documented that rubber chip seals outperform conventional chip seals; however, improvements in mix design and range of use are continuously evolving and may warrant further investigation.

Activity Funding

FYs 2009/10, 2011/12 and 2013/14\$500,000 per fiscal year

- 3. **Minimum Energy Efficiency Standard for Replacement Tires Analysis:** AB 844 (Nation, Chapter 645, Statutes of 2003) requires the California Energy Commission and the Board to adopt and implement a statewide tire energy efficient program for replacement tires for passenger cars and light-duty trucks and to review and revise the program not less than once every three years. Pursuant to legislation this analysis will assist the Energy Commission and the Board in determining if it is technically feasible and cost effective to set energy efficiency standards for replacement tires sold in California without adversely affecting tire safety, the average tire life of replacement tires, and the State’s efforts to manage waste tires. This project could include, but is not limited to, identifying and analyzing what if any impact low rolling resistance tires have on average tire life and examining what if any tradeoffs exist between tire safety and low rolling resistance. The Board will contract with the Energy Commission for the study and its findings will be presented to Board members in the fall of 2012.

Activity Funding

FYs 2009/10-2010/11\$150,000 per fiscal year

- 4. **Artificial Turf Study (Phase 2):** The first phase of this study, started in FY 08/09, is focused on human health impacts and gathering data on the human health risks associated with artificial turf related to volatile organic compounds and Particulate Matter 2.5 inhalation hazards as well as skin abrasion infection hazards. Staff proposes a second phase to continue the investigation into this product. In phase two, environmental impacts will be examined that were not included in the scope of work addressed in phase one. In particular, the study will address potential environmental impacts from the artificial turfs field if they were burned. Additional areas of research may be included from the recommendations and results made by the Office of Environmental Health Hazard Assessment as part of the phase one study, which is to be completed in March 2010, and to address the requirements of SB 1277 (Maldonado, Chapter 398, Statutes of 2008).

Activity Funding

FY 2010/11\$200,000

Market Development and New Technology Activities for Waste and Used Tires

Market Development Program Background and Status

The purpose of the Market Development Program is to promote the development of long-term, sustainable markets for tire-derived products in California. The ultimate goal is to assure that the intrinsic value of waste tires as a commodity offsets the low cost of disposal for waste tires. Therefore, the continued objective for this revision of the *Five-Year Plan* will be to develop solid markets for rubberized asphalt concrete, civil engineering applications, and other established tire-derived products. A broad range of products will be required to make markets in California competitive and sustainable.

In the early years of implementing tire-related legislation, the Board placed more emphasis on research and innovative product development. While research and pilot projects are still necessary 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 cost-effective applications. And as these are more accepted, the Board would expect to spend less on some uses/applications, for example on rubberized asphalt concrete users with more experience. Furthermore, once research is done on new products and usages and barriers are identified and eliminated (see Research Element), the Board will develop programs to promote these products as well. In addition, the Board will investigate the potential for export markets for both raw tire-derived materials and products.

Currently, the Market Development Program is focusing its efforts on two fronts: 1) stimulating demand; and 2) improving the ability of tire-derived product businesses to respond to an expanding marketplace. The Board is addressing the first front through outreach and grant programs for rubberized asphalt concrete, tire-derived aggregate and tire-derived products. These are focused primarily on local government and State end-users of these products. The Tire-Derived Product Business Assistance Program is specifically designed to address the second front by helping businesses to streamline operations, reduce production costs, improve marketing efforts, and diversify product lines. The assistance program helps businesses improve their ability to operate on a sustainable basis and manufacture products without the need for ongoing long-term assistance. While these programs are designed to deal with the short to medium-term financial and technical business needs necessary to establish sustainable markets, this targeted assistance will eventually be phased out. However, as new products and fledgling industries emerge, the Board can develop programs accordingly.

Through other successful Board research efforts that have been completed just in the last few years, staff now considers tire-derived aggregate a cost-effective and reliable alternative to lightweight fill materials. As such, the Board will increasingly promote its use for civil engineering applications. Since 1997, the Board has expended significant resources promoting the use of the aggregate in various civil engineering applications. Table 10 shows that nearly 1.7 million tires were used in highway engineering, and other civil engineering projects. These projects indicate that great market potential exists for using large quantities of waste tires when replicated in other projects throughout California.

Table 10: 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
2006	Lightweight fill for the Highway 215 Retaining Wall	\$190,000	150,000
2007	Lightweight fill for Marina Drive Landslide Repair	\$740,000	133,000
2007	Badlands Landfill Gas Collection System	\$25,000**	16,000
2008	Lightweight fill for Geysers Road Landslide Repair	\$350,000	150,000
2008/ 09	Lightweight fill for U.S.101 Realignment	\$0**	350,000
Totals		\$2,584,400	1,648,000

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

***Ongoing projects scheduled to be completed in 2009.*

The levee reinforcement project in an irrigation canal adjacent to the Feather River used about 45,000 waste tires. Another pilot project was a septic tank leach field using the tire aggregate 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 tire shreds in septic tank leach field construction. Additionally, the Board and Caltrans worked together on the Dixon Landing Project, which demonstrated (in an actual highway application) that the aggregate's properties allowed it to replace conventional lightweight fill material while reducing costs.

The Board also partnered with the Valley Transportation Authority (VTA) in San Jose to investigate the use of the aggregate as a vibration-damping material in VTA's light-rail system. At its own expense, VTA used 100,000 waste tires as tire-derived aggregate in 2,000 feet of light-rail section along its Vasona Line expansion in 2003 and 2004. The initial results were favorable and Board staff is assisting the transit agency 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 Board 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 was constructed in 2006. This test section used tire-derived aggregate made from 150,000 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. As a result, more projects have come forward, both at the State and local levels. Caltrans is in the process of realigning Highway 101 at Confusion Hill in Northern California (Mendocino County) and the Board has partnered with Mendocino and Sonoma counties for two landslide repair projects. Between these three projects, more than 600,000 waste tires were used. Additionally, the aggregate was used as a replacement for gravel in the landfill gas collection system at Badlands Landfill in Riverside County. This section of gas line is going to be studied by the Board's contractor to determine its performance when the landfill begins to draw gas.

The Board over the years has provided support to local agencies that use rubberized asphalt concrete. Through the Board's first time user grant program, scores of new paving projects have been completed or are being planned in California. When compared to conventional asphalt, rubberized asphalt concrete saves money, provides greater skid resistance, is quieter, and lasts longer. The Board is successfully promoting the product's benefits through conferences, the rubberized asphalt concrete technical centers, and other outreach efforts. Another way the Board will promote markets is by working with California's

college and university system to develop curriculum for both rubberized asphalt concrete and civil engineering applications; this work is currently ongoing. The Board also will provide funds for projects and equipment through grants, contracts, and interagency agreements, which will lead to greater rubberized asphalt concrete usage.

Caltrans reports annually to the Board about projects that use waste tires. These reports, covering 1999–2007, show that Caltrans used more than 12.9 million waste tires in rubberized asphalt concrete and other highway projects throughout the state. Additionally, AB 338 (Levine, Chapter 709, Statutes of 2005) requires that by 2013 rubberized asphalt concrete must account for at least 35 percent of Caltrans’ asphalt use (in tons) in highway construction and repair projects. Caltrans is projecting it will constitute 44 percent of its asphalt highway projects in 2008. Furthermore, the bill requires the Secretary of Business, Transportation and Housing, on or before January 1, 2009, and on or before January 1 annually thereafter, to prepare a specified analysis comparing the cost differential between asphalt containing crumb rubber and conventional asphalt.

The Board’s outreach and grant programs have increased the use of rubberized asphalt concrete by local governments considerably, and dozens of local governments are using it for paving projects. The City of Thousand Oaks has paved hundreds of miles of lanes with rubberized asphalt concrete, using more than one million waste tires. Sacramento, San Diego and Los Angeles counties are following suit. One of the primary focuses of Board’s outreach campaigns is to promote environmentally preferable products for the State by promoting rubberized asphalt concrete where it has not been used. As the number of “first-time” users diminishes, the emphasis will shift to encouraging local jurisdictions to expand their existing use of the asphalt-alternative products. The Board continues to promote several other transportation-based products, such as terminal blend asphalt rubber, warm mix, rubber chip seals, and rubberized slurry seals.

While other tire-derived products do not 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 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. Weed abatement mats can save State agencies and local governments money by reducing the need for herbicides and maintenance staff. Other transportation-related products can effectively replace existing products like top-hats and road cones. To help stimulate these markets, the Board continues to provide funding through tire-derived product grants and other business assistance programs. These and other programs will consider the number of waste tires used per project, costs per tire, and feasibility to determine funding opportunities.

Direction Provided by SB 876

PRC section 42889(b):

“The remaining moneys collected pursuant to Section 42885 shall be used to fund the waste tire program, and shall be appropriated to the board in the annual Budget Act . . . [and] shall be expended...for the following purposes:

8. . . ¶

(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 rubberized asphalt concrete and tire-derived aggregate applications by providing grant and contract funds and technical assistance to State agencies and local governments.
2. Increase the purchase of other tire-derived products 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-life tires, proper care and maintenance, and supporting local use of rubberized asphalt concrete and civil engineering 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.

Performance Measures

The 4th Edition of the Five-Year Plan contained five performance measures for the Market Element, which are listed along with the attendant accomplishments for the previous fiscal year in Appendix A. The performance measures listed below have been updated to align with the activities listed in this Biennial Revision of the Five-Year Plan.

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 to 85 percent by 2010.** *The diversion rate for 2006 was estimated to be approximately 74 percent.*
2. **Establish a baseline for current usage of civil engineering applications by State agencies and local governments by June 2011, and increase the use of those applications by 10 percent by 2013.** *Staff continues working on establishing a baseline for use of civil engineering applications by State agencies and local governments*
3. **Raise local government interest of tire-derived products by 15 percent in 2009, 20 percent in 2010, and 25 percent in 2011.** *This is a new performance measure. The baseline for this measure was established in fiscal year 2007/08. During this fiscal year, 71 of the 84 applicants to the tire-derived product grant program were new applicants to the program. In addition, local government entities are required to report yearly on their own purchase of tire-derived products as a result of being exposed to these products through the grant program. The results of the survey are as follows: 32 percent said they had already purchased tire-derived products. Of the 57 percent that said they had not, 21 percent said they would purchase tire-derived products in the near future. In addition, 51 percent said they were very satisfied and 31 percent said they were satisfied with the tire-derived product.*
4. **Provide business assistance services to 40 businesses and document successes and obstacles by 2010.** *As of FY 2007/08, the Board is providing businesses assistance services to 30 businesses from the first two cycles of the business assistance program. A third cycle will commence in the 1st quarter of 2009.*
5. **Reduce the number of waste tires generated in California from 1.1 to .75 per person per year by 2015.** *As of 2006, the rate of tire generation per person per year had increased to 1.23. The Board continues outreach campaigns to educate the public on reducing their impact on the generation rate of tires in California.*

Activity Description and Budget

The Market Development Program is focusing on rubberized asphalt concrete, tire-derived aggregate, and tire-derived products that use the largest number of tires. Since the largest number of tires can be diverted through rubberized asphalt concrete and tire-derived aggregate applications, significantly more resources are being devoted to them. To assure that tire-derived product businesses can meet the demand, the business assistance program will work closely with the industry to expand existing businesses and attract new ones. Table 11 provides the budget for this element.

Table 11: Budget for Market Development and New Technology Activities for Waste and Used Tires

Program Area	FY 2009/10	FY 2010/11	FY 2011/12	FY 2012/13	FY 2013/14
Outreach Campaigns	\$3,300,000*	\$3,300,000*	\$3,200,000*	\$1,500,000	\$1,500,000
TDA Civil Engineering Technical and Construction Management Support	\$3,250,000	\$1,000,000	\$2,750,000	\$1,361,334	\$1,711,334
RAC Technology Centers	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
RAC Technical Assistance Contract	\$1,325,000*	\$1,325,000*	\$1,325,000*	\$500,000	\$500,000
RAC Grant Programs	\$3,850,000	\$3,509,334	\$3,600,000	\$3,500,000	\$2,500,000
Rubberized Chip Seal Grant Program	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$1,500,000
Tire-Derived Product Grants	\$3,300,000*	\$3,400,000*	\$3,400,000*	\$2,000,000	\$2,000,000
Tire-Derived Product Business Assistance Program (TBAP)	\$0	\$2,500,000	\$674,334	\$2,000,000	\$2,500,000
Tire Equipment Loan Program	\$4,000,000*	\$4,000,000*	\$4,000,000*	\$0	\$0
Technical Assistance for State of Baja California's Development of Integrated Waste Tire Management Plan	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
Sharing of Environmental Education Materials throughout the Border Region	\$20,000	\$20,000	\$0	\$0	\$0
CalMAX and WRAP	\$24,666	\$24,666	\$24,666	\$24,666	\$24,666
Tire Events	\$118,000	\$75,000	\$30,000	\$100,000	\$100,000
Web-Based Grant Management System	\$150,000	\$0	\$0	\$0	\$0
Totals	\$21,457,666	\$21,274,000	\$21,124,000	\$13,106,000	\$12,456,000

* Subject to approval by the Legislature and Governor.

