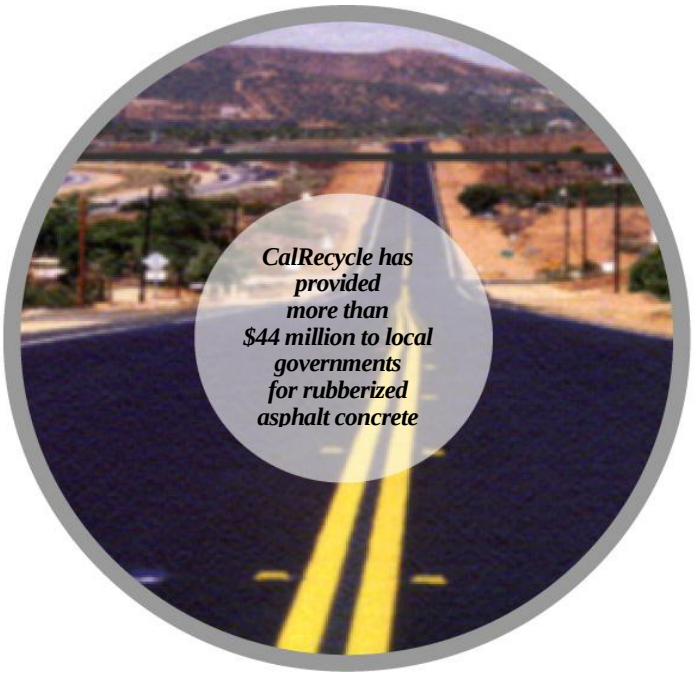
California Department of Resources Recycling and Recovery

FIVE-YEAR PLAN

FOR THE

WASTE TIRE RECYCLING MANAGEMENT PROGRAM

(Sixth Edition Covering Fiscal Years 2011/12–2015/16)
Report to the Legislature



July 1, 2011

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Director's Message

I am pleased to forward the latest edition of the "Five-Year Plan for the Waste Tire Recycling Management Program (Plan)." Pursuant to Public Resources Code (PRC) section 42885.5, the Department of Resources Recycling and Recovery (CalRecycle) is required to adopt and submit an updated plan every two years.

This edition of the Plan, which covers fiscal years 2011/12 through 2015/16, reflects a number of changes to the tire programs administered by CalRecycle, including the expansion of tire enforcement efforts and the initiation of a grant program for tire-derived aggregate in civil engineering applications. The Plan furthers CalRecycle's waste tire management strategy to protect public health and safety and the environment and develop sustainable markets for waste tires.

However, the Plan does not address the upcoming reduction pursuant to PRC section 42885 of the Tire Recycling Fee, which, beginning January 1, 2015, will be lowered from $1.75 to $0.75 per new tire. This will reduce CalRecycle's funding by $0.25 per tire, for a reduction of approximately $8.6 million per year. The reduction also eliminates annual funding of approximately $20 million for the Air Resources Board's efforts to fund programs and projects, pursuant to PRC section 42889. CalRecycle anticipates that this upcoming funding change will be a key topic in the next plan update, with exploration of options beginning as early as mid-2012.

Outside of the Plan update process, CalRecycle will continue to examine its tire programs and further options for improvement. CalRecycle is already exploring the feasibility of applying the plastic incentive payment approach (as used by the Division of Recycling in the Beverage Container Recycling Program) to tire market development. In keeping with CalRecycle's tradition of an open stakeholder process, CalRecycle is planning to hold a public workshop in March 2012 to discuss this concept. Further, as we continue to seek higher and better uses for California's waste tires, specific funding allocations in the Plan may need to be adjusted.

While Californians have seen significant progress over the years in diverting waste tires from disposal and illegal dumping, with a current diversion rate of around 74 percent, some 10 million tires per year still end up in landfills. Much more can and should be done to reduce this number. As CalRecycle's new Director, I am eager to work with the Legislature and our stakeholders to improve our tire programs while creating jobs and markets in California.

--Caroll Mortensen, Director

Introduction

Senate Bill (SB) 876 (Escutia, Statutes of 2000, Chapter 838) was a comprehensive measure enacted to extend and expand California's regulatory program related to the management of waste and used tires. One of the key provisions of this measure requires the Department of Resources Recycling and Recovery (CalRecycle) to adopt and submit to the Legislature a Five-Year Plan (Plan) that identified priorities, performance criteria, and budget allocations. In addition, it requires that the plan be updated every two years.

This sixth 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, contractors, and staff, as well as a public meeting in November 2010 to obtain stakeholder input on a draft of this biennial update. 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 provided the foundation for the original plan. Other reports and studies[1] concerning tire-related issues and the Waste Tire Market Development Program Evaluation Project (Evaluation Project) completed in 2010 also have provided guidance to CalRecycle for setting priorities.

CalRecycle's broad waste tire management strategy encompasses two basic, complementary aims—to protect public health and safety and the environment and develop markets for waste tires—and the Plan reflects this. The overall success of CalRecycle's efforts to date is reflected by the facts that large illegal tire piles and associated fires no longer exist in California, and that the waste tire diversion rate climbed during the last decade to more than 70 percent. More work needs to be done, however, to advance these accomplishments (CalRecycle's strategic approach is detailed in the "Enforcement, Manifest, Hauler and Cleanup Programs" and "Market Development & Research: Strategic Approach and Programmatic Adjustments" sections below).

Within these two overarching aims, the Five-Year 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.

The first three elements are preceded by an introductory "Enforcement, Manifest, Hauler and Cleanup Programs" section that summarizes CalRecycle achievements and its strategic approach to these activities. The last two elements are preceded by a "Market Development and Research: Strategic Approach and Programmatic Adjustments" that summarizes the results of the recent tire market development program evaluation and how CalRecycle is adjusting its activities accordingly.

[1] Past reports and studies can be accessed through CalRecycle's Publications Catalog at http://www.calrecycle.ca.gov/Publications/default.asp?cat=16

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.

Budget and Summary

The sixth edition of the Five-Year Plan presents the following budget for CalRecycle's Tire Program for Fiscal Years 2011/12 through 2015/16. The proposed expenditures reflect the spending authority limit for the Tire Program as outlined in the Governor's budget through Fiscal Year 2014/15. Pursuant to PRC section 42885, beginning January 1, 2015, the tire fee will be reduced from $1.75 to $0.75. The chart below (and all corresponding charts within the report) do not reflect any adjustments that may be necessary to accommodate the reduction of the Tire Fee. CalRecycle anticipates that this upcoming funding change will be a key topic in the next plan update, with exploration of options beginning as early as mid-2012. Also note that the significant reductions in FY 2012/13 and beyond result from the end of a budget change that provided additional expenditure authority through FY 2011/12; if needed, CalRecycle may consider future budget initiatives to restore increased expenditure authority in future years.

Table 1: Total Tire Program Funding for Fiscal Years 2011/12-2015/16

Program Areas	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16**	Totals for All Fiscal Years
Enforcement	$8,360,000	$7,840,000	$7,840,000	$7,590,000	$7,590,000	**$39,220,000**
Hauler and Manifest Program	$450,000	$450,000	$450,000	$450,000	$450,000	**$2,250,000**
Cleanup*	$4,100,000	$3,600,000	$3,500,000	$3,500,000	$3,500,000	**$18,200,000**
Research	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	**$5,000,000**
Markets	$20,297,000	$13,090,000	$13,190,000	$13,440,000	$13,440,000	**$73,457,000**
Program Staffing and Administration	$5,557,000	$5,557,000	$5,557,000	$5,557,000	$5,557,000	**$27,785,000**
Administration	$2,277,000	$2,277,000	$2,277,000	$2,277,000	$2,277,000	**$11,385,000**
Mandatory Contracts	$1,700,000	$1,700,000	$1,700,000	$1,700,000	$1,700,000	**$8,500,000**
Totals	**$43,741,000**	**$35,514,000**	**$35,514,000**	**$35,514,000**	**$35,514,000**	**$185,797,000**

** 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.*

*** As discussed above, these numbers do not take into account the reduction of the Tire Fee pursuant to PRC section 42885.*

Enforcement, Manifest, Hauler and Cleanup Programs

The enforcement elements of the program —enforcement and permitting, tire manifesting, and waste tire cleanup—are designed not only to protect public health, safety, and the environment but also to provide for a fair and consistent marketplace for recycled tires. CalRecycle has moved to expand tire enforcement efforts and regulatory reform. 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 CalRecycle 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

While aggressive enforcement is applied when training and technical assistance does not assure compliance, a significant backlog of inspections currently exists within the tire program. This backlog is a result of CalRecycle enforcement staff vacancies and local enforcement grantee partners' inability to carry out the full work programs in their grants. The sixth edition of the Five-Year Plan continues to provide substantial waste tire enforcement grants to local governments designated by CalRecycle as the enforcement authority for rules related to waste and used tires. Local tire enforcement grantees' role in, and contribution toward, enforcement has stayed relatively constant over the last several cycles of the Five-Year Plan. Recent efforts to increase reimbursement rates and streamline the local tire enforcement grant program, partially in response to suggestions from grantees, have allowed CalRecycle to recruit more local governments to participate as partners in the enforcement program. However, some grantees have complained that these changes have resulted in too much change and made it difficult for them to work within their grants. CalRecycle intends to stabilize the current grant criteria and requirements for a period of time before initiating any general programmatic changes. The tire grantee program has been successful in attaining and maintaining statewide grantee coverage, with 39 grantees covering 77 percent of active sites in FY 2009/10 (TEA 16) and 43 grantees covering 78 percent of active sites in FY 2010/11 (TEA 17). However, grantees have completed and billed for less than 69 percent of their grants for FY 2008/09 (TEA 15). In addition to local concerns about the extent of grant requirement changes, at the local level the tire program competes with other local environmental and code enforcement programs, such as restaurant inspections, for scarce local government resources. In addition, CalRecycle has had to deal with furloughs and vacancies within its own enforcement staff. Taken together, these circumstances have led to an unmet statewide inspection backlog of more than 8,000 inspections. To address this need in FY 2010/11, CalRecycle redirected 10 staff positions to carry out tire inspection and enforcement work. The initial lack of a FY 2010/11 budget, coupled with continuing vacancies and furloughs, have slowed inspections. However, once the new staff are fully trained, significant headway will be made to complete the backlog inspections and any resulting enforcement.

There have been some notable enforcement actions in the last two years which have resulted in waste tire cleanups in sensitive habitats. In Mendocino County, approximately 69,000 waste tires were removed from stream habitat. In Marin County, diligent enforcement work by CalRecycle's Legal Office, working in conjunction with Enforcement Section staff, resulted in the removal of upwards of 5,000 waste tires from an ephemeral stream channel traversing private property located on a bluff overlooking Tomales Bay. Waste tires, claimed to be used for stream bank stabilization, had on occasion in previous years been transported down this channel in winter rain events onto public beaches below. CalRecycle's insistence on cleanup of this site and removal of waste tires was in keeping with landmark regulatory efforts which

remediated the largest known remaining waste tire piles in neighboring Sonoma County a few years earlier.

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 accounting for tires on site. The effect of this activity has been to allow tire facility operators to maximize the amount of tires and related materials onsite while meeting local land use, fire, and vector prevention requirements. This process has stopped the tire facility permit from being a barrier to effective tire facility operations. Instead, it allowed facility operators to maximize the storage capacity of their facilities to the limits allowed by the fire code and local permit and land use allowances. CalRecycle proposes to modify its permitting regulations to, among other things, use the same type of five-year permit review and revision process utilized for solid waste facility permits. This will provide the tire industry more flexibility and should reduce their compliance costs over time. CalRecycle is also working with the State Fire Marshal to incorporate the newly adopted national fire code into California's tire facility regulations. This action will streamline the implementation of the state's tire regulations for both facilities and local fire agencies.

The California Highway Patrol (CHP) is working in partnership with CalRecycle to stop illegal hauling and stockpiling of waste and used tires. A portion of these combined efforts focus on the border region between California and Mexico.

The CalRecycle contract with the Air Resources Board (ARB) authorizes the ARB to purchase, construct, maintain and deploy surveillance equipment to be used for surveillance at various sites throughout the state. Through the contract, the ARB has purchased and will set up high-tech, motion-activated video surveillance equipment to monitor activities that violate waste tire laws at locations specified by CalRecycle.

San Francisco State University evaluated the use of satellite imagery in identifying waste tire piles and the tire remote imaging report is on the CalRecycle website. San Francisco State University's goal was to develop a tire identification methodology using satellite imagery to a scale practical for regular use by CalRecycle. Study sites in Marin County, Sonoma County, and along the California/Mexico border were analyzed via satellite imagery through visual analysis and the use of the TIRe model, an algorithm previously developed during a pilot project. A total of 264 sites were targeted for inspection: excluding 22 previously known sites and 17 sites that were inaccessible by inspectors, 82 percent of identified sites were correctly identified by the analyst, 64 percent of which contained tires. Improvements to the methodology developed during the project. The results were good, but given budget constraints and the need for highly trained personnel to operate the system, CalRecycle staff will consider future satellite imaging work when the technology has evolved.

As part of the efforts to reduce impacts of waste tires in the California/Mexico border region, CalRecycle contracted with San Diego State University to determine the flow of tires exported from California to Mexico, and possible actions to regulate the flow and reduce environmental impacts of the remaining waste tire piles. The report in both English and Spanish is available on the CalRecycle website.

The cross-border flow of used tires is a response to basic economic, social, and political factors. The used tire trade between California and Baja California is an important economic activity for both states. In 2006, about 637,500 tires were exported to Baja California through formal trade mechanisms and approximately 145,000 through informal tire flow (80,000 tires on cars and trucks exported to Mexico and 65,000 in petty contraband). There is no evidence of systematic and large movements of unregistered tires through U.S. and Mexico Customs at the commercial ports of entry.

Disposal of waste tires, in large and small tire piles, has been an ongoing problem for Mexico's border communities, caused in large measure by an inadequate waste tire disposal infrastructure, but exacerbated by the flow of used tires across the border which become waste tires after their normal use on passenger vehicles and trucks. Tire life is shortened by driving conditions in Baja California, with unpaved streets and roads, deteriorated surfaces, road hazards, and so forth. The result is that, on a per-capita basis, waste tires accumulate at a faster rate than in California. Each year, Baja California is faced with disposal of about 1.5 million waste tires. About one-third of these are diverted as tire-derived fuel to cement kilns; a similar number is used for civil engineering projects and informal construction projects by homeowners.

Mexico has a set of emerging laws, regulations, and practices that constitutes waste tire management programs. Mexico's federal environmental agency—the Secretariat of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales, or SEMARNAT)—has provided federal leadership and support. Cross-border collaboration, through Border 2012 and the Border Governors Conference, has been important for the cleanup of legacy piles and sharing of information.

Binational solutions and the synergy from coordinated actions by Baja California and California are needed to enhance cross-border cooperation on tire related activities. Options that California might pursue include: Develop more information on the flow of used tires into Baja California through the tracking system and work with the California Highway Patrol and U.S. Customs and Border Protection and share it with Baja California authorities; provide technical support and information exchanges for development of technical standards for use of tire derived products, a tire disposal site, and tire pile management. Options that Baja California might pursue include: Continue to develop the monofill in Mexicali for waste tires; coordinate with California and the border region private sector on market development for tire-derived products; share information on tire flow with California officials; and expand waste tire disposal regulations and strengthen enforcement of the regulations to include all waste tire generators.

Tire Manifesting

Improvements to waste tire manifest program enforcement have improved CalRecycle's ability to track the flow of tires. The manifest system works both to ensure waste tires are moving through the market system to appropriate management facilities and to prevent new, illegal waste tire stockpiles and/or disposal sites. CalRecycle continues to pursue a zero tolerance policy regarding late tire hauler registration and tire manifest violations. CalRecycle's streamlined enforcement and compliance structure has improved compliance by the 1,076 registered waste tire haulers in California. During the past 2½ years, the streamlined tire penalty process for relatively noncontroversial cases resulted in 201 of 212 (95 percent) tire haulers paying penalties to quickly resolve the cases without going to administrative hearings. Only two haulers who paid streamlined penalties for late 2009 tire hauler registration were late in filing their 2010 tire hauler registration.

There have been several notable enforcement actions dealing with manifest and hauler violations. Of particular note is action taken against haulers who had been issued enforcement penalties, including fines and temporary suspension of their registrations, for creating unpermitted waste tire sites, among other violations. In several cases, haulers continued to create unpermitted sites and/or employed relatives or business associates as "fronts" to effectively continue their operations unabated in violation of CalRecycle's enforcement orders. CalRecycle has been particularly aggressive and diligent in pursuit of these continuing violations and has successfully prosecuted several of these cases which staff believes will help to deter this type of behavior in the future. There is a clear need for diligence in prosecution of these cases. State-funded cleanup of one of these unpermitted waste tire sites in Yolo County cost upwards of $300,000 to remove 80,000-plus passenger tire equivalents, which had accumulated on a site

and which the hauler/operator and property owner were unwilling or unable to remediate (cost recovery of the state's expenses to the extent possible is being pursued through a lien on the property).

The Waste Tire Management System (WTMS) and the manifest system (Comprehensive Trip Logs, or CTLs) do not satisfy all stakeholders' expectations for information and tire tracking. Some stakeholders would like to see a detailed tracking system that utilizes more accurate conversion factors. Currently a number of volumes-to-weight conversion factors are permissible to reflect the wide variability in the industry in how waste tires are accounted for. Other stakeholders feel that WTMS and the manifest system could do more to accurately account for all used and waste tires—even those that are shipped through the state, are leaving the state for export, or are determined to be appropriate for resale as used tires. While the state initially attempted to implement a cradle-to-grave tracking system in 2005, after soliciting public input, the California Integrated Waste Management Board (now CalRecycle) determined this type of system was too cumbersome and expensive. The Board made it clear that the main purpose of the current CTL system is as an enforcement tool to limit illegal tire handling and disposal. The public discussion included interstate commerce and export laws that render some tire accounting difficult or impossible (e.g., deliveries of waste tires to port locations).

CalRecycle continues to address stakeholder concerns in this area. Specifically, staff will be pursuing regulatory changes to provide for more accurate accounting of tire deliveries to port locations. Investigation of port deliveries has revealed that a "port" is not a single, end use delivery location where waste tires are stored, unenclosed, for extended periods. Deliveries to the port actually are arranged by independent shippers who, more often than not, do not have physical addresses or personnel at the port locations to receive and process the CTLs for deliveries made there. The deliveries are made in enclosed, metal sea containers which remain at the "port" for days, not weeks, and arguably do not present the fire or vector threat which the waste tire laws and regulations were designed to address. Inspection of these delivery locations by CalRecycle staff and our local jurisdiction partners poses homeland security challenges which may not be warranted, given the absence of an environmental or public health threat posed by the waste tire material under our purview. However, CalRecycle staff is proposing some changes to existing waste tire regulation to ensure more accurate accounting for waste tire deliveries to port locations. These proposed changes include clarification that shippers are responsible end use entities, but establishing a requirement for haulers to keep end use delivery manifest receipts along with bills of lading for port deliveries.