- 1. Outreach Campaigns:** This activity contains three campaigns that will be combined to target several different audiences.

Tire Sustainability Outreach:

This campaign will branch out statewide focusing primarily on changing tire maintenance behaviors of Californians. This will follow on the heels of the recent successful pilot campaign in the Bay Area and Fresno markets which educated drivers about proper tire maintenance, encouraged customers to leave their old tires at the dealer when buying new tires, and educated consumers about purchasing longer-life tires. This effort will build on the previous campaign, utilizing partnerships with State agencies and other organizations, stakeholder input, and a variety of studies and information gained through prior research efforts to meet behavioral change objectives. Furthermore, through strategic coalition building and partnership development, the Board will make air pressure checks and overall tire care more easily accessible by motorists.

Tire Maintenance Outreach:

This campaign will focus on increasing the number of truck tire casings that are retreaded and increasing the number of retreaded tires purchased. This outreach will target California-based trucking firms, fleet operators, companies with distribution faculties, and others that represent the majority of trucks on the road. This campaign will build on existing efforts with the Tire Retread Information Bureau to provide training to fleet managers of cities, counties and State Agencies about the benefits of retreading their commercial trucks (e.g. buses, fire, construction, ½ ton trucks etc.). An outreach and education campaign will be implemented to reach the hundreds of truck drivers and trucking enterprises about the need and benefits of retreaded tires.

Quiet Roads Local Government Outreach:

Using general public relations strategies modeled after the successful “grass roots” efforts in Arizona, this statewide campaign will be designed to raise awareness about the benefits of rubberized asphalt concrete and tire-derived aggregate in civil engineering projects and generate demand among consumers and residents. This campaign will also continue efforts to deliver recycled content materials messaging to targeted jurisdictions and Local Assistance and Market Development staff so that they may continue providing outreach to local jurisdictions. An increased effort will be placed on general public education about the benefits of these products and stronger advocacy for local jurisdiction uses.

Activity Funding

FYs 2009/10-2010/11.....	\$3,300,000 per fiscal year
FY 2011/12.....	\$3,200,000
FYs 2012/13-2013/14.....	\$1,500,000 per fiscal year

- 2. Tire-Derived Aggregate Civil Engineering Technical and Construction Management Support:** The Board will partner with State and local agencies to pay for engineering services, tire-derived materials, and other costs associated with civil engineering and roadway construction projects. These projects will be conducted through Board-managed contracts or partnerships with local governments through contracts, grants and interagency agreements.

The Board will retain contractors to assist staff in promoting the use of tire-derived aggregate in civil engineering applications. Depending on the project, the contractors may be from the public or private sector and will be used to provide engineering services for project design, procurement, and construction management. Typical projects may include applications such as lightweight fill, landfill applications, and vibration damping layers in light-rail projects.

Activity Funding

FY 2009/10.....	\$3,250,000
FY 2010/11.....	\$1,000,000
FY 2011/12.....	\$2,750,000
FY 2012/13.....	\$1,361,334
FY 2013/14.....	\$1,711,334

- 3. Rubberized Asphalt Concrete Technology Centers:** The training centers provide statewide technical assistance to local governments located in both Northern and Southern California through direct consultation, and presentations at local and regional workshops.

Activity Funding

FYs 2009/10–2013/14.....	\$100,000 per fiscal year
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- 4. Rubberized Asphalt Concrete Technical Assistance Contract:** The success of the Board’s rubberized asphalt concrete programs has been due in part to the technical support that has been provided through the Board’s technical assistance contract. The contractor will continue to provide technical support to local government grantees and the Board under a new technical assistance contract. This technical support may address issues associated with roadway projects including rubber hot-mix, rubber chip seal, rubber cape seals, and other emerging paving applications that use tire-derived materials that have been determined by the Board to have benefits derived from the use of recycled tires. The technical assistance contractor will also serve as the liaison at various stakeholder workshops and conferences that will help promote rubberized asphalt concrete programs.

The contractor will also assist the Board in developing and implementing a cooperative purchasing program to address obstacles to wider use of rubberized asphalt concrete by rural agencies. Rural local government agencies typically have smaller paving budgets and are not located in close proximity to rubberized asphalt concrete facilities. Because these constraints would result in smaller projects and higher transportation costs, rural agencies are frequently unable to use the product. Through this program the contractor will coordinate the participating agency projects and provide design assistance, specification review, bidding/procurement, construction management and quality assurance and quality control. In addition the contractor will provide training to each participating agency so that they can carry out future cooperative purchase projects on their own.

Activity Funding

FYs 2009/10-2011/12.....	\$1,325,000 per fiscal year
FYs 2012/13-2013/14.....	\$500,000 per fiscal year

- 5. Rubberized Asphalt Concrete Grant Programs:** The Board will continue the Targeted Incentive Grant Program and Use Grant Program (referred to in the 4th edition of the Five-Year Plan as the RAC Rewards Grant Program) but proposes to rename as the Rubberized Asphalt Concrete Grant Program. The goal of the grants continues to be to create long-term sustainable markets by focusing on first-time and limited experience users of the mixture. However, the programs will also continue to award grants to encourage local jurisdictions that already use rubberized asphalt concrete to expand to more projects. The Board anticipates decreasing the grant awards for this program as use by local jurisdictions increases.

Activity Funding

FY 2009/10.....	\$3,850,000
FY 2010/11.....	\$3,509,334

FY 2011/12.....	\$3,600,000
FY 2012/13.....	\$3,500,000
FY 2013/14.....	\$2,500,000

- 6. Rubberized Chip Seal Grant Program:** Rubberized chip seal is a pavement maintenance strategy whose improved performance over conventional chips seal is well-documented. The Board offered this grant program for the first time in FY 2007/08. The program was very successful due to the overwhelming response from local governments. Therefore, the Board will continue to offer this grant program to local governments, to provide them with an additional cost-effective paving option that will extend the life of their roadways. The Board anticipates decreasing the grant awards for this program as rubberized chip seal use by local jurisdictions increases.

Activity Funding

FYs 2009/10–2012/13	\$2,000,000 per fiscal year
FY 2013/14.....	\$1,500,000

- 7. Tire-Derived Products Grants:** This program provides grants for the purchase of tire-derived products, such as sports surfacing, rubberized sidewalks, weed abatement covers, mulch, sound barriers, and traffic safety products. Project and applicant eligibility requirements are approved each year by Board members. Eligible grant recipients may include, but are not limited to, public entities, businesses or other enterprises, as determined by Board members. All eligible applicants will be funded unless the grant program is over-subscribed. At that point, a random selection process would be used to determine who would receive funding. Currently, projects are required to divert a minimum number of California-only waste tires. The award is based on a capped dollar amount per tire diverted, and limited to a maximum award amount. Projects must meet all applicable local, State and federal laws, regulations and requirements, including but not limited to Health and Safety Code §115725, et seq.

Activity Funding

FY 2009/10.....	\$3,300,000
FYs 2010/11–2011/12	\$3,400,000 per fiscal year
FYs 2012/13–2013/14	\$2,000,000 per fiscal year

- 8. Tire-Derived Product Business Assistance Program:** This program is designed to increase demand for tire-derived products, foster new technologies and expand the use of waste tire-derived material to include higher value-added products. Additionally, the program will provide assistance to businesses that diversify existing and create new products through a variety of methods. These include building market capacity and improving the operational and cost efficiencies of tire-derived product businesses by providing technical and consultative assistance. Eligible businesses may apply for assistance to: (1) evaluate, diversify, and improve their business plan and operations, (2) enhance marketing efforts, and (3) test and certify new products.

Staff and an independent consultant will perform an analysis of the businesses to identify needs and associated costs. Examples of tire-derived product business assistance include, but are not limited to:

- General (business plan development or modification, human resource issues, inventory management/control [including just-in-time inventory systems], asset management, appropriate business structure, appropriate or optimal financial structure, accounting systems and controls, website development or modification, etc.).

- Technical (efficient plant design, manufacturing process improvement or optimization, optimizing specific equipment performance, increasing the amount/percentage of recycled material, converting to recycled material from virgin material, diversifying existing processing to meet market demand, etc.).
- Marketing (marketing plan development or modification, product pricing, product promotion, product packaging, distribution systems, cooperative marketing, ad placement, trade shows, etc.).
- Product Testing and Certification (testing products to satisfy the marketplace requirements of the public and private sectors).
- Identification of funding sources including loans to purchase equipment that can be used to process tires, make tire derived products or extend the life of existing tires.

This program will be run in cooperation with the Recycling Market Development Zone program. No new funding will be needed in FY 2009/10 due to active contracts (one expiring in May 2009; and one began in August 2008 with initial funding from FY 2008/09).

Activity Funding

FYs 2010/11 and 2013/14	\$2,500,000 per fiscal year
FY 2011/12.....	\$674,334
FY 2012/13.....	\$2,000,000

- 9. Tire Equipment Loan Program:** In order to encourage tire recycling manufacturers to site new facilities and expand existing operations, this new Tire Loan Program will provide low-interest loans for the purchase of equipment for tire-derived products consistent with the existing Recycling Market Development Zone Loan Program. All eligibility, terms and conditions would be consistent with the existing loan program, except loans will be available to all tire recycling manufacturers located in California that make tire-derived products, whether located within development zone or not. Funds would be tied directly to efforts to increase processing of waste tires, and production of final products, where markets exist for those products. Loans for shredding tires at landfills and monofills would only be for activities designed to divert shredded material for tire-derived products.

Activity Funding

FY 2009/10-2011/12.....	\$4,000,000 per fiscal year
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- 10. Technical Assistance for State of Baja California’s Development of Integrated Waste Tire Management Plan:** Used and waste tires continue to flow into Mexico through border entries, and it is presumed that some of these same tires end up being illegally disposed along the border of California and Mexico. The waste tires that end up along the border regions are either being dumped illegally at various sites or used inappropriately for structural purposes in or near Tijuana, Mexico. These tires pose significant health and safety problems and are environmentally damaging to the border lands in California and Mexico.

In 2003, Mexico passed the Integrated Waste Management Law to promote proper waste management practices for diverse waste streams and encourage reduction, reuse, and recycling of waste. In December 2006, Mexico passed regulations for the law, which included the management of waste tires. One of the activities required was for states and municipalities to assess waste streams and develop a Waste Tire Management Plan. The states, in this case the State of Baja California, will need to work with each of the municipalities to prepare waste tire management plans and provide technical assistance. The purpose of this agreement will be to provide the State of Baja California,

Mexico with an organizational framework for developing tire management plans and technical assistance regarding waste tire management practices at the state and municipal level. That assistance should ultimately benefit the California/Mexico Border Region and assist in minimizing environmental impacts to California. Organizational and technical assistance would include providing information regarding enforcement, remediation, alternative uses for tires, marketing assistance, and tracking the flow of tires in Mexico.

Activity Funding

FYs 2009/10-2013/14.....\$20,000 per fiscal year

11. Sharing of Environmental Education Materials Throughout the Border Region:

SB 772 (Ducheny, Chapter 214, Statutes of 2005) requires the Board to work with Mexico in areas relating to waste and used tires, and environmental education and training. In coordination with the Office of the Secretary for Environmental Protection-Border Affairs and the Board’s Office of Education and the Environment, the Board will continue to implement a mechanism with Mexico’s Secretariat for Public Education, Baja California’s Secretaría de Protection Ambiental, and the Baja California’s Education System allowing for bi-national distribution of the Cal/EPA-Board environmental education curriculum titled “Conservation and Pollution Prevention at a Shared Border.” This elementary school curriculum includes lessons that are relevant to prevalent border conditions (e.g., land, water, and air pollution) and is consistent with existing environmental education and training principles in Mexico. Both English and Spanish versions of the curriculum are provided to border teachers, educators, and schools. This curriculum contains scientific and resource-based lessons regarding the border area, with key steps toward environmental sustainability. The plan is to train the trainers who in turn will provide workshops to teach teachers and educators on how to lead students on the lessons contained in the curriculum.