There is no dispute that the conversion factors utilized in WTMS are not precise as a measuring device. However, this fact does not significantly detract from the main objective of the WTMS and manifest systems as enforcement tools. The value of the manifest system is that, on a daily basis, it serves as a reminder and reinforcement to all parties, generators, haulers and end use facilities, of their responsibility under the law. It thereby reduces the potential for waste tires to be improperly or illegally disposed. The manifest program requires and establishes a paper trail of waste tire movement which has been utilized to support most of our enforcement cases. Some might ask why waste tire entities would knowingly provide information which could ultimately be used against them. Simply put, waste tire business of any significance cannot be legally performed in this state without CalRecycle oversight and the penalties provided under the law for noncompliance can be severe.

As a precise diversion measurement tool, WTMS and the manifest system are less valuable owing to the use of conversion factors and the fact that manifest program revisions in 2005 removed the ability to track each waste tire load from "cradle to grave." WTMS and manifest information is just one source of information used to make estimates of waste tire diversions, and trying to develop conversion factors that are more precise introduces a number of other variables and complexities which may be counterproductive.

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 together burned more than 12 million tires, resulting in environmental damage that cost in excess of $25 million to remediate) and 7 of the 8 large illegal disposal sites in Sonoma County at a cost of $3 million. The remaining Sonoma County site (Infineon Raceway) is scheduled for cleanup during the summer of 2011 at an estimated cost of $250,000. CalRecycle has turned its attention to cleaning up smaller piles located in rural locations and along roadways and critical habitats, and to mixed tire and solid waste sites. These mixed sites present different challenges that require the expertise and resources of the Farm and Ranch and Solid Waste Disposal and Codisposal Site Cleanup programs. When practical, CalRecycle returns cleaned-up tires to the recycling marketplace.

Since 1992 the Board (now CalRecycle) 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 74 sites at a total cost of more than $41 million. The Board (now CalRecycle) has approved more than $8.8 million for 335 amnesty program grants and $7.2 million for cleanup grants of 126 sites and tires in public right-of-ways, and 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.

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. 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, in 2010 CalRecycle's Solid Waste Cleanup Program developed and implemented a project to capture tires and solid waste currently discharged to Goat Canyon within the Border Field State Park. The Goat Canyon cleanup project removed tires, trash, and sediment from the debris basin and installed a debris netting and capture system to collect ongoing stormwater-related sources of tires and trash from Mexico prior to discharge and environment impact to the estuary. The project cost approximately $2 million and will involve continued collaboration with California State Parks to ensure operations and maintenance is conducted. CalRecycle is also conducting additional investigations in collaboration with partners to assess tire and trash accumulations and sources and develop additional cleanup projects within the Tijuana Valley watershed.

Mixed tire and solid waste illegal disposal and illegal dumping sites are also major problems in other areas of the state that require CalRecycle assistance for cleanup and related enforcement and prevention efforts. CalRecycle has recently reconvened an Illegal Dumping Technical Advisory Group to involve stakeholders in enhancing these efforts to sustain CalRecycle's role as statewide leader in combating the problem of illegal dumping.

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 14 years, the Board (now CalRecycle) has found it more cost-effective to prevent tires from leaking out of the system, rather than cleaning up tire dump sites. CalRecycle's increased focus on enforcement will help to a certain extent in the long term but cannot be expected to solve the entire problem.

CalRecycle 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. In general the cost to remove an illegally disposed tire (based on local government waste tire cleanup grant costs) is $5.31 per tire and the amnesty collection cost per tire (based on this grant program) is $3.21 per tire. 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 would significantly reduce the leakage of tires from the established collection and management system and the overall cost of waste tire management.

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. CalRecycle 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 about tire laws and regulations;
- look for illegal dumping, storage, and movement of tires; and,
- take enforcement actions as needed to correct violations.

CalRecycle'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 CalRecycle's Cleanup Branch. Vigorous waste tire enforcement pursuant to CalRecycle's 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, Local Waste Tire, and Farm and Ranch cleanup funds.

The Tire Enforcement Branch coordinates with the Financial Resources Management Branch to implement the Local Waste Tire Enforcement Grant program that supports the activities of 43 local jurisdictions in CalRecycle's waste tire enforcement efforts and also coordinates with and provides support for CalRecycle'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.

CalRecycle'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 California 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, CalRecycle 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 CalRecycle field staff, and their efforts focused on enforcement of cases identified through complaints and referrals from other agencies. A recently approved Budget Change Proposal (BCP) will internally redirect an additional 10 staff to augment CalRecycle's waste tire inspection efforts. CalRecycle has also 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 fifth edition of the Five-Year Plan contained four 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, 2010, there were 27 active permitted facilities, and 25 (92 percent) of them had been inspected.*
    b. Inspect all active registered haulers at least once every two fiscal years. *As of June 30, 2010, there were 1,316 active haulers, and 1,274 (96 percent) of them had been inspected.*

c. Inspect all active generators at least once every three fiscal years. *As of June 30, 2010, there were 26,440 active generators, and 16,062 (60 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, and referrals made to the Board (now CalRecycle). *From July 1, 2008 through June 30, 2010, 35,035 inspections were performed, 2,884 notices were issued, and 80 referrals were made to CalRecycle.*

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, 2008, through June 30, 2010, surveillance activities identified 4,429 illegal tire piles. (Illegal tire piles are defined as one or more illegally dumped tire.)*

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, 2008 through June 30, 2010, staff initiated 14 Enforcement Actions and 13 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 2008/09 awards (cycle 16), 77 percent of 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 2010. 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 will participate in the Annual Training Symposium to be held in February 2011.*
d. Monitor the effectiveness of the grant program by compiling comparative annual data of grant funds awarded and expended. *Grantees were awarded $13,338,131 for the 15th and 16th Grant Cycles for work performed July 1, 2008 through June 30, 2010. Grantees expended $4,556,388 (69 percent) of the cycle 15 awards and $5,266,873 (78 percent) of the cycle 16 awards.*

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 2 provides a list of activities and associated budgets for the Enforcement and Regulations Relating to the Storage of Waste and Used Tires Element.

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

Program Area	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
Waste Tire Enforcement Support Activities	$370,000	$375,000	$375,000	$375,000	$375,000
Enforcement Case Assistance	$50,000	$50,000	$50,000	$50,000	$50,000
Local Government Waste Tire Enforcement Grants	$7,775,000	$7,000,000	$7,000,000	$7,000,000	$7,000,000
Database Development and Maintenance	$165,000	$415,000	$415,000	$165,000	$165,000
Totals	**$8,360,000**	**$7,840,000**	**$7,840,000**	**$7,590,000**	**$7,590,000**

1. **Waste Tire Enforcement Support Activities:** This line item has changed over time based on needs and lessons learned. It combines 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. Funds will be allocated to the following projects:

   - **California Highway Patrol (CHP) Agreement to Support Enforcement Activities:** This effort continues to enhance the working relationship that has been established between CalRecycle and the CHP. Under this agreement the CHP will continue to support CalRecycle'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 CalRecycle as well as local enforcement personnel. If the CHP is unable to continue this work due to budget or priority issues, CalRecycle will pursue a similar agreement with other law enforcement agencies. This effort includes a surveillance and enforcement support focus in the California/Mexico border region.

   - **Satellite Surveillance Project:** CalRecycle had two contracts that used satellite imagery to review and analyze large sections of land to determine whether the technology was useful and whether staff could generate such maps quickly and easily in-house. The technology was 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. However, use of the technology requires use of highly trained and skilled aerial photo interpreters, so the Board (now CalRecycle) directed staff to consider future contracts if/when the technology is more readily usable by staff.

   - **Air Resources Board (ARB) Surveillance Assistance:** This activity supports field investigative efforts by CalRecycle and local enforcement waste tire grantees. The ARB 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 CalRecycle and local waste tire grantees in their efforts to deter, or 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

- **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 CalRecycle 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 (now CalRecycle) 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 was 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 law enforcement to provide comprehensive and up-to-date training that focuses on tire enforcement and environmental compliance in support of training for both law enforcement and grantees. In addition, funds will be used to supplement the tire portion of CalRecycle's annual enforcement conference for local agencies. Training provides inspectors and managers with up-to-date information on CalRecycle'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. CalRecycle 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 law enforcement and grantees.

Activity Funding
FY 2011/12…….....$370,000
FYs 2012/13–2015/16…… .....$375,000 per fiscal year

2. **Enforcement Case Assistance:** CalRecycle'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, CalRecycle established a two-year pilot program with the California District Attorneys Association to assist these jurisdictions. While the pilot project proved successful early on, recently the California District Attorneys Association has not been able to utilize the funding provided. Therefore, CalRecycle will no longer fund work with the California District Attorneys Association. CalRecycle 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 2011/12- 2015/16……..$50,000 per fiscal year

3. **Local Government Waste Tire Enforcement Grants:** PRC section 42889(d) allows CalRecycle "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 CalRecycle 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 CalRecycle'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 FY 2001/02, and 42 in FY 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 program criteria was expanded in FY 2007/08 to allow grantees reimbursement for a higher hourly personnel rate and increased surveillance costs.

Activity Funding

FY 2011/12…..……..	$7,775,000
FY 2012/13……..……..	$7,000,000
FY 2013/14……..……..	$7,000,000
FYs 2014/15-2015/16…..……..	$7,000,000 per fiscal year

4. **Database Development and Maintenance:** CalRecycle has developed the Waste Tire Management System (WTMS) 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. Ongoing maintenance costs and continuous improvements are $165,000 per fiscal year. Continuous improvements to better service our staff and external customers will include:

   - 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.