The reproduction of the curriculum was funded from unused FY 2006/07 tire funding. Distribution of the curriculum will continue through a Cal/EPA-Board work plan, with participation on both sides of the border, during fiscal years 2009/10 and 2010/11.

Activity Funding

FYs 2009/10-2010/11.....\$20,000 per fiscal year

12. CalMAX and WRAP Activities:

CalMAX: CalMAX is a free Board 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 listing with wanted or available tire byproducts, crumb rubber, or waste/used 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 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 program would also include an increase in outreach efforts to automotive and tire-related businesses.

Activity Funding

FYs 2007/08–2011/12\$24,666 per fiscal year

13. Tire Events: As it has in past years, the Board will continue to hold tire workshops, forums, and/or trainings. These tire business/product events will provide attendees with up-to-date information about waste tire management programs. 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 events also offer a venue for Board members, staff, and stakeholders to meet and focus on issues of common concern. Wherever possible, events will be conducted in conjunction with other related events organized by organizations such as the League of California Cities, California Public Works Association, California State Association of Counties, etc. In addition, Board staff has combined the Tire, Used Oil/Household Hazardous Waste, and Recycling Market Development Zone Conferences and Training Workshops into one combined three-year contract to provide efficiencies of scale and other benefits to the Board. All events will also be coordinated with the Board’s Office of Public Affairs.

Activity Funding

FY 2009/10.....	\$118,000
FY 2010/11.....	\$75,000
FY 2011/12.....	\$30,000
FYs 2012/13- 2013/14.....	\$100,000 per fiscal year

14. Web-Based Grant Management System: The current submittal and management process for grant applications, reports, payment requests, and evaluations are manual and paper-based. There are limited resources to electronically review and quantify this information, which leads to inefficiencies that do not support Strategic Directive-10 (Fiscal Responsibility) or Strategic Directive-7 (Customer/Local Assistance). This effort would replace the current process with a more efficient government to government, web-based, integrated system for grant application and management. An online system would eliminate input errors when transferring data from hard copy to the database. In addition, it would be more convenient for the potential grantees to be able to prepare and/or submit documents online. An automated system should result in increased staff efficiencies and productivity. Conducting faster input and analysis of these documents via an automated system will facilitate quicker turnaround time for grant evaluation and fund distribution.

Activity Funding

FY 2009/10.....	\$150,000
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Administrative Costs

Program Staffing and Administration

Tire-related activities are performed by a total of 39.5 positions within six divisions at the Board. The total cost of staffing and administration is \$4.9 million.

Activity Funding

FY 2009/2010.....\$4,924,000*
FYs 2010/2011–2013/14.....\$4,916,000 per fiscal year*

**Estimate of staffing and administrative costs*

Administration

“Administration” refers to the accounting of central management costs, such as those pertaining to executive management, accounting, human resources, grants, business services, employee health & safety, small-office support, and statewide pro rata assessments (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) that generally serve all of the Board (i.e., indirect or overhead costs). This Administration funding represents the distribution of “indirect costs” to direct Board program activities that include the tire program.

Activity Funding

FYs 2009/2010–2013/14.....\$1,832,000 per fiscal year*

**Estimate Board administrative costs*

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, Shorthand Reporting, Professional Recovery Systems, and the University of California, Davis.

Activity Funding

FYs 2009/2010–2013/14.....\$1,500,000 per fiscal year*

**Estimate of costs for mandatory contracts*

Appendix A: Accomplishments Based on Performance Measures from the July 2007 Five-Year Plan

This section contains performance measures from the current *Five-Year Plan for the Waste Tire Recycling Management Program (4th Edition Covering Fiscal Years 2007/08-2011/12)*, dated July 2007, with accomplishments reported after each performance measure. Data collected is for fiscal year 2007/08 unless specified. Baseline data can be found in italics.

Enforcement Program

To evaluate the enforcement program’s success in achieving its objectives, the following measures were proposed in the July 2007 *Five-Year Plan*:

- 1. Increase and maintain the waste tire enforcement grantee coverage in the state to 80 percent or more by 2008.** *Baseline data: As of FY 2006/07 the enforcement grantees cover 79 percent of the state.*

Chart 1 shows historical data for the number of grantees and grantee statewide coverage for the Waste Tire Enforcement Grant program. The historical data indicates that grantee participation in the program, and statewide coverage, has remained steady over the past five years.

Grantee coverage decreased 2 percent from Tire Enforcement Agency (TEA) 12 to TEA 14 because grantees were surveying all businesses and reclassifying sites from active and inactive to closed, when appropriate. Additionally, while there were 39 grantees for both grant cycles, it was not the same 39 for each year, and the TEA 14 grantees were responsible for fewer active sites than the TEA 12 grantees. The chart shows that the “Percentage of Active Sites Covered by Grantees” increased from TEA 14 to TEA 15. For the 2008/09 grant term, there are 25,821 active sites with grantees responsible for 20,462 sites, and Board inspectors responsible for the remaining 5,359.

The chart below shows that staff fell only 1 percent short of meeting the performance goal of 80 percent statewide coverage by grantees. To increase grantee coverage and meet or exceed the performance goal, staff will increase its outreach to non-participating jurisdictions to encourage them to participate.

Chart 1: Waste Tire Enforcement Grantees Coverage

Grant Cycle	Work Performed in Fiscal Year	Number of Grantees	Number of Active Sites Covered by Grantees	Percentage of Active Sites Covered by Grantees
TEA 8	2003/04	24	15,618	56%
TEA 9	2004/05	36	17,829	64%
TEA 11	2005/06	38	21,463	77%
TEA 12	2006/07	39	21,701	79%
TEA 14	2007/08	39	19,857	77%
TEA 15	2008/09	42	20,462	79%

2. **Establish baseline numbers to monitor the effectiveness of the waste tire enforcement program by the end of 2008 by: reporting on the cost of the program, statewide coverage, number of inspections, and Notice of Violations, and Board referrals.** *Baseline data: As of April 19, 2007, \$27,095,295 has been awarded to waste tire enforcement program grantees; grantees cover 79 percent of the state; 7740 of inspections have been conducted (increase of 600 percent from 2002/03 to 2007/08); 1280 Notices of Violation have been issued, and 19 referrals have been made to the Board.*

Chart 2 shows historical data for a number of reporting points related to the Waste Tire Enforcement Grant program. The chart shows the following trends:

- Grantee participation in the program has remained steady over the past five years.
- Total awards have increased each year.
- Grantee expenditures remained virtually the same for the past three reported grant cycles.

Chart 2: Waste Tire Enforcement Grant Award vs. Expended (rounded to the nearest \$1,000)

Grant Cycle	Work Performed in Fiscal Year	Number of Grantees	Total Amount Awarded	Award Amount Expended	Expended as a Percent of Award
TEA 1	1997/98	4	\$110,000	\$105,000	96%
TEA 2	1998/99	9	\$315,000	\$315,000	100%
TEA 3	1999/00	9	\$360,000	\$350,000	98%
TEA 4	2000/01	8	\$500,000	\$390,000	78%
TEA 5 & 6	2002/03	8	\$760,000	\$560,000	74%
TEA 8	2003/04	24	\$3,720,000	\$2,020,000	55%
TEA 9	2004/05	36	\$4,710,000	\$3,250,000	69%
TEA 11	2005/06	38	\$5,250,000	\$3,330,000	63%
TEA 12	2006/07	39	\$5,667,000	\$3,323,000	59%
TEA 14	2007/08	39	\$5,703,000	*	
TEA 15	2008/09	42	\$6,619,945	**	

TEA 7, 10 and 13 were grants to the California District Attorneys Association.

*Data is expected to be available at the end of March 2009, after TEA 14 final claims have been received and paid.

**Data is expected to be available at the end of December 2009, after TEA 15 final claims have been received and paid.

To increase grantee participation, staff will increase its outreach to non-participating jurisdictions to encourage them to participate.

To increase grantee expenditures staff will:

- work closely with grantees to identify work that should be performed;
- provide grant management training to grantees; and,
- revise grant forms and instructions to streamline the grant process.

Statewide coverage information can be found in Chart 1 under the preceding performance measure.

Chart 3: Number of Inspections Performed

Work Performed in Fiscal Year	By Grantees	By the Board	Total
1996/97	*	52	*
1997/98	*	97	*
1998/99	*	180	*
1999/00	*	435	*
2000/01	*	336	*
2001/02	*	245	*
2002/03	1,475	188	1,663
2003/04	6,611	124	6,735
2004/05	7,740	857	8,327
2005/06	9,282	1,420	10,702
2006/07	10,217	1,156	11,373
2007/08	9,283 ¹	685 ¹	9,968 ¹

*No information for specific years is available during the grant terms for FY 1996/07 through 2001/02; however, grantees inspected approximately 2,000 waste tire sites during this overall timeframe.

¹ Staff expect the number of 2007/08 inspections to increase as inspection data continues to be input into the Waste Tire Management System database.

Chart 4 shows historical data for the number of inspections performed. The chart shows that the total number of inspections increases each year (see Footnote 1, above). Staff will continue to work with grantees to develop work plans that include inspections within the recommended time frames.

Chart 4: Notices of Violation Issued and Referrals made to the Board

Work Performed in Fiscal Year	Notices of Violation Issued	Referrals made
2002/03	212	*
2003/04	459	*
2004/05	609	19
2005/06	802	8
2006/07	867	10
2007/08	696 ²	11

* Information not available due to database limitations

² Staff expect the number of 2007/08 NOV's and Referrals to increase as inspection data continues to be input into the Waste Tire Management System database.

Chart 4 shows historical data for the number of Notices of Violation (NOV) issued, and referral made to the Board. The chart shows the following trends:

- Notices issued have increased each year (see Footnote 2, above).
- Referrals made to the Board have decreased from the previous reporting period.

Staff concludes:

- The increase in notices is a direct result of the increase in inspections performed.
- The decrease in referrals is a result of grantees becoming more proficient in the program and being able to resolve issues of non-compliance without referring them to the Board.

- 3. Provide waste tire enforcement grantee training annually.** *Baseline data: As of April 18, 2007, four grantee roundtables were conducted covering Inspection and Enforcement Procedures and Issues Related to Grant Management and Administration.*

The Tire Enforcement Branch conducted grantee roundtable meetings in the spring of 2007 and 2008. Subjects included inspection and enforcement procedures, tire enforcement legal issues, and general grant management and administration. Additional grantee roundtable meetings are scheduled for the fall of 2008.

The Tire Enforcement Branch participated in training sessions that were held during the annual LEA Conferences in the fall of 2006, 2007 and 2008. Topics included planning tire amnesty day events, personal safety, and evaluating tire fire standards. Staff plans a heightened presence at the 2009 LEA Partnership Conference with many more topics of importance to waste tire enforcement grantees and Board staff.

Three workshops titled “Waste Tire Training for Law Enforcement and Inspections” were conducted in summer 2008. These workshops brought together waste tire enforcement grantees, Board inspectors, and the Highway Patrol, to develop a geographical partnership. This was a three-day training session that covered surveillance, interviewing, investigative techniques, health and safety, report writing, gathering and presenting evidence, and an overview of laws and regulations. One additional session is scheduled for the spring of 2009.

In addition to the previously described training, Board staff partnered with various local entities and conducted several two- and three-hour training sessions for local county or city enforcement staff. These training sessions highlighted waste tire laws and regulations, and how the local entities could help with enforcement.

- 4. Inspect all tire businesses at least once by December 2008. Thereafter, inspect permitted facilities at least once every year; haulers at least once every two years; and active generators at least once every three years. Where there have been compliance problems, inspect more frequently as resources allow.** *Baseline data: As of July 2004, approximately 50 percent of the statewide tire businesses have been inspected. In conducting inspections of facilities with compliance issues, grantees will perform follow-up inspections and/or enforcement actions to ensure violations are corrected.*

Chart 5: Number of Tire Businesses Inspected

Type of Tire Business	Number of Tire Businesses	Number Inspected	Percent Inspected
Active Major and Minor Permitted Facilities	33	32	97%
Active Registered Haulers	1,076	723 ³	68%
Active Generators	18,399	11,224	61%

³In addition to the field-based inspections, staff performs office-based monitoring and evaluation of all haulers.

Chart 5 shows data for the number of inspections of permitted facilities, haulers and generators per the Waste Tire Management System on August 8, 2008. The chart shows an increased percentage of tire businesses have been inspected over the "approximately 50 percent" reported in the July 2007

Five-Year Plan. Board staff did not meet the performance goal of inspecting 100 percent of tire businesses by December 2008 because there was a large turnover in tire enforcement staff and management in FY 2007/08.