   The WTMS automated system was originally developed in 2003 to meet the business needs in place at that time. There have been substantial changes made to WTMS over the years to expand functionality and to reflect changes in the tire program business requirements, e.g., transition from original individual manifest process to the Comprehensive Trip Log (CTL) form (CIWMB 203) process. In general, we believe that the current WTMS system meets the primary existing business

needs of the program. At the same time, the Information Management Branch (IMB) regularly evaluates existing systems and its technology platform as part of an ongoing process to continually enhance the IT application development environment used for development of automated systems at CalRecycle. IMB will consider changes to our existing development practices to take optimal advantage of the new database development environment, Visual Studio 2010. The WTMS system was originally developed using older technologies, although there have been substantial upgrades over the years.

IMB believes it is prudent to plan to conduct a reassessment of the business requirements of the WTMS program, and an assessment of the technical capabilities of the existing automated system to meet those requirements. This assessment will consider the costs and benefits of revising the existing system or redeveloping the system based on available technologies and systems available at the time of the assessment. Where appropriate, detailed specifications will be developed to describe revisions needed to meet proposed business needs. This assessment, specifications, and possible enhancements will be documented to the level necessary. Proof-of-concept demonstration systems will be developed, where possible, to demonstrate the proposed capabilities of any new or revised automated system.

It is proposed that this assessment and development effort be conducted over a two-year period beginning July 2012. It is further proposed that $250,000 be earmarked for each 12-month period (FY 2012/13 and FY 2013/14) to allow for the hiring of experienced Information Technology (IT) contractors with appropriate skills to assist with this assessment effort.

Activity Funding

FY 2011/12…….....$165,000
FYs 2012/13-2013/14……..……...$415,000 per fiscal year
FYs 2014/15-2015/16…….....$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 CalRecycle staff or authorized representatives if requested. Unfortunately, since the information was not provided directly to CalRecycle, 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 (now CalRecycle) 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 (now CalRecycle), 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 (now CalRecycle). The law also requires that a person who received waste/used tires from an unregistered hauler had to report that hauler to the Board (now CalRecycle) 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: registration and manifesting. Enforcement efforts against haulers have resulted in significant fines summarized in the Enforcement Program element. Currently, CalRecycle registers more than 1,300 California waste and used tire haulers and more than 7,500 vehicles. Registrations expire annually at the end of each calendar year. CalRecycle 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 CalRecycle's ability to compile and integrate the information.

Therefore, in 2004-2005, the Board (now CalRecycle) 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. 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 2010, this percentage increased to 76 percent *(Note: this significant decrease in form usage occurred despite the fact that the number of haulers increased during this time by more than 60 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 CalRecycle'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 were submitted electronically; in 2010, that percentage decreased by 2 percent to 44 percent. Although there was a slight decrease in electronic data submissions, the number of haulers utilizing this mode increased to 23; three are using the batch mode and 20 are using the web-based mode.

As an additional program improvement, in 2007 the Board (now CalRecycle) approved implementation of a Portable Hand-Held Device Pilot Program to evaluate the feasibility of transmitting manifesting information via electronic data transmission from field personnel. Although, this pilot program was not pursued past a Feasibility Study due to other program priorities, CalRecycle staff have been working with a large tire hauler who has shown an interest in a pilot demonstration project. CalRecycle staff anticipate partial implementation in the spring/summer of 2011 as conditionally approved by staff. Once staff has the opportunity to review that company's findings on use of hand-held devices, CalRecycle will reconsider this type of program for other haulers interested in this new technology.

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 required a more expeditious method for processing these violations. To this end, a six-month Streamlined Enforcement Pilot Program was presented to, and approved by the Board (now CalRecycle) 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 criteria and not challenge CalRecycle allegations, or 2) contest the findings of CalRecycle 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 hearing is signed by the responsible party and then sent back to CalRecycle with payment, and the decision is final.

The Streamlined Penalty Letter process has been an overwhelming success in reducing enforcement related costs and improving compliance and was approved as a permanent enforcement tool in 2009. To date, 212 penalty letters have been issued, of which 196 (93 percent) have been signed and returned with the Stipulated Decision and Order and payments. CalRecycle staff will be seeking regulatory approval to expand this process for facility violators as well in 2011.

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 (now CalRecycle) 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 (now CalRecycle) 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.

PRC section 42961.5 requires all parties—waste tire generators, haulers, and end-use facilities—to participate in the "California Uniform Waste and Used Tire Manifest System." The tire hauler will complete the Comprehensive Trip Log receipt for every pick-up or delivery of waste or used tires. These receipts will be reviewed and signed off by the facility operator and a copy of the receipt will be left at that place of business to retain for a period of three years. The hauler will send a copy of the completed form to CalRecycle and also retain a copy for three years as well.

Objectives

The Hauler and Manifest Program has the following objectives:

1. To complement and support CalRecycle'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 some information on tire movements within the state and across borders to help support tire diversion and market development activities.

Performance Measures

The fifth 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, CalRecycle registers more than 1,300 waste tire haulers. Approximately 110 of these tire haulers (8 percent) have failed to submit any Comprehensive Trip Log forms to CalRecycle since January 2009. This represents an 11 percent improvement in the performance metric which is less than the December 2011 objective but is a worthy achievement particularly given the increase in the number of registered haulers. One explanation is that some new haulers have not yet hauled tires under their registration thus generating no CTLs. Staff expects to continue to make progress toward the objective in the coming years.

2. **Reduce the percentage of manifest form errors that are submitted by waste tire haulers by 45 percent by December 2010.**
   A review of the paper manifest forms submitted to the Board (now CalRecycle) during the time period of January 2009 to October 2010 shows that the error rate is currently at 13 percent (62,153 of 462,369 manifest forms showed serious level 1 errors). "Serious Level 1" errors are defined as manifest forms that contain invalid or missing TPIDs, missing or multiple load types, invalid or missing load amounts, missing load date, and neither or both pick-up or delivery box checked. The 13 percent error rate represents a 48 percent reduction from the previous reported error rate of 25 percent and achieves the performance objective.

3. **Track the percentage of waste tire enforcement program cases where the manifest system information has been used to assist Board (now CalRecycle) staff and local enforcement agencies and report annually.**

   During the time period from January 2009 to October 2010, approximately 83 percent (95 out of 114) of the enforcement cases used manifest information to assist in the enforcement actions. This data continues to demonstrate the importance of the manifest system in providing data to support the vast majority of CalRecycle's enforcement cases.*

   a. **Track the number of "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 2009 to October 2010, approximately 1,298 complaints (204 Forms) were submitted to the Board (now CalRecycle); of this number, eight enforcement actions were taken against repeat violators. Enforcement action on complaints is generally reserved for repeat offenders; the vast majority of complaints are resolved with letters of violations and/or staff counseling of offenders on the legal requirements for hauling of used and waste tires.*

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

4. **Track the number of penalties levied for violations of the PRC pertaining to waste and used tire hauling and report annually.**
   During the time period of January 2004 to November 2010, 261 enforcement cases were resolved against tire haulers resulting in assessed penalties of $544,700 along with $290,850 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 2007 to December 2009, a total of 180,976,421 waste or used tires were picked up and 203,012,698 waste or used tires were delivered within the state.*

Activity Description and Budget

The Hauler and Manifest Program is a general line item budget as shown in Table 3 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 3: Budget for the Waste and Used Tire Hauler Program and Manifest System

Program Area	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
Hauler Program and Manifest System	$450,000	$450,000	$450,000	$450,000	$450,000
Totals	**$450,000**	**$450,000**	**$450,000**	**$450,000**	**$450,000**

1. **Hauler Program and Manifest System:** With Board (now CalRecycle) 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. The numbers presented in Table 3 for "Hauler Program and Manifesting" adequately reflects this revision.

Activity Funding

FYs 2011/2012–2015/16……..…$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; and
5. Farm and Ranch Solid Waste Cleanup and Abatement Grant Program.

As indicated in Table 4, since 1995 the Board (now CalRecycle) 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 74 sites at a total cost of almost $42 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.

Table 4: Tire remediation data for short- and long-term remediations.

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
2009	5	1,628*	$1,536,161
2010	0	0	0
Totals	**74**	**659,349**	**$41,977,614**

**These totals include tons of contaminated debris removed.*

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 American Indian reservations and rancherias. Table 5 summarizes the Local Government Waste Tire Cleanup Grant Program, which has increased steadily since 1998/99.

Table 5: 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
2008/09	**	$834,943
2009/10	19	$1,027,855
Totals	**126**	**$7,257,758**

** 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 clean up areas where illegal dumping has occurred along public rights-of ways.*

Since 1992, the Board (now CalRecycle) has provided more than $8.8 million to the Local Government Amnesty Grant Program, awarding 335 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 6 summarizes the Local Government Amnesty Grant Program.

Table 6: Local Government Amnesty Grant Program

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
2008/09	39	$1,240,311
2009/10	42	$1,307,052
Totals	**335**	**$8,831,922**

** No funds available—sunset of tire fee.*

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

Direction Provided by SB 876

PRC section 42889(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.

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.
3. Assist victims of illegal dumping on farm and ranch properties in cleaning up waste tires.
4. Direct tires from cleanup to productive end use rather than landfill disposal to the greatest extent possible within reasonable cost parameters.

Performance Measures

The fifth 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 CalRecycle 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 CalRecycle-managed contractors and grants to local governments for amnesty events and cleanup of illegal piles. In addition, CalRecycle will provide funding to the Farm and Ranch Solid Waste Cleanup Grant Program to further mitigate future accumulations of waste tires. Also, CalRecycle will establish an emergency reserve account, which cannot exceed $1 million, as directed by SB 876. Table 7 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 7: Budget for Cleanup, Abatement, and Remedial Action

Program Area	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
Short-Term Remediation Projects	$400,000	$400,000	$300,000	$300,000	$300,000
Local Government Waste Tire Cleanup Grant Program	$1,100,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Local Government Amnesty Grant Program	$1,200,000	$800,000	$800,000	$800,000	$800,000
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	**$4,100,000**	**$3,600,000**	**$3,500,000**	**$3,500,000**	**$3,500,000**

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

1. **Short-Term Remediation Projects:** PRC section 42846 allows the Board (now CalRecycle) 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. CalRecycle funds short-term remediation of illegal waste tire sites with CalRecycle-managed contracts. Funds allocated to remediation efforts may roll over from one fiscal year to the next. CalRecycle 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.

   Activity Funding
   FYs 2011/12–2012/13 ..... $400,000 per fiscal year
   FYs 2013/14–2015/16 ..... $300,000 per fiscal year

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 American 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. Sites addressed under the program typically include small nuisance piles (i.e., less than 500 tires) of illegally dumped tires on public property widely distributed throughout the applicant's jurisdiction. These small dispersed sites are not large enough or cost-effective to address using CalRecycle's statewide short-term remediation program.

   For the period including FYs 2008/09–2009/10, demand for the program has averaged approximately $1,038,000 per fiscal year. Funding for this activity is expected to remain at approximately $1,100,000 for FY 2011/12 then be reduced to $1,000,000 for FYs 2012/13-2015/16.

   Activity Funding
   FY 2011/12 ..... $1,100,000
   FYs 2012/13–2015/16 ..... $1,000,000 per fiscal year

2. **Local Government Amnesty Grant Program:** 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 American 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. Based on FY 2009/10 application data, waste tire amnesty events are a cost-effective alternative for local governments when compared to the cleanup of illegally dumped tires. Per tire costs average $3.21 for amnesty events, while average cleanup costs under the waste tire cleanup grant program run in the neighborhood of $5.31 per tire.

   For the period including FYs 2008/09–2009/10, demand for the program has averaged approximately $1,281,000 per 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 this activity is expected to remain at approximately $1,200,000 for FY 2011/12 then be reduced to $800,000 for FYs 2012/13-2015/16.

   Activity Funding
   FY~~s~~ 2011/12 ..... $1,200,000
   FYs 2012/13–2015/16 ..... $800,000 per fiscal year

3. **Emergency Reserve Account:** SB 876 required CalRecycle to create and maintain an emergency reserve account which shall not exceed $1 million. Funding for FYs 2011/12–2015/16 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 CalRecycle 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 2011/12–2015/16 ..... $1,000,000 per fiscal year

4. **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, annual funding is proposed to continue at $400,000 for this program.

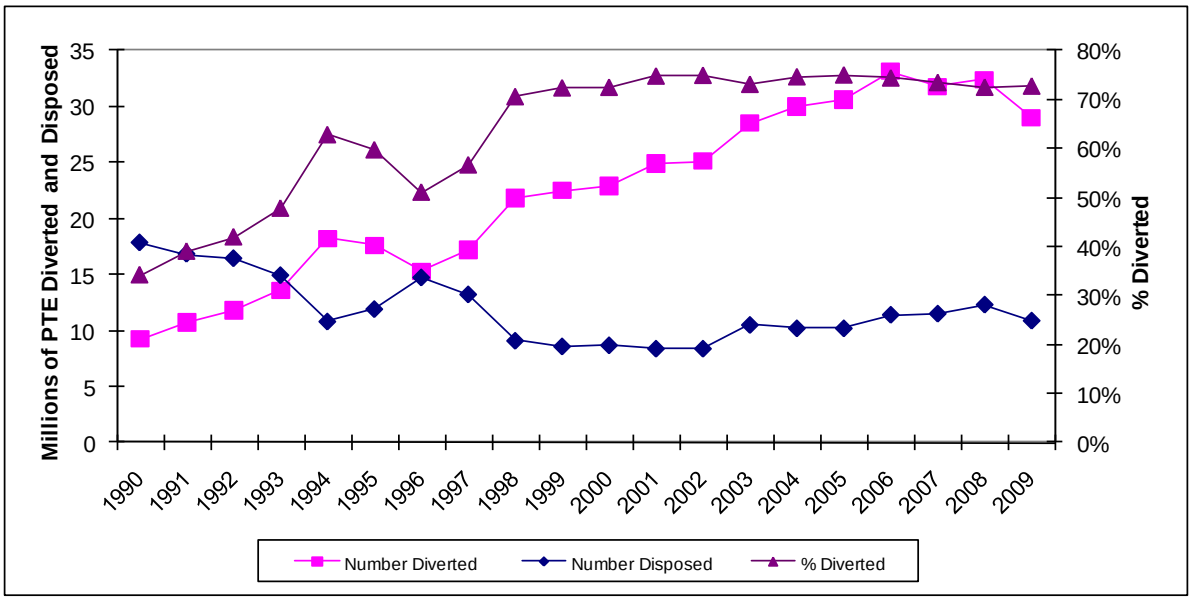
   Activity Funding
   FYs 2011/12–2015/16 ..... $400,000 per fiscal year

Market Development and Research: Strategic Approach and Programmatic Adjustments

Progress to Date

CalRecycle's waste tire market development program, begun in the early 1990s, has directly contributed to the development of what is now a highly diversified and dynamic infrastructure for producing and using a wide range of tire-derived products, complemented by a robust collection, hauling, and processing infrastructure to supply those markets. As shown in Figure 1, the waste tire diversion rate increased in the 1990s from about 30 to 70 percent, largely because of an emerging ground rubber industry and gains in the use of tire-derived aggregate in landfill civil engineering applications and use of tire-derived fuel. Since 2000, both the number of tires generated and diverted has grown, although the overall waste tire diversion rate has been relatively static, hovering in the 70 to 75 percent range. During this last decade the market diversified tremendously, with new higher-end products that use ground rubber in particular increasing their market shares. Although many factors have contributed to this, without CalRecycle's market development efforts (such as grants, the Tire Business Assistance Program, known as TBAP, and research and demonstration projects), market demand for rubberized asphalt concrete and other ground rubber products and for tire-derived aggregate likely would be far more modest.

Figure 1: Waste Tire Diversion and Disposal Trends



Program Evaluation

Despite this overall success, the diversion rate plateau in the 70 to 75 percent range is troubling. CalRecycle has an overall goal of diverting 90 percent of waste tires from landfill disposal by the year 2015, and it will be difficult to reach this goal without additional effort. Consequently, CalRecycle

contracted with R.W. Beck in 2010 to conduct an evaluation of CalRecycle's waste tire market development programs.[2]

Beck concluded that "For a variety of reasons, CalRecycle does not appear to be on track to achieve its 90 percent diversion target…. Areas highlighted for improvements include….the need to adopt and articulate a compelling strategic approach that can.....better focus the wide range of efforts under way addressing the key barriers that restrict market growth and diversification, as well as the need for stronger performance measurement." Even so, Beck concluded that "CalRecycle appears to have been relatively on target with respect to addressing marketplace needs and priorities within individual programs." But perhaps of greater significance, Beck's conclusion also was based on a number of trends that could have significant negative implications for the future growth of end-use markets. These include, for example, federal regulatory proposals[3] that would have restricted the use of tire-derived fuel in cement kilns and other applications (which could have affected almost 6 million passenger tire equivalents of demand and likely increase disposal significantly), unpredictable changes in export markets, and concerns about health and safety impacts of some products.

Beck provided specific programmatic recommendations that could be implemented with existing CalRecycle authority and several policy options that would require statutory change. Beck concluded that the programmatic adjustments made under existing CalRecycle authority would only increase the diversion rate to about 79 percent. Policies requiring statutory changes (such as procurement mandates, landfill bans, or product stewardship requirements) would be needed to reach the 90 percent diversion target. While CalRecycle does not agree with all of Beck's recommendations, it does concur with many, including the need for a more formalized strategic framework and a range of programmatic adjustments. CalRecycle's overall strategic approach and a summary of the programmatic adjustments it is making are described in the following two subsections; the programmatic adjustments are further incorporated and described in appropriate sections of this plan. However, because the plan's express purpose is to allocate available funding from the Tire Recycling Management Fund given CalRecycle's existing budgetary expenditure and statutory authority, and because the Legislature itself has not established a particular goal for waste tire diversion[4], the proposals for legislative change are not discussed in detail in this plan.

Overall Strategic Approach

CalRecycle's goal continues to be achieving 90 percent diversion of waste tires from landfills by the year 2015.[5] Affiliated goals include:

- developing long-term, sustainable, and diversified market demand for California tire-derived products;
- developing a high-quality supply infrastructure to meet that demand; and

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[2] Waste Tire Market Development Program Evaluation Project conducted by R.W. Beck

[3] Since R.W. Beck's report was published, the U.S. EPA has made a final ruling (Federal Register Volume 76, Number 54, Monday, March 21, 2011) that will become effective May 20, 2011. Under the ruling whole and shredded scrap tires are not solid waste under Clean Air Act regulations and can be used as tire-derived fuel when managed by established tire collection programs run by states or other entities.

[4] CalRecycle's 90 percent goal is not codified in statute but reflects CalRecycle's strategic directives.

[5] CalRecycle's diversion estimates and goal are based on the number of whole tires that are used to make products or flow to other non-landfill locations; they are not adjusted for residuals such as fluff and steel.

- fostering information flow and technology and product development so that diversion goals are achieved with supply and demand in balance.

In general, CalRecycle's overall strategic strategy is to foster growth in a diverse array of end-uses. CalRecycle's efforts, in part, focus on markets with the greatest potential for overcoming barriers and for growing significantly, and on fostering higher-value end-uses. However, because markets are dynamic and subject to numerous domestic and international influences, CalRecycle also focuses some of its efforts on fostering lower-end markets (such as the use of tire-derived aggregate) that can also result in increased diversion. CalRecycle recognizes that some of these 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 CalRecycle also believes it is important to have a rich variety of outlets and end-uses for waste tires in order to ensure long-term sustainable and adaptable markets.