To continue to increase the percentage of tire businesses inspected, staff will:

- revise grant instructions to incorporate this performance measure into grantee requirements;
- work closely with grantees to prepare work plans that include required inspections of permitted facilities, haulers and generators;
- prepare work plans that include required inspections of permitted facilities, haulers and generators for areas not covered by a grantee;
- continue to perform office-based monitoring and evaluation of all haulers; and,
- continue to monitor progress toward this performance goal.

- 5. Actively search for new illegal tire piles. (Track and report on illegal waste tire piles identified through the Board’s surveillance activities).** *Baseline data: This is a new performance measure that staff has been working on since late 2005. As of 2007, Board staff has conducted intensive surveillance using satellite imagery and Highway Patrol helicopters and planes all along the California/Mexico border region and in six Northern California counties (Sonoma, Marin, Placer, Solano, Sacramento and Stanislaus) searching for illegal tire piles. Ground verification of 54 tire piles is currently in progress.*

Chart 6: Illegal Tire Piles Identified

Work Performed in Fiscal Year	Number identified
2001/02	22
2002/03	15
2003/04	15
2004/05	14
2005/06	10
2006/07	472**
2007/08	*

*Data is expected to be available at the end of March 2009, after TEA 14 final claims have been received and paid.

***Reporting Change:* As indicated in the July 2007 Five-Year Plan (page 44, item 3, Note), illegal tire piles identified in that report were only those piles that resulted in enforcement actions. The July 2007 Plan also indicated that reporting processes were changing to also capture the number of illegal tire piles identified which did not result in an enforcement action. Staff anticipated an increase in the total number of illegal sites reported, which was confirmed by the data grantees submitted in their final TEA 12 report for work performed in fiscal year 2007/08. Because of the reporting change, Board staff cannot identify trends or draw conclusions for this report.

- 6. Resolve all violations found through inspections. (Track and report the number of businesses found in violation and brought into compliance as the result of notice of violations, cleanup and abatement orders, and administrative complaints.)** *Baseline data: Over the last three fiscal years (2003/2004, 2004/2005, and 2005/2006), 43 waste tires sites were found in violation and 32 sites have been cleaned up. The remaining sites are under enforcement orders.*

Chart 7: Enforcement Actions Issued and Resolved

Work Performed in Fiscal Year	Enforcement Actions	
	Issued	Resolved
2003/04	15	12
2004/05	11	11
2005/06	17	9
2006/07	16	11
2007/08	11	3

Chart 7 shows historical data for the number of Enforcement Actions issued and resolved. The chart shows that Enforcement Actions issued and resolved remained relatively steady for four fiscal years and declined in the most recent FY. Staff concludes that the decline is primarily due to a large turnover of staff and management in FY 2007/08.

Chart 8: Notice of Violation Brought into Compliance after Notice Issued

Work Performed in Fiscal Year	Notices of Violation	
	Issued	Resolved
2006/07	867	540
2007/08	696 ⁴	*

⁴ Staff expect the number of 2007/08 notice of violations to increase as inspection data continues to be input into the Waste Tire Management System database.

*Data is expected to be available at the end of March 2009, after TEA 14 final reports have been received.

New Reporting Item: As indicated in the July 2007 Five-Year Plan (page 44, item 4), existing systems and processes were being updated to allow for more complete reporting. Grantees are now required to report the number of violations brought into compliance after the Notice of Violation was issued and before an enforcement order was needed. Because this is a new reporting item, staff cannot identify trends or draw conclusions for this report.

- 7. Develop a grantee portal whereby grantees have access to the businesses, inspections and basic enforcement information in their jurisdiction by the end of 2007.** *Tire staff has been working closely with the Board's Information Management Branch since 2005 to design a grantee web portal. The new WebPass service was deployed in August 2007. This service provides security to the database portal and enables haulers, waste tire enforcement grantees, generators and end-use facilities to access their data. Most grantees were successfully logged in by October 2007. As of June 2008, there were 75 individual grantee contacts with access to the database and more than 2,500 logins.*

Hauler and Manifest Program

To evaluate the hauler and manifest program's success in achieving its objectives, the following measures were proposed in the July 2007 *Five-Year Plan*:

- 1. Reduce the percentage of waste and used tire generators, haulers, and end-use facilities that are not submitting manifest forms by 15 percent by December 2009.** *Baseline data: As of March 2007, 42 percent (6,779 out of 16,030) were not submitting manifest forms.*

Effective January 1, 2005, registered waste tire haulers were required to use the Comprehensive Trip Log form (Form 203) as the required manifesting document. With the implementation of this reporting form, the sole responsibility was placed upon the tire hauler to complete the form, obtain the required initials from the generator and/or end use facility operator, and submit the log to the Board within 90 days. Currently, the Board registers more than 1,150 waste tire haulers; however, approximately 106 of these tire haulers (9 percent) have failed to submit any log forms to the Board. Recent upgrades to the database have now allowed Board staff to identify those tire haulers. Although some tire haulers just recently became registered, a large number of tire haulers need to be investigated as to why the Board has not received manifest documents.

In addition, staff has documented that, since March 2007, every active waste tire generator (more than 18,700) has at least one manifest document that has been submitted by a waste tire hauler.

- 2. Reduce the percentage of manifest form errors that are submitted by waste tire haulers by 45 percent by December 2010.** *Baseline data: Ninety-two (92) percent of the manifest forms submitted from June 2003 to January 2007 by waste and used tire haulers had errors.*

Since January 1, 2007, there have been 365,246 paper trip log receipts (non-electronic submissions) submitted to the Board; 91,525 of these receipts had one or more errors (a 25 percent error rate, significantly reduced from prior reporting periods). More importantly, 51 percent of all waste tire transactions are now reported to the Board electronically using batch processing or web-based data entry. Electronic submissions are not calculated in the 25 percent error rate calculations. The error rate for electronic processing is effectively zero percent because the database will not allow errors or omissions during electronic submission, except for operator error in reporting the numbers themselves. Staff conducts random audits to ensure accuracy of the electronic reporting information.

- 3. Track the percentage of waste tire enforcement program cases where the manifest system information has been used to assist Board staff and local enforcement agencies and report annually.** *Baseline data: For 2006, 98 percent (44 out of 45) of the enforcement cases used manifest information.*

During the time period from January 1, 2007 to September 22, 2008, approximately 84 percent (93 out of 111) of the enforcement cases used manifest information to assist in the enforcement actions*.

- a. Track the number of Form 204 entries where the end-use facility operators are required to report unregistered waste tire haulers transporting tires to their facilities.** As a general rule, staff will send out a letter of violation to the offender about the tire hauling restrictions. If a second complaint is received against the individual or company, another letter of violation is issued by certified mail, ensuring that the offender receives this notification. If a third offense is committed or if a tire generating business familiar with the tire hauling requirements commits this act, staff will investigate and will prepare an enforcement action, either through an administrative complaint referral to Board's Legal Office or by use of the streamlined penalty process.

During the time period from January 1, 2007 to September 22, 2008, approximately 2,151 Form 204 complaints were submitted to the Board; of this number, 12 enforcement actions* were taken against repeat violators. The vast majority of these complaints were individuals who were unaware of the tire hauling restrictions and have not committed further offenses. Reasons why those reported on the Form 204s may have exceeded the hauling restrictions are: cleaning up existing properties; the purchase of new properties where tires were disposed; response by homeowners to illegal disposal of waste tires onto private properties (midnight dumping); removal of tires to prevent breeding grounds for mosquitoes and rodents; and good Samaritans removing abandoned tires along roadways. Board staff reviews the circumstances involved in each violation before making a determination to proceed with enforcement action.

**Enforcement actions include administrative complaints and streamlined penalty cases.*

4. **Track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling and report annually. This is an ongoing performance measure to track the enforcement actions and penalties sought by the Board against waste tire haulers.** *Baseline data: This is an ongoing performance measure to track the enforcement actions and penalties sought by the Board against waste tire haulers. For 2004-2006, the Board took enforcement actions against 25 waste tire haulers. The Board assessed penalties of \$126,950 and an additional \$95,800 was held in abeyance.*

During the time period from January 1, 2007 to September 22, 2008, the Board took enforcement action against 108 tire haulers. Enforcement actions included administrative complaints and streamlined penalty cases which are further shown below.

- a. **Administrative Complaints** – during the time period from January 1, 2007 to September 22, 2008, the Board took enforcement actions against 27 waste tire haulers and assessed penalties of \$159,975 and an additional \$33,775 was held in abeyance.
 - b. **Streamlined Penalty cases** - during the time period from July 1, 2008, to December 31, 2008, the Board took enforcement actions against 82 waste tire haulers and assessed penalties of \$33,150.
5. **Determine the quantity of waste or used tires being picked up or delivered for each county by December 2007.** *Baseline data: A total of 308,616,872 waste or used tires were picked up and 548,569,297 waste or used tires were delivered within the state during the time period from January 1, 2004 to December 31, 2006.*

During the time period of January 1, 2006 to September 22, 2008, a total of 170,035,689 waste or used tires were picked up and 197,997,862 waste or used tires were delivered within the state. Chart 9 shows individual county tire flow information. Chart 10 shows the total amounts of tires picked up or delivered to other states and Mexico for the same time period.

The numbers previously reported in 2007 and the current numbers reflect a significant decrease of tires picked up and delivered. Plausible explanations for this occurrence may be:

- A more accurate counting of tires reported by the haulers as a result of Board staff enhanced monitoring of the manifest records and Local Enforcement Agency inspections, explaining how to record the manifesting information.

- Discrepancies in database conversion factors as the trip log forms no longer require the type or size of tires. As an example, one tire reported as “whole tire count” could be either a passenger tire weighing 20 lbs. or a large Off The Road tire weighing as much as 2,000 lbs.; however the database will report both as one Passenger Tire Equivalents (PTE) and convert tire counts to a weight factor based upon a 20 pounds/PTE conversion factor .

In addition, the chart shows that many smaller counties have significantly more tire pickups than deliveries. Many of these situations can be attributed to tires being generated and picked up within the county but disposed of outside the county into a larger county jurisdiction where there may be several end-use facilities that accept tires.

Chart 9: Tire Flows in California Counties

County	Year 2006		Year 2007		Year 2008	
	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups
Alameda	2,630,057	2,439,279	2,724,913	4,849,838	1,889,141	1,214,482
Alpine	0	7	0	0	0	14
Amador	10	76,714	1	79,934	62	32,933
Butte	19,162	278,500	14,508	285,898	17,380	191,079
Calaveras	15,654	31,660	240	46,615	719	27,372
Colusa	49	53,131	1,434	43,821	330	25,677
Contra Costa	82,427	1,011,587	40,494	851,811	21,374	605,024
Del Norte	16	13,177	0	10,182	4	9,811
El Dorado	33	218,947	2,335	168,087	255	75,407
Fresno	383,874	1,084,378	609,647	1,315,756	701,894	813,497
Glenn	3,968,782	90,823	225,111	109,443	217,983	100,006
Humboldt	12,362	187,008	41,456	225,747	31,216	156,341
Imperial	577,184	375,236	433,468	456,256	165,597	235,272
Inyo	10,835	49,585	10,910	20,775	4,870	16,202
Kern	4,842,699	1,385,552	7,200,161	1,624,727	8,732,257	2,499,680
Kings	298,791	144,122	599,195	163,170	207,210	87,536
Lake	4,819	64,014	13,816	77,419	3,199	48,197
Lassen	10,981	52,018	15,096	217,939	9,732	1,394,568
Los Angeles	25,016,624	17,826,555	29,362,811	17,737,002	13,321,350	9,516,499
Madera	31,362	149,471	6,564	180,719	3,855	137,210
Marin	31,421	253,686	35,055	217,209	14,428	130,075
Mariposa	0	11,435	27	13,750	0	9,288
Mendocino	1,321	116,049	13,205	199,429	436	97,843
Merced	4,095,600	2,310,990	3,705,163	3,268,358	2,347,525	757,480
Modoc	0	11,322	386	13,655	800	6,518
Mono	0	38,783	0	6,302	0	2,961
Monterey	4,048	237,327	9,375	333,037	10,070	241,390
Napa	10,903	146,113	3,605	119,276	831	68,381
Nevada	786	139,458	1,028	139,545	221	74,695
Non-Ca.	1,495,341	403,877	2,932,823	513,826	584,907	1,380,960
Orange	76,579	3,906,864	109,796	3,267,238	102,958	1,394,343
Placer	103,470	788,094	5,735	408,324	889	235,830
Plumas	869	13,092	658	20,171	4	15,402
Riverside	582,391	2,047,998	509,373	2,111,637	264,649	1,462,227
Sacramento	934,204	4,050,324	2,183,393	4,639,619	642,088	1,134,108
San Benito	2,799	23,296	145,642	85,051	252,511	120,649
San Bernardino	7,982,415	11,072,929	9,885,150	6,614,853	4,570,510	5,002,250
San Diego	4,148,389	3,301,529	3,429,452	2,753,428	2,552,874	1,609,377

County	Year 2006		Year 2007		Year 2008	
	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups
San Francisco	10,259	243,998	32,197	258,622	11,415	191,209
San Joaquin	1,863,203	4,526,585	2,677,211	2,197,790	855,284	692,603
San Luis Obispo	433,252	238,319	456,762	240,964	329,134	127,608
San Mateo	3,457	503,160	6,471	522,833	4,155	356,952
Santa Barbara	3,225,217	292,917	182,268	443,141	3,891	139,165
Santa Clara	3,202,323	1,467,996	5,092,928	1,997,628	1,628,665	1,005,659
Santa Cruz	10,894	157,410	16,065	593,021	311	129,181
Shasta	1,192,848	379,793	972,289	468,197	623,227	321,937
Siskiyou	413	61,822	13	65,431	28	49,164
Solano	14,159	687,622	88,953	621,084	59,774	370,732
Sonoma	204,643	704,232	172,628	843,109	90,599	370,992
Stanislaus	788,594	947,293	2,232,665	974,843	113,443	429,304
Sutter	1,947	267,790	6,609	211,919	5,697	68,936
Tehama	29,335	134,856	9,486	189,997	2,936	135,778
Trinity	0	10,648	0	11,222	18	4,605
Tulare	92,017	540,424	60,557	438,202	33,904	336,833
Tuolumne	67	62,779	449	79,176	38,832	86,489
Ventura	2,140,238	954,250	1,559,602	642,141	61,037	409,685
Yolo	6,323,731	1,313,245	1,345,770	1,066,895	1,252,635	650,594
Yuba	98,558	143,234	6,855	80,673	5,534	47,639

Chart 10: Tire Flows in Other States and Mexico

State	Year 2006		Year 2007		Year 2008	
	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups
AR	1,353	27,056	2,742	32,842	737	20,683
AZ	114,211	82,893	263,942	92,768	7,870	34,323
CA	75,532,361	67,685,475	76,296,005	64,700,459	40,948,123	35,391,310
CO	0	0	0	0	300	323
CT	0	0	3,345	0	0	0
DC	0	25	0	428	0	76
FL	0	0	0	0	0	3
ID	28	0	66	121	0	35
IL	0	0	3	4	0	8
KS	10,225	0	14,371	1	0	0
MA	0	0	0	0	0	9
MI	0	8	0	0	0	0
MN	0	1	0	0	0	0
MO	44	9	0	49	0	30
MT	0	1,252	0	0	0	1,117
NC	0	4	0	5	0	3
NE	0	1	0	16	0	28
NJ	0	3	0	18	0	0
NM	0	0	4,493	92	0	0
NV	100,641	34,308	850,772	54,942	97,075	43,138
NY	3,858	0	7,584	0	0	0
OH	0	208	629	102	468	7
OR	434,461	234,876	369,745	294,229	265,979	1,258,148
PA	0	31	0	137	0	21
RI	0	169	0	0	0	0
SC	3,801	15,972	181	17,082	114	2,151
SD	5,569	0	6,341	0	0	0
TN	0	575	0	280	0	0
TX	90,963	3,040	237,591	14,039	2,011	9,585
UT	0	0	0	21	0	0
VA	0	0	0	224	0	0
WA	0	2,272	3,097	2,236	0	680
WI	0	3	0	3	0	3
Mexico	730,187	425	1,167,920	3,647	206,352	5,917

Cleanup Program

To evaluate the cleanup program's success in achieving its objectives, the following measures were proposed in the July 2007 *Five-Year Plan*:

- 1. Complete the short-term waste tire remediation projects referred by the enforcement program and report status of projects to the Board on an annual basis.** *Baseline data: As of January 2007, 60 sites have been remediated including: Amos Dixon, Nash Hill I and II, AJ Ranch, Raymond Road, Bebee Family Ranch, Silacci, Briggs, Wilson Bebee, Walnut Flats, Universal Portfolio, and the Garcia waste tire sites. Four of the sites referred to the program are still in the process of being remediated.*

All short-term remediation projects referred to the Cleanup Program have been completed except for three sites in Sonoma. The Board expected to start and complete the Maffia and Flocchini sites in fall 2008. Due to permitting issues, Infineon has been delayed and will be completed in fall 2009.

- 2. Increase the number of sites remediated through the Waste Tire Local Government Cleanup Grant Program by 5 percent annually through 2012.** *Baseline data: This is a new performance measure, and is expected to better reflect the Board's success in this program than the previous waste tire local government cleanup grant performance measure.*

The Waste Tire Local Government Cleanup Grant Program has shifted from providing funding for cleaning up private property and moved towards community cleanup projects. For 2007/08, the Board awarded \$790,923 to 15 jurisdictions. In the previous fiscal year, the Board awarded \$845,866.55 to 20 jurisdictions, which shows a decrease in the amount awarded but an increase in the number of grants provided.

- 3. Increase the number of waste tire amnesty grants issued to local governments by 5 percent annually through 2012.** *Baseline data: In FY 2005/06, the Board awarded 31 amnesty event grants. In FY 2006/07, the Board awarded 34 amnesty day grants, which is a 9 percent increase from the previous year.*

The Board awarded \$1,198,594 to 43 jurisdictions for the Amnesty Event Grant Program. In the previous year, the Board awarded \$807,416.45 to 34 jurisdictions. The Program had a significant increase in the number of grants and funds awarded over the prior year.

- 4. Increase the number of sites remediated through Farm and Ranch Cleanup Grants issued to local governments by 10 percent annually through 2012.** *Baseline data: This is a new performance measure, and is expected to better reflect the success in this program than the previous farm and ranch cleanup grants performance measure.*

During FY 2007/08 the Farm and Ranch Cleanup Grant Program received approval from Board members to remediate 36 sites littered with 25,889 tires. These are estimates of the number of tires as these sites have yet to be remediated. During the previous fiscal year, the Board remediated 32 sites containing 4,192 tires. The program had a threefold increase in the number of tires remediated over the prior year.

- 5. Assess existing tire fire response protocol and update and amend the Uniform Fire Code every five years in cooperation with the Office of the State Fire Marshal.** *Baseline data: During FY*

2004/05 the Department of Forestry & Fire Protection, Office of the State Fire Marshal, under contract with the Board, updated the tire fire response protocol. Additionally the state fire marshal conducted eight trainings to 225 local government representatives across the state.

After consulting with the state fire marshal no additional update to the Uniform Fire Code was deemed necessary.

Research Program

To evaluate the research program's success in achieving its objectives, the following measures were proposed in the July 2007 *Five-Year Plan*:

- 1. Develop curriculum and continuing education credits at the university level for engineers and public works officials regarding the use of rubberized asphalt concrete and civil engineering uses for waste tires by May 2009.** *Baseline data: This contract was approved at the April Board 2007 meeting and will be completed by May 2009.*

Under this contract, significant progress has been made on this performance measure. The contractor has developed curriculum for 10 engineering classes which include teaching modules and lecture materials. These materials have been presented and distributed to engineering educators in the various college and university systems throughout the state. Additionally, rubberized asphalt concrete and tire-derived aggregate information has been presented at several professional workshops for engineers and other personnel working in the civil engineering field.

- 2. Investigate and evaluate the benefits of and obstacles to existing and emerging highway construction and civil engineering applications that use tire-derived materials. Make recommendations to Board members by December 2008 about strategies to overcome obstacles and to develop and promote these applications in grant and outreach programs.** *Baseline data: Significant progress has been made in identifying the obstacles and educating both local and State governments, as evidenced by the fact that the Board has conducted several successful civil engineering applications and awarded grants for numerous rubberized asphalt concrete projects.*

Board staff, in consultation with stakeholder groups, has identified several obstacles to promoting civil engineering applications using tire-derived materials. The first are in the rubberized asphalt concrete area, where two of the obstacles identified were to diversify the paving strategies that are promoted by the Board and to streamline the process that awards grants to local governments. The second is in the tire-derived aggregate area, where the primary obstacles continue to be lack of familiarity with this application by potential end-users and the need to collect actual project performance data in order to convince key stakeholders that the technology is viable. Another obstacle, but to a lesser extent, is the availability of the aggregate.

In order to address the obstacles identified for the rubberized asphalt concrete area, staff will be proposing to diversify the program by investigating and promoting new paving strategies (i.e., terminal blend, warm mix asphalt, and recycling). The Board has already approved a new paving strategy in FY 2007/08: a rubber chip seal grant program. The first offering of this grant program was well received and will provide another opportunity for using tire-derived materials. In addition, staff proposed to streamline the grant program by combining the Board's three existing rubberized asphalt concrete grant programs (targeted, use and chip seal) into one joint solicitation. This was approved by Board members in August 2008.

In order to address the obstacles identified for the aggregate, staff will be proposing to continue the current technical support program in partnership with the Board's tire-derived product outreach efforts to promote the use of tire-derived aggregate. This will be accomplished by awarding a new expert and construction management contract to continue the Board's technical support efforts. The scope of work for this contract was approved by Board members in October 2008. This contract will allow the Board to continue to partner with State and local governments to construct actual tire-derived aggregate demonstration projects and to also continue to provide technical assistance and training to stakeholders to help promote its use.

3. Develop in-house capabilities to track the market for various tire-derived products on an on-going basis. *This is a new performance measure.*

The Board has awarded two contracts that, together, will continue development of this performance measure. Under the tire business assistance contract, the contractor will develop and implement a scrap tire market analysis protocol. The current contractor will develop and implement market analysis protocols, including a scrap tire market analysis protocol to fill information gaps, and will gather data and information from various material processors and recyclers, including California scrap tire processors and recyclers. The contractor will collect data, including scrap tire generation and flow data, from California firms by survey. The survey information will be integrated into subsequent *Five-Year Plan for the Waste Tire Recycling Management Program* biennial updates, the annual report titled *California Waste Tire Generation, Markets and Disposal: Board Staff Report*, and the ongoing Board Infrastructure Contract. The information will be used for updating information, including scrap tire market information, and for evaluating current and future strategies for various products, including tire-derived products. As part of the Infrastructure Contract, they will provide recommendations on methods and/or systems to facilitate future data collection efforts and to obtain more accurate information. On an ongoing basis, Board staff will update databases annually to track product markets and also provide comparisons with previous years' data for trend analyses.

Market Development Program

To evaluate the market development program's success in achieving its objectives, the following measures were proposed in the July 2007 *Five-Year Plan*:

1. Increase the percentage of waste tires diverted from landfill disposal to 85 percent by 2010.

Baseline data: The diversion rate for 2005 was estimated at approximately 72 percent.

California generated approximately 44.4 million waste tires in 2006. Of this total, approximately 33.0 million waste tires (or 74 percent) were diverted from disposal through reuse, crumb rubber, rubberized asphalt concrete, civil engineering, alternative daily cover, agriculture, retreading and tire-derived fuels for power generation and cement kilns. The remaining 11.4 million waste tires (about 25.6 percent) were disposed to landfills.

2. Establish a baseline for current usage of rubberized asphalt concrete by State agencies and local governments by June 2008, and increase its use by an additional 15 percent by 2010.

Baseline data: Staff is currently working on establishing a baseline for use of rubberized asphalt concrete by local governments.

Based on the Board's rubberized asphalt concrete grant program, whose participants are local governments, Board members awarded the following grant amounts:

Chart 11: Grant Awards for the Rubberized Asphalt Concrete Grant Programs

Program	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09*	Total
Targeted			\$3,630,000	\$6,900,136	\$2,904,065	\$325,000	\$13,759,201
Use	\$1,189,479	\$1,255,653	\$1,735,742	\$1,508,738	\$2,073,639	0	\$7,763,251
Total	\$1,189,479	\$1,255,653	\$5,365,742	\$8,408,874	\$4,977,704	\$325,000	\$21,522,452

*Additional grant awards are pending Board approval.

There was a 63 percent increase in grant awards from FY 2005/06 to FY 2006/07; however, there was a 40 percent decrease in grant awards from FY 06/07 to FY 07/08. Other than tracking the amount of funding provided to grant recipients for paving projects and the amount of tire equivalents used during the grant project, staff currently does not have a mechanism for measuring the usage of rubberized asphalt concrete by State agencies and local governments that use their own funds for the projects.