In the long run, as products and applications become more viable commercially, CalRecycle expects that the state can gradually play a reduced role. Even this supposition, however, must be tempered by the reality of the economic conditions being faced by the state, local governments, and the private sector. Investments by local governments in projects that use tire-derived products, and that are generally accepted as providing long-term cost savings, may nevertheless be avoided because of current and, hopefully, short-term budget deficits. As a result, CalRecycle has to tread a delicate line in trying to reduce its role, particularly in moving away from using grants to stimulate various markets.

Specific Programmatic Adjustments

Based on the Beck program evaluation, subsequent stakeholder workshops, and staff and management discussion, CalRecycle is incorporating the following major programmatic changes in the market development and research sections of this edition of the plan:

- Increasing the visibility and amount of technical assistance, training, and education provided to targeted audiences, such as by expanding training based on completed research, and increasing technical assistance to individual grantees and potential end-users, as well as by coordinating this with more general outreach and promotion activities.
- Refining the annual market survey and analysis by including new information on market trends and opportunities that can be used in establishing subsequent grant criteria and priorities.
- Establishing a tire-derived aggregate grant program by shifting a portion of funding allocated to rubberized asphalt concrete use grants, and including preference criteria within the program for funding to overcome transportation barriers.
- Continuing allocations for the Tire Loan Program, but with new criteria requiring applications for additional ground rubber production capacity to demonstrate the regional need for such capacity, and by seeking loan applications to address specific market needs such as for tire-derived aggregate supply or feedstock conversion.
- Streamlining and strengthening grant reporting and case studies.
- Focusing research on civil engineering applications, highway construction applications, and on a variety of technologies using waste tires, as well as soliciting ideas for innovative research.
- Adjusting the next TBAP contract by: adjusting business eligibility criteria and funding award levels for individual business assistance; and adjusting industrywide support activities to focus on more tangible assistance (e.g., disseminating sales leads, developing more effective marketing relationships with key customer groups such as Caltrans and other state agencies, expanding the product catalog, and gathering information on tire-derived product performance and cost).
- Developing a coordinated outreach and promotion plan that integrates these activities across programs.
- Refining performance measurements so that they are more directly tied to assessing the effectiveness of programmatic activities.

These changes will help optimize CalRecycle's activities, focus them on high and medium market opportunities, and ensure that they are more soundly based on market forces. But, as noted above, this may only increase diversion to perhaps the 79 percent range. To achieve 90 percent diversion, additional funding mechanisms or new policies may be required that would essentially push market expansion ahead of what can be achieved through the current approach. Where it has statutory authority, CalRecycle has included some new funding opportunities within this plan (e.g., for tire-derived aggregate grants and increased technical assistance), balanced by reductions in other existing activities. Other policies that could push the market more dramatically would require legislation. These include, for example, mandating tire-derived products/tire-derived aggregate use by local and state agencies, requiring Caltrans to use only California waste tire-derived material in its rubberized asphalt concrete applications, promoting tire-derived fuel, banning landfill disposal, or requiring a product stewardship approach for waste tire end-of-life management. Each of these has advantages and disadvantages, and each would be controversial.

Market Demand Priorities

Based on annual market analyses, the program evaluation, and analyses of current and projected market use and potential, opportunities that appear to have the potential for significant market growth and that have a need for some government support include: 1) ground rubber, specifically rubberized asphalt concrete applications and molded and extruded products; 2) civil engineering applications of tire-derived aggregate in transportation uses (highway retaining walls, lightweight fill, and light rail projects) and in landfill uses; and 3) mulch/bark. More moderate but still important opportunities for market expansion also exist within these two categories: 1) ground rubber, specifically turf and athletic fields, loose-fill playgrounds, and pour-in-place playgrounds; and 2) civil engineering applications for other uses such as septic tank leach fields and residential retaining walls. However, CalRecycle reiterates that its approach is oriented towards developing a wide array of end-uses, of both higher and lesser value.[6] As such, additional effort may well be warranted even for mature end-uses markets.

In developing the market development and research portions of this plan, CalRecycle has attempted to reflect all of these considerations in making funding allocations that are designed to overcome critical market barriers and realize market expansion opportunities.

Technical Assistance, Education and Outreach Activities

To date, CalRecycle's market development and research programs have included a significant level of technical assistance, education, and outreach activities embedded within individual programs such as grants, loans, TBAP, or research. For example, all rubberized asphalt concrete grant recipients are provided technical assistance through the rubberized asphalt concrete technical advisory centers. In addition, the technical results from research projects are presented in public workshops, documented in CalRecycle publications, posted on the website, and incorporated into workshops and outreach materials. To continue supporting and ultimately growing markets for tire-derived products, CalRecycle will increase the visibility and amount of business and technical assistance, education and training, and outreach and promotion provided to targeted audiences and stakeholders in both the public and private sectors.

The business and technical assistance efforts will be aimed at priority tire markets and the barriers that are adversely affecting those specific segments of the tire market. For example, CalRecycle will utilize

[6] As Beck noted, "….these priorities are not intended to express any type of value judgment regarding which market segments are more desirable than others. Given CalRecycle's 90 percent diversion goal ..... the priorities are solely intended to indicate which market segments at this particular moment in time, should be focused on in order to move toward that goal….. building demand for civil engineering applications is prudent and need not be done at the expense of ground rubber markets."

technical experts or multi-disciplinary teams to provide this assistance through its Tire-Derived Business Assistance contract, the technical advisory centers, and contracted and in-house experts. As part of this assistance, CalRecycle will provide technical support to companies that manufacture or install tire-derived products to ensure they are using the best business and operational practices. CalRecycle will also provide technical support to public agencies (such as California Department of Transportation and the Department of Parks and Recreation) and other groups to assist them with evaluating and implementing projects that use rubberized asphalt concrete, tire-derived aggregate, or other waste tire applications. CalRecycle will provide focused technical education and-assistance activities for companies and public agencies that are not currently, but could be using tire-derived products.

The education and training efforts will focus on providing or enhancing the skills and expertise of both public and private sector staff involved in properly using, applying, and maintaining tire-derived products. Some of these efforts will be embedded in individual grant agreements that promote the use of rubberized asphalt concrete, tire-derived aggregate and other tire-derived products. These efforts will be conducted by CalRecycle staff, contractors, and industry experts and will consist of courses, workshops, videos, teleconferences, and printed materials such as best practices training guides, along with dissemination of completed research results from various CalRecycle technical contracts. CalRecycle may also partner with universities to further develop curriculum to better educate and train the next generation of scientists and engineers on the use of tire-derived products.

CalRecycle's outreach and promotion efforts entail two different approaches. One major approach is broad outreach campaigns managed by the Office of Public Affairs (OPA), which will be primarily aimed at increasing the familiarity with, and the desire to use, tire-derived products in both the public and private sector. The second approach consists of more focused, technical outreach that will be targeted to local government jurisdictions, technical consultants and construction contractors; in some cases, this will be closely linked to the education and training activities described above. CalRecycle will accomplish this using technology transfer materials and case studies that showcase the performance and cost benefits of using rubberized asphalt concrete, tire-derived aggregate, and other tire-derived products.

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

Research Program Background and Status

Over the years, CalRecycle 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 CalRecycle in focusing on a rich mixture of strategies designed to 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 a significant portion of the 11 million tires currently being landfilled.

However, those two applications cannot by themselves divert the remaining 11 million tires still currently being landfilled. Therefore, CalRecycle continues to refine its knowledge of existing uses and products, but will also investigate and research new and innovative applications. For example, CalRecycle has promoted the use of tire-derived aggregate in various civil engineering applications including several highway projects with Caltrans in which shredded tires were used as lightweight fill. The first project was completed in August 2001. The most recent in 2009 involved the realigning U.S. 101 at Confusion Hill in Mendocino County and used 270,000 tires. Prompted by the success of these projects, Caltrans has accepted tire-derived aggregate as a viable lightweight construction material.

CalRecycle, in coordination with Caltrans, developed conceptual designs and conducted field tests to validate a new retaining wall design which will use tire-derived aggregate as backfill and take advantage of the reduced lateral pressure on the walls, resulting in less concrete and steel in its designs. This new design is in the final review stages, and in 2012 a test wall will be constructed and monitored for performance. Once the new design has been accepted by Caltrans it will be used in future retaining wall projects, resulting in significant cost savings to the state.

While Caltrans is an important player in these efforts, CalRecycle has also partnered with local governments in tire-derived aggregate projects. CalRecycle has partnered with Mendocino, Sonoma, and Santa Barbara counties to complete four projects in which tire-derived aggregate was used as lightweight fill to repair landslides on highways: The Sonoma Mountain and Palamino Road projects were completed in 2010 and used 270,000 and 22,200 tires, respectively.

In another civil engineering application, CalRecycle 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 in 2004 the transit agency used 100,000 tires as aggregate in 2,000 feet of light-rail section along its Vasona Line expansion. This resulted in significant cost savings because conventional technology for vibration mitigation costs $500 per foot; the aggregate costs only $150 per foot. The Bay Area Rapid Transit Authority is working with CalRecycle to use tire-derived aggregate as a vibration mitigation measure in one of its future expansion projects.

Another area in which CalRecycle will be doing further research is civil engineering applications for use at landfills. CalRecycle previously funded a landfill gas collection project in Riverside County utilizing tire-derived aggregate as a substitute for gravel in the gas collection lines. A similar project was also completed at the Kiefer Landfill in Sacramento County during summer 2009. In this project, which used about 60,000 tires, the gas collection line serves a dual purpose for leachate injection. Since completion of these projects, both facilities have used tire-derived aggregate in the expansion of their gas collection

systems. Staff will continue to promote the use of tire-derived aggregate in landfills by providing assistance that will demonstrate its performance in various landfill applications.