Caltrans' use of rubberized asphalt concrete is mandated by law. Specifically, AB 338 (Levine, Chapter 709, Statutes of 2005), required that Caltrans increase its use by about 25 percent by the year 2010. In calendar year 2006 Caltrans' use of rubberized asphalt concrete reached 3.3 million tire equivalents and in 2007 it used 3.1 million tire equivalents.

- 3. Establish a baseline for current usage of civil engineering applications by State agencies and local governments by June 2009, and increase the use by 10 percent by 2011.** *Staff is currently working on establishing a baseline for use of civil engineering applications by State agencies and local governments.*

There have only been a handful of civil engineering application projects completed by Caltrans and local government. Since FY 2005/06, thanks to the Board's successful outreach efforts, Caltrans completed its first tire-derived aggregate project with no financial assistance from the Board. In addition, the Board partnered with Mendocino County to complete a major landslide repair project using tire-derived aggregate and there are two new projects scheduled for completion in Sonoma County in the summer and fall of 2008. Hopefully, with greater participation by both Caltrans and local governments, a meaningful baseline for tire-derived aggregate use can be established within the next five years.

- 4. Establish a baseline for current purchase of other tire-derived products by State agencies and local governments by December 2007, and increase purchases by 15 percent by 2010.** *The Board, in cooperation with Department of General Services, has developed and implemented an electronic reporting system that tracks State agencies' and the Legislature's purchases of products made from recycled content.*

The State Agency Buy Recycled Campaign requires State agencies and the Legislature to purchase recycled-content products within 11 product categories. Furthermore, it requires State agencies to report their purchases within these categories to the Board on an annual basis. At least 50 percent of all purchases in each of these product categories must meet minimum recycled-content standards.

One of these 11 categories is tire-derived products and includes products such as flooring, parking bumpers, hoses, and playground cover. Compliance is met when at least 50 percent of the product is made from used tires. This was the case in the most recent reporting year, FY 2007/08. On a statewide level, a total of \$2,878,630 was spent on tire-derived products. Of that amount, \$1,463,958, or 50 percent, was spent on Buy Recycled-compliant tire-derived aggregate. State agencies can increase their purchase of compliant product by purchasing from vendors listed on the Board's tire-

derived products list, <http://www.ciwmb.ca.gov/TIRES/Products/ProdList.htm>; or the recycled product directory, <http://www.ciwmb.ca.gov/RCP/>.

Another Buy Recycled product category is tires. Buy Recycled-compliant tires are defined as having undergone an approved or accepted recapping or retreading process [PCC Section 12209(i)]. During the FY 2007/08 reporting year, \$7,530,905 was spent on tire purchases, yet only \$151,025, or 2 percent, was spent on recapped or retreaded tires. There are two primary reasons for this inordinately low purchasing rate: Perception of safety, and lack of market availability.

The primary reason for low purchasing figures of recapped or retreaded tires is the common perception these tires are unsafe. The website www.retread.org has a wealth of information, including a report titled, "What Really Causes Rubber on the Road?"

Here is an excerpt:

...the State of Virginia Department of State Police conducted a two-and-a-half year-long study of rubber on the road in the late 1990s. The study revealed that a small percentage of rubber on the road actually comes from retreads that failed due to manufacturing defects. "Examination of the debris reveals many of the tires (that fail) are new and have never been recapped. Experts believe failure to maintain sufficient air pressure causes the tire casings to become extremely hot and eventually come apart and spread debris beside the highways. "

http://www.retread.org/PDF/RonR_Wagner.pdf

The second reason is a relative lack of product availability for passenger vehicles. The majority of State agencies maintain fleets of passenger cars rather than heavy-duty vehicles. Retreads are not readily available for passenger size vehicles. For instance, according to www.retread.org, out of about 80 companies in California listed in its Buyers Guide that sell retreaded or recapped tires, there is one that sells recapped or retreaded passenger car tires

<http://www.retread.org/Guide/index.cfm/S/1/State/CA/Text/California.htm>

Staff surveyed local government entities that received Board tire-derived product grants in the past. The survey sought to determine whether the grantee had or would purchase tire-derived products using their own funds as a result of being exposed to these products through the grant program. The results are as follows: 32 percent indicated that since receiving the grant their organization has purchased other tire-derived products using their own funds, and of the 58 percent responding that their organization had not purchased the product with their own funds, 21 percent indicated they thought that would change in the near future.

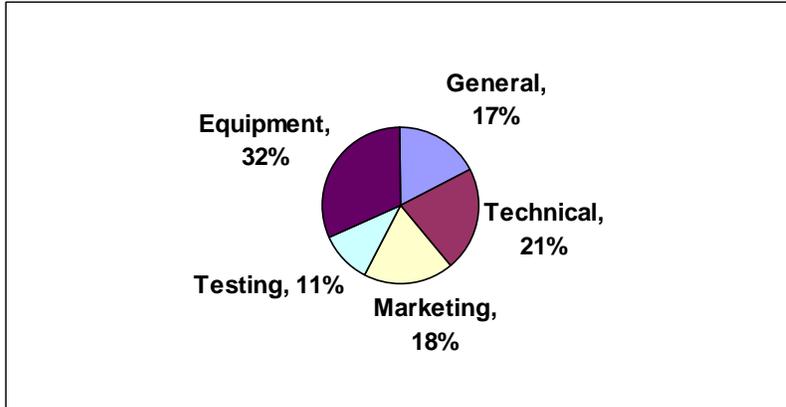
Grantees are required to complete a Recycled-Content Certification Form (Form 74G) as specified in their grant agreements. Grants provided in FY 2005/06 cycle that closed this year reported that they purchased more than \$2.3 million worth of tire-derived products.

Staff recommends modifying this performance measure to reflect the available information and how best program success can be measured within this activity (see Page 40, Measure 3).

- 5. Provide business assistance services to 40 businesses and document successes and obstacles by 2010.** *This is a new performance measure. Baseline data: As of FY 2006/07, the Board is providing business assistance services to 33 businesses from the first two cycles of the Business Assistance Program.*

As of November 2008, the Board had approved grants totaling \$3.47 million to 33 firms through two application cycles of the Tire-Derived Product Business Assistance Program. Of the 33 Board-approved grants, action plans were developed and implemented for 29 firms, with grants totaling \$3.14 million. (Three firms with Board-approved grants withdrew and one firm's grant was canceled due to lack of conformance with terms and conditions.) Grantees submitted detailed applications and were assessed by a consulting team in conjunction with Board staff. Action plans were developed based on the result of the assessments, and resulted in the breakdown of equipment and consulting services as shown in the figure below.

Chart 12: Breakdown of Business Assistance Plan Services to 29 Grantees



Of the 29 implemented grants, 14 are now closed, and the remaining 15 are ongoing with completion expected by April 15, 2009. One additional business assistance cycle is currently planned, with applications expected to be due in mid-April 2009. The Tire-Derived Product and Materials Market Analysis Project, expected to be complete in March 2009, will broadly document obstacles to industry growth. Documentation on specific scrap tire recycling business obstacles and successes have been documented through two Annual Reports to the Board, one presented in March 2007 and one in December 2008, and through various sector-wide projects under way through the business assistance program. Applications for the third cycle of grants will be available February 2009. This new cycle will continue to provide assistance; however, no funding for equipment will be available.

- 6. Reduce the number of waste tires generated in California from 1.1 to .9 per person per year by 2010.** *Baseline data: As of 2005, the rate of tire generation per person per year was 1.1. The Board conducted a study to establish a more accurate way to measure generation rates and a model to track changes over time. This information will be used to determine what actions the Board can take to have the most impact on reducing the generation rate of tires in California.*

Board staff relied on the annual waste tire industry survey to calculate the number of waste tires generated. Because of driving practices of Californians, such as commuting long distances, it appears that California's waste tire generation factor is slightly higher than U.S. EPA's one tire per person per year. For 2006, Board staff estimated the waste tire generation factor was 1.2 tires per person per year, based on 44.4 million waste tires generated divided by California's 2006 population of 37.2 million people.

The California State University, Sacramento waste tire estimation model, which was presented to Board members in April 2007, validates that the waste tire generation factor for California should be slightly higher than U.S. EPA's one tire per person per year. The model estimates the average waste tire generation for California in 2006 was 1.23 tires per person per year.

Appendix B: Legislative History

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

1989: To address the need for better waste tire management in California, the Legislature enacted 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 Board to award grants and loans to businesses, enterprises, and public entities involved in tire recycling activities. It also required the Board to develop waste tire facility regulations for the safe storage of waste tires and established a permitting system for waste tire facilities. A \$0.25 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 the Board 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 Board'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 also required the Board 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 titled *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 Board 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 Board 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 Board.

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.

2002: SB 1346 (Kuehl, Chapter 671, Statutes of 2002) was enacted to encourage the use of rubberized asphalt concrete in public works projects and assist with establishing markets for waste tires. The measure provides authority until June 30, 2006, to the Board, 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 rubberized asphalt concrete. Grants shall be awarded to projects that are projected to generate between 2,500 and 20,000 tons during the life of the project and that will use 20 pounds or more of crumb rubber per ton. 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 Board 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 Board, 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 \$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: AB 338 (Levine, Chapter 709, Statutes of 2005) was enacted to require the California Department of Transportation to use, in its highway construction and repair projects, asphalt containing crumb rubber, the amount of asphalt paving materials containing crumb rubber, on and after January 1, 2007, to be not less than 6.62 pounds of crumb rubber material per metric ton of the total amount of asphalt paving materials used; on and after January 1, 2010, to be not less than 8.27 pounds of crumb rubber per metric ton of the total asphalt paving materials used; on and after January 1, 2013, to be not less than 11.58 pounds of crumb rubber per metric ton, unless the department delays the implementation of these requirements, pursuant to a specified procedure. In addition, it requires the Secretary of Business, Transportation and Housing, on or before January 1, 2009, and on or before January 1 annually thereafter, to prepare a specified analysis comparing the cost differential between asphalt containing crumb rubber and conventional asphalt, including specified information.

2005: AB 1249 (Blakeslee, Chapter 404, Statutes of 2005) was enacted to require the Board, in consultation with the Office of Environmental Health Hazard Assessment, to adopt emergency regulations setting forth procedures and requirements necessary to obtain a major waste tire facility permit. The bill requires the State Fire Marshal, in consultation with Board, to adopt fire prevention regulations for a major waste tire facility. The bill also requires the major waste tire facility permit regulations to include, by reference, the fire prevention regulations adopted by the State Fire Marshal.

2005: AB 1803 (Committee on Budget, Chapter 77, Statutes 2005) was enacted to delete the reduction of the California tire fee to \$1.50 per tire on and after January 1, 2007, and instead, maintain the California tire fee at \$1.75 per tire until January 1, 2015.

2005: SB 772 (Ducheny, Chapter 214, Statutes of 2005) was enacted to require the Board to include in the *Five-Year Plan* specified border region activities, conducted in coordination with the California Environmental Protection Agency, including training programs, environmental education, development of waste tire abatement plan, tracking tire flow across the border, and coordination with border region businesses regard to uniform application of environmental and control requirements throughout the border region.

2006: The Board currently awards grants of up to \$50,000 to cities, counties, districts, and other local governmental agencies for the funding of public works projects that use rubberized asphalt concrete and meet specified qualifications, including that the project will use between 2,500 and 20,000 tons of rubberized asphalt concrete and 20 pounds or more of crumb rubber per ton of rubberized asphalt concrete. SB 369 (Simitian, Chapter 300, Statutes of 2006) was enacted to revise the eligibility qualifications for those public works grants to instead require the project to use at least 1,250 tons of rubberized asphalt concrete. In addition, it requires Board to annually calculate the amount of a grant based on the amount of rubberized asphalt concrete used on a project, and would increase the maximum amount of grant money that can be awarded to \$250,000. This bill would recommence the grant program on January 1, 2007, and would make the program inoperative on June 30, 2010. The bill would extend the repeal date to January 1, 2011.

2006: Beginning January 1, 2008, pursuant to AB 1144 (Harman, Chapter 470, Statutes of 2006), Playground Safety Standards and commencing with Health and Safety Code Section 115725, all new playgrounds open to the public built by a public agency or any other entity shall conform to the

playground-related standards set forth by the American Society for Testing and Materials and the playground-related standards set forth by the United States Consumer Product Safety Commission. No State funding shall be available for the operation, maintenance, or supervision of the playground unless the playground conforms to the applicable requirements. In addition, grant-funded projects must meet all applicable local, State and federal regulations, and requirements associated with the products being purchased with grant funds.

2008: SB 1277 (Maldonado, Chapter 398, Statutes of 2008) requires the Board, on or before September 1, 2010, in consultation with the Office of Environmental Health Hazard Assessment and the State Department of Public Health, to prepare a study on the effects of synthetic turf and natural turf on the environment and the public health.

2008: As it relates to the Board, SB 1781 (Senate Environmental Quality Committee, Chapter 696, Statutes of 2008) clarifies several portions of the waste and used tire hauler statutes, resulting in more efficient and cost-effective enforcement of those requirements.

Appendix C: California Waste Tire Generation, Markets, and Disposal: 2006 Staff Report

(Publication #620-08-001)

Introduction

California is faced with the significant challenge of diverting or safely managing waste tires, with approximately 44.4 million waste tires generated in 2006. A “waste tire” is a tire that is not mounted on a vehicle and is unsuitable for use as a vehicle tire (See Public Resource Code Section 42807).

This report provides estimates of waste tire generation, diversion, and disposal in California for 2006. The data sources for this report are a comprehensive waste tire industry survey of more than 40 businesses, the Rubber Manufacturers Association, and the Tire Retread Information Bureau.

For 2006, Board staff again conducted the annual waste tire industry survey. The waste tire survey asked participants for information on tire diversion and disposal. An estimate of waste tire generation was determined by adding disposal and diversion.

Estimates of Waste Tires Generated

Various government and private entities use different approaches to develop estimates of waste tire generation. The U.S. EPA calculates the number of waste tires by using the generation factor of one waste tire per person per year to obtain an average for the nation. In addition to California, 37 other states estimate waste tire generation. Twenty-three of these states use the U.S. EPA generation factor of one tire per person per year. Fourteen states use other methods to develop their estimates, such as tracking revenues collected on tire sales, tracking waste tires collected, industry surveys, and State-created model estimates.

California Waste Tires Generated

Board staff relied on the annual waste tire industry survey to calculate the number of waste tires generated. Because of driving practices of Californians, such as commuting long distances, it appears that California’s waste tire generation factor is slightly higher than U.S. EPA’s one tire per person per year. For 2006, Board staff estimated the waste tire generation factor was 1.2 tires per person per year, based on 44.4 million waste tires generated divided by California’s 2006 population of 37.2 million people. The Sacramento State University waste tire estimation model validates that the waste tire generation factor for California should be slightly higher than U.S. EPA’s one tire per person per year¹. The model estimates the average waste tire generation for California in 2006 was 1.23 tires per person per year.

Passenger Tire Equivalents (PTE)

Passenger Tire Equivalents are defined in Title 14, California Code of Regulations (CCR) section 17225.770:

“Passenger Tire Equivalents” means the total weight of altered waste tires, in pounds divided by 20 pounds. This definition replaces the previous definition of “Tire Equivalents.” A waste tire generation factor of one tire per person per year is not the same as one passenger tire equivalent per person per year. A PTE weight of 20 pounds was originally used by Rubber Manufacturers Association in 1990.

According to its 2005 report, *Scrap Tire Markets in the United States*, the average weight for waste (scrap) passenger and light truck tires is 22.5 pounds, or 89 tires to the ton. For all waste tires, the average weight is 33 pounds. The Board continues to use an average weight of 20 pounds, or 100 tires to the ton,

¹ CIWMB, Contract Report, Estimating Annual Waste Tire Generation, Diversion and Disposal in CA, Prepared by CSUS in June 2007.

for waste tires as set in 14 CCR 17225.770. The passenger tire equivalent is used as a unit for comparison, since tires vary considerably in weight—from 16 pounds for a small passenger tire (according to the Sacramento State University study) to 110 pounds for an average commercial tire. PTE is a convenient “measure” of waste tire generation. Throughout this report a “waste tire” equals one tire equivalent. Table 1 shows waste tire generation in PTEs.

Waste Tires Reuse

An alternative to disposal is tire reuse. After the purchase of new tires, the remaining discarded but reusable tires that still have a legal tread depth can be resold by a dealer, rather than being disposed prematurely. Based on information from industry contacts, 2.1 million (4.7 percent) of the estimated 44.4 million waste tires generated in 2006 were resold or reused in California.

Export Tires

Waste tire export reduces the number of tires requiring eventual disposal in California. According to industry contacts and Board staff estimates, approximately 1.9 million waste tires (4.3 percent) were exported in 2006. Major export destinations for California waste tires include Mexico and Asia.

Crumb Rubber

About 2.7 million waste tires (6.1 percent) were used to produce crumb rubber to manufacture tire-derived products, including playground cover, speed bumps, carpet tile, roofing, mats, and other various tire-derived molded products.

Rubberized Asphalt Concrete

In addition to crumb rubber uses described above, 3.9 million waste tires (8.8 percent) were used for rubberized asphalt concrete in 2006. Currently, the product is initially more costly than traditional asphalt paving, but it is quieter, more durable and is typically more cost-effective over its lifecycle.

Civil Engineering Uses

Civil engineering projects, such as landfill gas collection trenches, lightweight fill, and a levee reinforcement project, consumed about 3.3 million waste tires (7.4 percent).

Alternative Daily Cover

For 2006, Board staff estimates 4.5 million waste tires (10.1 percent) were used as alternative daily cover at California landfills.

Agriculture and Other Uses

About 3.3 million waste tires (7.4 percent) were used for non-residential applications such as whole tires for haystack tarp weights and ground tire rubber products for athletic surfaces.

Retreading

Retreading is a viable option for renewing waste tires by reusing the tire casing after the tread has worn off beyond legal limits. Based on surveys, industry contacts, and information obtained from the Tire Retread Information Bureau at www.retread.org, the average weight of a retreaded truck tire is 120 pounds, or six PTE as reported in Table 1. For 2006, Board staff estimates about 4.4 million waste tires (9.9 percent) were retreaded.

Tire-Derived Fuel

Nationwide, tire-derived fuel is the biggest market for waste tires. According to RMA, TDF accounted for about 155 million tires in the U.S. in 2006, or about 52 percent of the total U.S. waste tires generated.

In California, total tire-derived fuel accounted for about 8.3 million waste tires (18.7 percent), of which 1.3 million were used for fuel in power plants and 7 million were used as a fuel supplement for cement kilns.

Import

Board staff estimated that in 2006 approximately 1.4 million waste tires were imported into California for recycling from Utah, Oregon, Nevada, and Arizona. Imported waste tires were used as fuel and raw material to generate crumb rubber. These imported waste tires are not included in calculating California's waste tire generation.

Disposal to Landfills

California prohibits disposal of whole tires to landfills. Only altered or shredded pieces of tires may be disposed to landfills. Board staff estimated that 11.4 million waste tires (25.7 percent) were disposed to landfills in 2006.

Summary

California generated approximately 44.4 million waste tires in 2006. Of this total, approximately 33.0 million waste tires (or 74 percent) were diverted from disposal through reuse, crumb rubber, rubberized asphalt concrete, civil engineering, alternative daily cover, agriculture, retreading, and tire-derived fuels for power generation and cement kilns. The remaining 11.4 million waste tires (about 25.6 percent) were disposed to landfills. The following tables and figures provide the detailed information. For 2006, California waste tire generation, diversion, and disposal are shown in Table 1. Figure 1 displays information about waste tire disposal, diversion and diversion rates in California from 2004 to 2006. The waste tire diversion rate was 71 percent in 2004 and increased to 74 percent in 2006. Please note that previously published 2004 and 2005 data have been updated to reflect more accurate information.

Figure 2 includes the estimated number of 2006 waste tires diverted and disposed.

Table 1: California Waste Tire Generation, Diversion, and Disposal, 2006

(Numbers in millions of passenger tire equivalents [PTE¹])

Generation	Diversion Types										Import ⁴	Diversion ⁵	Disposal ⁶	Diversion % ⁷
	Reuse (Resale)	Crumb Rubber	RAC	CE	ADC	Agriculture & Others ²	Retread ³	Export	TDF (Power)	TDF (Cement)				
44.4	2.1	2.7	3.9	3.3	4.5	3.3	4.4	1.9	1.3	7.0	1.4	33.0	11.4	74

Notes: RAC = Rubberized Asphalt Concrete

CE = Civil Engineering

ADC = Alternative Daily Cover

TDF= Tire-Derived Fuel

1. Based on 20 lbs. average weight of a passenger car tire.
2. "Agriculture and Others" includes whole waste tires used as tarp weights for haystacks, and ground waste tire rubber products such as athletic surfaces and running trails.
3. Retread tires are mainly medium- and heavy-truck tires. CIWMB staff use an average weight of 120 pounds per retread tire as recommended by Tire Retread Information Bureau at www.retread.org.
4. Includes tires imported for combustion as a fuel supplement or used to generate crumb rubber.
5. Determined by subtracting imported tires from the sum of all diversion types.
6. Determined by summing the number of tires landfilled.
7. The percentage of waste tires diverted (calculated by dividing the # of PTEs diverted by the # of PTEs generated).

Figure 1: California Waste Tire Disposal, Diversion, and Diversion Rates (Percentage) for 2004 to 2006