CalRecycle has a long history of supporting the development and use of rubberized asphalt concrete. This includes a contract with CSU Chico Research Foundation to evaluate warm mix asphalt, and to complete a life cycle cost analysis. Recently CSU Chico completed a study for CalRecycle of terminal blend rubberized asphalts to gain additional data supporting the performance of the material as compared to conventional asphalt paving. The Chico researchers are currently studying warm mix asphalt, which allows asphalt mixes to be batched at lower process temperatures, as an emerging technology that has great potential. The study will acquire data and evaluate the performance of warm mix materials as used in existing projects, develop the knowledge base for warm mix use, and investigate the technology and its feasibility for use with rubberized asphalt concrete. Further, once the life cycle cost analysis is completed, it will be used in promoting the economic benefits of rubberized asphalt concrete.

Staff will continue to conduct research on the performance of tire-derived aggregate and rubberized asphalt concrete as engineering materials to assist in the development of technical standards for civil engineering and roadway applications. This research will require actual monitoring of pilot and field studies to demonstrate and promote civil engineering and roadway applications of waste tires.

CalRecycle also contracted with the Office of Environmental Health Hazard Assessment to investigate health impacts from use of crumb rubber in artificial turf fields. The study focused risks associated with artificial turf related to volatile organic compound and particulate matter emissions, as well as skin abrasion infection hazards. The study concluded that there were no negative human health impacts from using crumb rubber in artificial turf. Additional reports on CalRecycle's research efforts can be found in the Publications Catalog at: http://www.calrecycle.ca.gov/Publications/default.asp?cat=16

Direction Provided by SB 876

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

> *"(g) The purpose of this act is to do all of the following:. . .(2) Encourage tire manufacturers to promote the use of retreaded and longer-lasting tires, as well as develop recycled-content rubber tires."*
>
> PRC section 42889(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. 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.
2. Identify research gaps in existing data and determine what areas need further investigation.

Performance Measures

The fifth edition of the Five-Year Plan contained five performance measures for the Research Element, which are listed in Appendix A along with related 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. Identify critical research gaps, such as issues related to health exposure, environmental impacts, market barriers, etc.; complete research projects to address these issues and incorporate research findings in education, marketing, and outreach materials.

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 8 provides the budget for the element titled "Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires."

T*able 8: Budget for Research Directed at Promoting and Developing Alternatives to the Landfill Disposal of Tires*

Program Area	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
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
Research on Technologies Using Waste Tires	$0	$500,000	$0	$500,000	$0
Totals	**$1,000,000**	**$1,000,000**	**$1,000,000**	**$1,000,000**	**$1,000,000**

1. **Civil Engineering Applications for Waste Tires:** CalRecycle has made significant progress promoting the use of tire-derived aggregate in civil engineering applications; in fact, CalRecycle has successfully partnered with both state and local governments to complete projects that have demonstrated the performance and cost effectiveness of tire-derived aggregate. These partnerships helped create advocates who are committed to using tire-derived aggregate in future projects and who will also help promote CalRecycle's marketing efforts by getting others to use it. CalRecycle now considers using tire-derived aggregate in civil engineering transportation applications as one of the top priority marketing targets for diverting waste tires from landfills. However, 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 CalRecycle'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, stormwater runoff/drainage control, and septic tank leach field

applications. Once a project is constructed, the associated contract is also used for ongoing monitoring to determine the long-term performance of the tire-derived aggregate in the civil engineering application.

Activity Funding
FYs 2011/12–2015/16 .....…….$500,000 per fiscal year

2. **Highway Construction Applications Using Waste Tires:** CalRecycle has made significant progress promoting rubberized asphalt concrete and considers this one of the top priority marketing targets for diverting waste tires from landfills. As a result, its use continues to increase statewide. However, there are several applications that CalRecycle 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 may include: terminal blend asphalt concrete, warm mix asphalt concrete, and rubberized chip and slurry seals. Under this program element, CalRecycle will research these applications in order to determine their benefits. Pilot studies 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, CalRecycle then can market and promote the use of these applications by including them in future grant offerings, with the aim of enhancing sustainable markets for additional waste tires. Additionally, CalRecycle staff will evaluate current design standards and investigate pavement preservation strategies that use rubber and increase the lifespan and performance benefits (e.g., 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 2011/12, 2013/14, and 2015/16 .....…….$500,000 per fiscal year

3. **Research on Technologies Using Waste Tires:** CalRecycle will continue to investigate technologies that utilize waste tires to study and determine whether they are viable in the current tire market and if there are health and safety impacts that could adversely impact their use. Some of these applications may include: Identification of human health and environmental risks associated with tire-derived products (i.e., rubber mulch and bark, artificial turf fields, etc.); feasibility of using crumb rubber in molded and extruded products including plastic rubber; partner with universities, state agencies, and the U.S. Environmental Protection Agency to conduct research on new products and applications derived from waste tires; and conduct study to compile tire-derived product performance and cost information. With the exception of the molded and extruded products, which are considered by CalRecycle to be a top priority marketing target, the other applications would be considered a medium priority marketing target for diverting waste tires from landfills.

   Activity Funding
   FYs 2012/13 and 2014/15 .....…….$500,000 per fiscal year

Market Development and New Technology Activities for Waste and Used Tires

Background and Status

CalRecycle continues 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* is to develop solid markets for rubberized asphalt concrete, civil engineering applications, and other 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 (now CalRecycle) 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, CalRecycle 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), CalRecycle will develop programs to promote these products as they move through the product stages.

Currently, CalRecycle is focusing its efforts on three fronts by: 1) promoting the development of long-term, sustainable and diversified markets for tire-derived products; 2) promoting the development of a long-term, sustainable supply infrastructure in California that efficiently and profitably produces high-quality raw material to meet market demand; and 3) fostering information flow, knowledge transfer, and technology and product development to increase tire-derived product demand and the supply that feeds it.

CalRecycle 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 fledging industries emerge, CalRecycle can develop programs accordingly. Further, CalRecycle will expand its education, training, and outreach opportunities on top priority market expansion opportunities and barriers to address the last front. Although there are differences in these three market development efforts mentioned above (i.e., technical assistance, outreach, and education activities), CalRecycle will coordinate them to make efficient use of available resources, create opportunities for creating long-term sustainable markets, and increase the number of waste tires diverted from landfills.

As the number of tires generated each year increases CalRecycle also continues to provide assistance to activities that support source reduction. Maintaining a vehicle's tire pressure at the vehicle manufacturer's recommend specifications is a practical strategy to extend tire life and reduce the generation of waste tires, as well as to achieve early greenhouse gas emission reductions. CalRecycle conducts a statewide campaign that focuses on improving tire maintenance behaviors. In addition, the Waste Reduction

Awards Program provides public recognition to California businesses for their exceptional efforts to reduce waste through efficient use of resources and other waste prevention practices.

Through successful research and demonstration 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. These types of projects indicate that great market potential exists for using large quantities of waste tires when replicated in other projects throughout California. As such, CalRecycle will increasingly promote its use for civil engineering applications by providing funds for a tire-derived aggregate grant program starting in 2011.

CalRecycle has 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 TDA in 2,000 feet of light-rail section along its Vasona Line expansion in 2003 and 2004. The results were favorable and CalRecycle staff is working with other transit agency to use tire-derived aggregate as a vibration-damping material in their future projects.

In addition, the Route 91 project in Southern California used 84,000 tires as lightweight fill material in a retaining wall project. CalRecycle 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 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. In 2009 Caltrans completed the lightweight fill project located at Confusion Hill on U.S. 101 near Piercy in Mendocino County. The project used tire-derived aggregate for this rockslide/road repair project. The new route bypasses the rockslide area through the use of two new bridges. The north bridge embankment had an existing underground drainage structure which could not handle the additional load which would result from the added height of the north bridge embankment. To prevent possible damage to the subsurface structure, a lightweight fill material was needed. Tire-derived aggregate was chosen as the fill material for the project because of its light weight and cost-effectiveness. The existing fill material over the structures was removed and replaced with the lightweight tire-derived aggregate material. The project used approximately 270,000 waste tires and was completed in 2009.

Over the years the Board (now CalRecycle) has provided support to local agencies that use rubberized asphalt concrete. Through its 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. CalRecycle has successfully promoting the product's benefits through workshops, conferences, the rubberized asphalt concrete technical centers, and other outreach efforts.

Outreach, education, 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 1 million waste tires. Sacramento, San Diego and Los Angeles counties are following suit. One of the primary focuses of CalRecycle's outreach campaigns is to promote environmentally preferable products for the state, including 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. CalRecycle 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 money for state agencies and local governments 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, CalRecycle 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.

A California Tire Market Report is published each year that provides information on the waste tire diversion rate, market trends and supply/demand balance. These reports can be found in CalRecycle's Publications Catalog at: http://www.calrecycle.ca.gov/Publications/default.asp?cat=16

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."*

Performance Measures and Objectives

The Fifth Edition of the Five-Year Plan contained five performance measures for the Market Element, which are listed along with related 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 90 percent by 2015**.

2. **Increase the amount (tons) of waste tires used in priority market segments, including rubberized asphalt concrete, molded and extruded products, civil engineering (transportation), etc.**
   Note: Utilize the Market Analysis project to measure the increase.