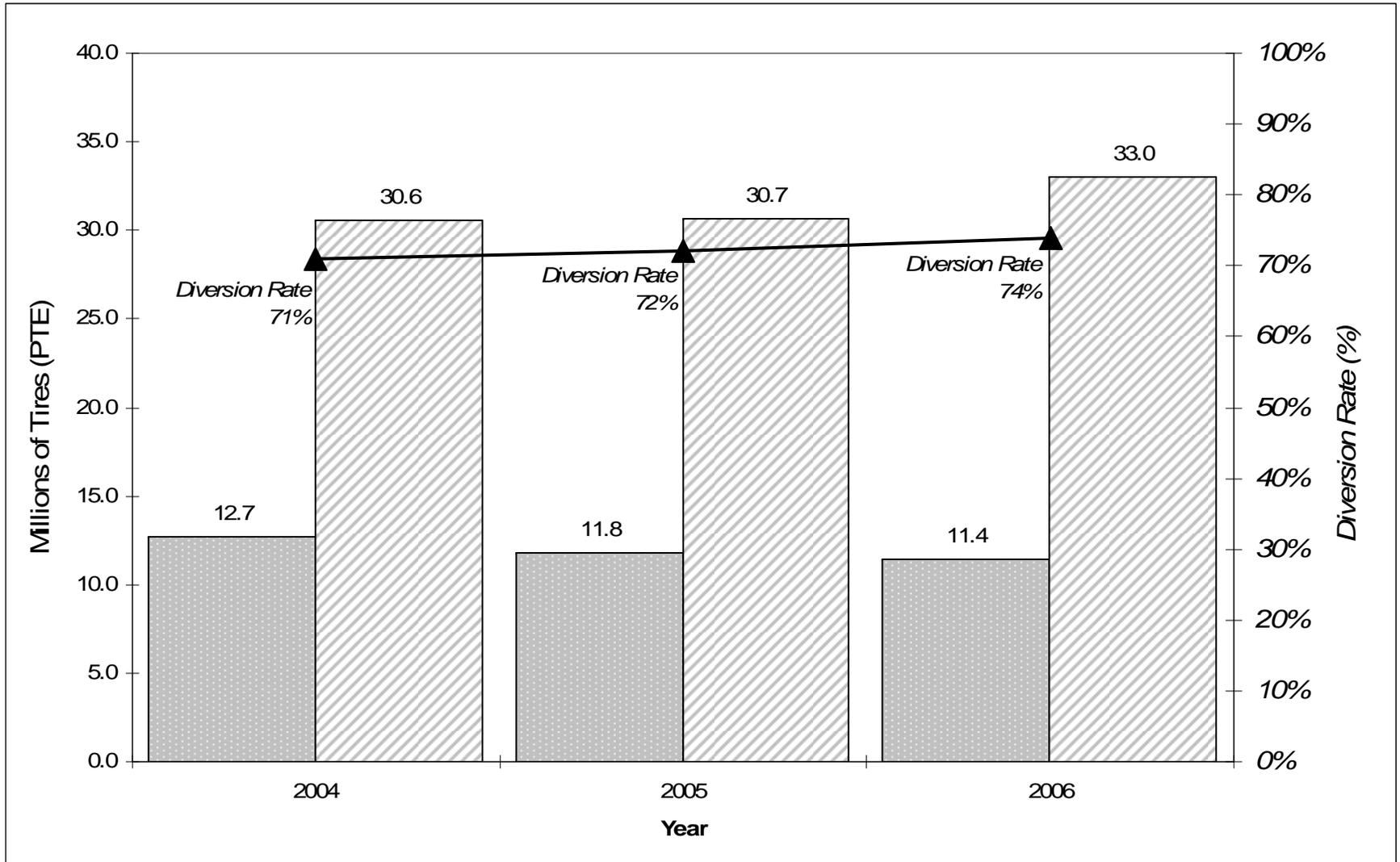
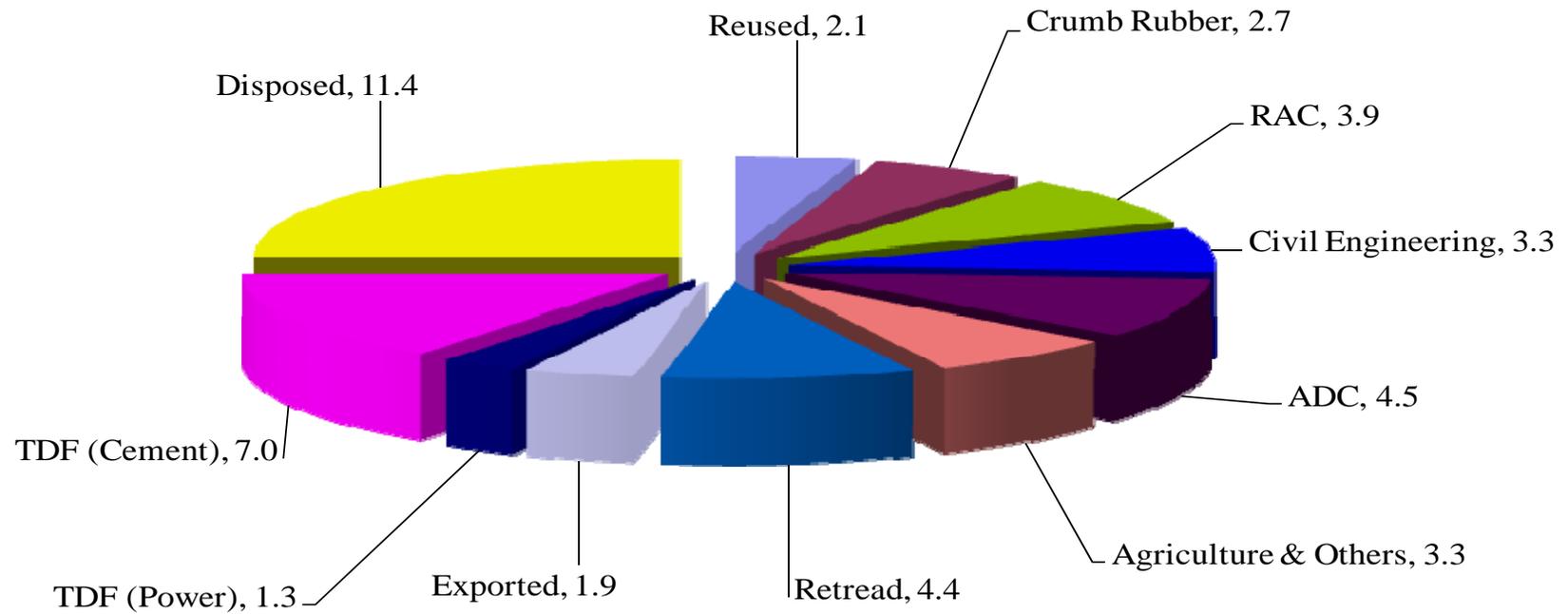


Figure 2: Estimated Waste Tire Diversion and Disposal, 2006

(Numbers in millions of passenger tire equivalents [PTE])



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 Rubberized Asphalt Concrete 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.

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.

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.

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.

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). A California Integrated Waste Management Board 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.

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 California Integrated Waste Management Board's tire programs (recycling as well as permitting and enforcement and cleanup), with staff contacts for each program.

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 by the California Integrated Waste Management Board provides estimates of reusable and waste tire generation, consumption, and disposal in California for 2002.

Publication Number: 620-03-015

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

Date Published/Last Revised: June 2005

Publication Type: Fact sheet

Description: 5 page(s). This report by the California Integrated Waste Management Board provides estimates of reusable and waste tire generation, consumption, and disposal in California for 2003.

Publication Number: 620-05-007

California Waste Tire Generation, Markets and Disposal: 2004 Staff Report

Date Published/Last Revised: May 2006

Publication Type: Report

Description: 4 page(s). This report by the California Integrated Waste Management Board provides estimates of reusable and waste tire generation, consumption, and disposal in California for 2004.

Publication Number: 620-06-001

California Waste Tire Generation, Markets, and Disposal: 2005 Staff Report

Date Published/Last Revised: November 2006

Publication Type: Fact sheet

Description: 5 page(s). This report by the California Integrated Waste Management Board provides estimates of reusable and waste tire generation, consumption, and disposal in California for 2005.

Publication Number: 620-06-017

California Waste Tire Generation, Markets, and Disposal: 2006 Staff Report

Date Published/Last Revised: July 2006

Publication Type: Report

Description: 7 page(s). This report by the California Integrated Waste Management Board provides estimates of reusable and waste tires generation, diversion and disposal in California for 2006.

Publication Number: 620-08-001

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 by the California Integrated Waste Management Board 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.

Publication Number: 540-99-006

Comprehensive Trip Log Guidance Manual

Date Published/Last Revised: August 2005

Publication Type: Guidance manual

Description: 27 page(s). This guidance manual provides practical, step-by-step instructions for waste tire generators, haulers, and end use facilities on complying with requirements of CIWMB's waste tire manifest system. Topics covered include: background information, specific responsibilities, how to fill out the Comprehensive Trip Log form, FAQs, and electronic data transfer. (To order Spanish version in hard copy, call 916-341-6306.) Describa los papeles y responsabilidades de los involucrados en la generación, el transporte, y la entrega o la disposición de llantas de desecho en California.

Publication Number: 623-05-003

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.

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 blended with coal and coke at the Stockton Cogen, Inc. plant located in Stockton, Calif. The project was partially funded by the California Integrated Waste Management Board of the California EPA to determine 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.

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.

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.

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.

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

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

Evaluation of Health Effects of Recycled Waste Tires in Playground and Track Products

Date Published/Last Revised: January 2007

Publication Type: Report

Description: 147 page(s). Preliminary exploration of the potential health risks to children of using outdoor playground and track surfaces constructed from recycled waste tires. Study conducted by the Office of Environmental Health Hazard Assessment and published by the California Integrated Waste Management Board. Appendices for this report are available online at www.ciwmb.ca.gov/Tires/Pubs.htm (scroll to Research Papers).

Publication Number: 622-06-013

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.

Publication Number: 622-04-008

The Feasibility, Constructability, and Efficacy of Tire-Derived Aggregate as a Component in Slurry Cutoff Walls

Date Published/Last Revised: June 2006

Publication Type: Report

Description: 77 page(s). Evaluates the feasibility of incorporating tire shreds in a levee slurry cutoff wall for flood protection. Includes results of a large-scale field test conducted near Gridley, California, using 475 tons of shredded waste tires. Published by the California Integrated Waste Management Board with assistance from the CSU Chico Research Foundation.

Note: The report is available in separate files for the main document and appendices at <http://www.ciwmb.ca.gov/Tires/TDASlurryRpt/>.

Publication Number: 621-06-009

Five-Year Plan for the Waste Tire Recycling Management Program: Fiscal Years 2001/02–05/06

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.

Publication Number: 620-01-004

Five-Year Plan for the Waste Tire Recycling Management Program: Fiscal Years 2003/04--07/08

Date Published/Last Revised: July 2003

Publication Type: Report

Description: 75 page(s). Second edition of five-year plan the California Integrated Waste Management Board 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.

Publication Number: 620-03-007

Five-Year Plan for the Waste Tire Recycling Management Program: Fiscal Years 2005/06-09/10

Date Published/Last Revised: July 2005

Publication Type: Report

Description: 76 page(s). Third edition of five-year plan the California Integrated Waste Management Board 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.

Publication Number: 620-05-005

Five-Year Plan for the Waste Tire Recycling Management Program: Fiscal Years 07/08--11/12

Date Published/Last Revised: July 2007

Publication Type: Report

Description: 81 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 fourth edition 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.

Publication Number: 620-07-004

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 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.

Publication Number: 622-04-001

Integrated Waste Management Board Waste Tire Enforcement Program Report to the Legislature

Date Published/Last Revised: March 2007

Publication Type: Report

Description: 10 page(s). Legislatively mandated report includes data on waste tire cleanups, costs, number of inspections, and other performance measures conducted by the California Integrated Waste Management Board's Waste Tire Enforcement Program.

Publication Number: 620-07-003

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.

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."

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.

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 California Integrated Waste Management 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.

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.

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.

Publication Number: 212-97-024

Technology Evaluation and Economic Analysis of Waste Tire Pyrolysis, Gasification, and Liquefaction

Date Published/Last Revised: March 2006

Publication Type: Report

Description: 103 page(s). The report presents results of a survey of pyrolysis, gasification, and liquefaction facilities worldwide as a viable alternative for the processing of scrap tires into energy sources.

Publication Number: 620-06-004

Tire Comprehensive Trip Log (CTL) Guideline Summary

Date Published/Last Revised: January 2007

Publication Type: Bookmark

Description: 2 page(s). Provides information for California waste tire haulers, generators, and end use facilities to help them comply with State regulations administered by the California Integrated Waste Management Board's waste tire hauler program.

Publication Number: 623-06-014

Tire Facilities

Date Published/Last Revised: Updated September 1999

Publication Type: Compendium

Description: 74 page(s). Information from Solid Waste Information System 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. Online database is searchable and updated regularly.

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 (statutes 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 California 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.

Publication Number: 620-02-007

Tire Recycling Program 1995 Annual Report

Date Published/Last Revised: May 1996

Publication Type: Report

Description: 14 page(s). Annual report on the California Integrated Waste Management 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.

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.

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.

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.

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 collection material at municipal solid waste landfills, including horizontal landfill gas collection layers, horizontal trenches, and vertical boreholes.

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.

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.

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.

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 by the California Integrated Waste Management Board 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.

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.

Publication Number: 622-04-012

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.

Publication Number: 623-03-001

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.

Publication Number: 623-03-005

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.

Publication Number: 623-03-013

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.

Publication Number: 623-04-002

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.

Publication Number: 623-04-006

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.

Publication Number: 623-04-009

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.

Publication Number: 623-04-011

Waste Tire Hauler Program NEWS-LINE, Summer 2005 Edition

Date Published/Last Revised: June 2005

Publication Type: Newsletter

Description: 4 page(s). Summer 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.

Publication Number: 623-05-006

Waste Tire Hauler Program NEWS-LINE, Fall 2005 Edition

Date Published/Last Revised: November 2005

Publication Type: Newsletter

Description: 4 page(s). Fall 2005 edition of the California Integrated Waste Management Board's newsletter for the state's waste tire haulers. Articles on customer representatives, new Comprehensive Trip Log form, and enforcement actions.

Publication Number: 623-05-010

Waste Tire Hauler Program NEWS-LINE, Summer 2006 Edition

Date Published/Last Revised: July 2006

Publication Type: Newsletter

Description: 4 page(s). Summer 2006 issue of the California Integrated Waste Management Board newsletter for the state's waste tire haulers includes articles on common errors in the Comprehensive Trip Log form, workshops held for Mexican haulers transporting tires between the U.S. and Mexico, and a feature on an LA County local enforcement agent.

Publication Number: 623-06-010

Waste Tire Hauler Program NEWS-LINE, Winter 2007

Date Published/Last Revised: December 2006

Publication Type: Newsletter

Description: 4 page(s). The Winter 2007 issue of the California Integrated Waste Management Board newsletter for the state's waste tire haulers includes articles on the electronic data transfer reporting system, waste tire manifest training-on-demand, illegal dumping and tire markets, and a Modesto waste tire inspector.

Publication Number: 623-06-018

Waste Tire Hauler Program NEWS-LINE, Spring 2008

Date Published/Last Revised: June 2008

Publication Type: Newsletter

Description: 4 page(s). The Waste Tire Hauler Program NEWS-LINE is a free informational newsletter published by the California Integrated Waste Management Board. This newsletter provides information on the Board's waste tire regulatory programs, including upcoming events.

Publication Number: 620-08-008

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 California Integrated Waste Management Board 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.

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).

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.

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.

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 Board's accomplishments in implementing the California Tire Recycling Act during fiscal year 2000/01.

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 Board 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.

Publication Number: 623-03-002