3. **Increase the number of state agencies that are contacted regarding procurement of priority products/uses and those that subsequently purchase such products or employ such uses.**
   Note on potential methods to measure: Conduct survey with agencies contacted to assess if the outreach efforts resulted in procurement of tire-derived products, e.g., how much was procured (if possible, broken out by rubberized asphalt concrete, tire-derived products, etc., but note that this may be difficult to assess in all cases). Also, consider using grant reports from state agency

grantees and the State Agency Buy Recycled Campaign (SABRC) reporting data as a measurement to see if overall state purchases of tire-derived products increase/decrease from year to year and then target large agency purchasers for additional promotion and outreach efforts.

4. **Increase the purchase of tire-derived products by local jurisdictions (measured in tons and broken out by rubberized asphalt concrete, tire-derived aggregate, and other tire-derived products).**
   Note: Conduct surveys with current and previous grantees to determine purchase and use of tire-derived product materials covered and NOT covered by grant funds.

5. **Provide business and technical assistance services to 20 businesses in each TBAP cycle.**
   Note: Use annual reports to summarize what business and technical assistance was completed and includes any quantitative information, if possible, regarding increased sales, etc. This would need to be summarized so as not to divulge specific business data.

6. **Reduce the number of waste tires generated in California from 1.1 to .9 per person per year by 2010.**

7. **Reduce the annual average of dollars awarded per ton diverted within individual grant programs (rubberized asphalt concrete, tire-derived products, and new tire-derived aggregate grants) over a five-year period (2011-2016).**

8. **Increase regional capacity to produce chipped and shredded tire-derived aggregate for civil engineering projects.**
   Note: Obtain this information as part of Market Analysis.

9. **Increase in-state production and use of finer ground rubber (up to 60 mesh) for production of molded and extruded products and terminal blend.**
   Note: Obtain this information as part of Market Analysis

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 8 provides the budget for this element.

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

Program Area	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
Outreach Campaigns*	$3,000,000	$0	$0	$400,000	$400,000
TDA Civil Engineering Technical Support	$750,000	$650,000	$750,000	$750,000	$750,000
TDA Grant Program	$1,500,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
RAC and TDA Technology Centers	$100,000	$100,000	$100,000	$100,000	$100,000
RAC Technical Assistance Contract*	$1,325,000	$500,000	$500,000	$500,000	$500,000
Rubberized Pavement Grant Program	$5,445,000	$3,300,000	$3,300,000	$3,300,000	$3,000,000
Tire-Derived Products Grants and Pilot Retailer Rebate Program*	$3,400,000	$2,800,000	$2,800,000	$3,000,000	$3,000,000
Tire-Derived Product Business Assistance Program (TBAP)	$674,000	$1,626,000	$1,200,000	$800,000	$1,050,000
Tire Equipment Loan Program*	$4,000,000	$2,016,000	$2,400,000	$2,500,000	$2,500,000
Spanish Translation Services	$50,000	$0	$50,000	$0	$50,000
WRAP Activities	$23,000	$23,000	$15,000	$15,000	$15,000
Tire Events	$30,000	$75,000	$75,000	$75,000	$75,000
Totals	**$20,297,000**	**$13,090,000**	**$13,190,000**	**$13,440,000**	**$13,440,000**

***** *Additional funding in FY 2011/12 was received through a Budget Change Proposal for these activities*

1. **Public Outreach:** This activity contains two outreach initiatives to increase public awareness about tire sustainability and the many benefits of waste tire recycling. Additional opportunities for public promotion/outreach may also be explored in coordination with other waste tire recycling activities, as resources and funding permits.

   Tire Maintenance Sustainability Outreach:
   This statewide campaign will focus primarily on improving tire maintenance behaviors among Californians. The campaign will educate drivers about how to conduct proper tire maintenance, explain the many environmental benefits of tire sustainability, and encourage consumers to leave their old tires at the dealer when buying new ones. To meet behavioral change objectives this effort will utilize strong partnerships with state agencies and other organizations, incorporate public input, and rely on variety of studies and information gained through prior research efforts. CalRecycle will make air pressure checks, tread, and overall tire care information easily accessible to the public.

   Rubberized Asphalt Concrete and Tire-Derived Aggregate Outreach:
   This statewide campaign will market and help promote rubberized asphalt concrete and tire-derived aggregate uses in civil engineering projects. This campaign will focus on educating local governments and city planners and serve to enhance CalRecycle's current efforts to help promote tire-derived products use in local jurisdictions. A small portion of this campaign will be focused on educating the general public about tire-derived products and their benefits.

   Activity Funding
   FY 2011/12……$3,000,000*
   FY 2012/13……$0
   FY 2013/14……$0
   FYs 2014/15-2015/16……$400,000 per fiscal year
   ***** *Additional funding in FY 2011/12 was received through a Budget Change Proposal for this activity*

2. **Tire-Derived Aggregate Civil Engineering Technical Support:** Technical support is an important component of the success of the rubberized asphalt concrete grant program and CalRecycle will provide similar technical support and education to grantees as a component of the proposed new tire-derived aggregate grant program, using a new technical assistance contract component. This technical support may address issues associated with the use of tire-derived aggregate in civil engineering projects. Typical projects may include applications such as lightweight fill, landfill applications, and vibration damping layers in light-rail projects.

   The technical assistance contract component will also promote the use of tire-derived aggregate through a technical marketing and education outreach plan. This will be accomplished by the technical assistance contractor through: video documentation and assisting the Office of Public Affairs in the coordination of media events of tire-derived aggregate demonstration projects. The technical assistance contractor will also develop technology transfer materials that showcase the performance and cost benefits of using tire-derived aggregate. The technical assistance contract component will include present these materials and assistance to CalRecycle as a liaison at various key stakeholder group workshops and conferences.

   Activity Funding
   FYs 2011/12, 2013/14-2015/16.....……$750,000 per fiscal year
   FY 2012/13…….$650,000

3. **Tire-Derived Aggregate Grant Program:** CalRecycle proposes to implement a tire-derived aggregate grant program, based on the success of the rubberized asphalt concrete grant program. The goal will be to provide funding to local governments, public entities and private businesses for civil engineering projects utilizing tire-derived aggregate. To be eligible for the grants, projects will need to utilize tire-derived aggregate, and may include landslide repair, gravel replacement in landfills, rail lines, retaining walls, and other civil engineering projects. Proposed projects will be required to utilize tire-derived aggregate for its unique engineering properties such as light weight and superior drainage.

   Activity Funding
   FY 2011/12.....…..$1,500,000
   FYs 2012/13–2015/16.....….. $2,000,000 per fiscal year

4. **Rubberized Asphalt Concrete (RAC) and Tire Derived Aggregate Technology Centers:** CalRecycle will expand its technical outreach efforts by partnering with local government jurisdictions who have knowledge and experience with using both rubberized asphalt concrete and tire-derived aggregate (Champions) located in both Northern and Southern California. Through the technology centers, the Champion jurisdictions will provide statewide technical assistance to local governments through direct consultation, plus presentations at local and regional workshops.

   Activity Funding
   FYs 2011/12–2015/16……$100,000 per fiscal year

5. **Rubberized Asphalt Concrete Technical Assistance Contract*:*** The success of CalRecycle's rubberized asphalt concrete programs has been due in part to the technical support that has been provided through CalRecycle's RAC technical assistance contract. The contractor will continue to provide technical support and education to local government grantees and CalRecycle 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 CalRecycle 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 CalRecycle 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, 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.

   The technical assistance contractor will also assist CalRecycle with marketing and promoting the use of rubberized asphalt concrete. This will be accomplished through the development and distribution of technology transfer materials that showcase the benefits of using rubberized asphalt concrete. The technical assistance contactor will present these materials and serve as a liaison at various key stakeholder group workshops and conferences.

Activity Funding
FY 2011/12……..……..$1,325,000*
FYs 2012/13-2015/16……..……$500,000 per fiscal year
***** *Additional funding in FY 2011/12 was received through a Budget Change Proposal for this activity*

6. **Rubberized Pavement Grant Program:** The Targeted Incentive Grant Program and the Rubberized Chip Seal Grant Program (collectively referred to as the Rubberized Pavement Grant Program) will continue to be offered to local governments. The program is designed to assist in creating long-term sustainable markets by focusing on first-time and limited experience users of rubberized paving.

   Activity Funding
   FY 2011/12……$5,445,000
   FYs 2012/13-2014/15..……..…$3,300,000 per fiscal year
   FY 2015/16……$3,000,000

7. **Tire-Derived Products Grants and Pilot Retailer Rebate Program:** This expanded program, with both grants and a potential retail rebate component, is designed to increase demand for tire-derived products, encourage the appropriate substitution of recycled rubber for virgin rubber (also known as "feedstock conversion") and expand the use of waste tire-derived material to include higher value-added products. Typical tire-derived products include, but are not limited to, various landscaping and garden products such as mulch, paving stones, borders, planters, etc.; building and home products such as floor mats, molding, flooring underlayment, garage flooring, paint and coatings, etc.; and, contractor-related products such as traffic cones, delineators, spacers, barricades, fencing, etc.

   While the Tire-Derived Product Grant component of the program targets public entities (primarily cities and counties), the new pilot retailer rebate component will focus on expanding consumer demand for tire-derived products. The rebate component will be implemented through grants, subsidies, and/or contracts with retail stores, businesses, e.g., a third-party company specializing in administration of retail rebate programs, and/or other entities. Monies would be used to increase consumer awareness of tire-derived products and/or to leverage a co-operative advertising campaign by participating retailers which could include local/regional ad (print/electronic/Internet) placement, point of sale displays, and other effective marketing efforts. The specifics regarding retailer participation (including cooperative advertising), eligibility of specific tire-derived products and tire-derived product requirements (including minimum recycled rubber content and other thresholds) shall be determined by CalRecycle, using input from stakeholders and affected parties. Funding for the pilot rebate component is estimated at $500,000 for FYs 2012/13-2015/16 and is included in the overall program funding below.

   Tire-Derived Product Grant applicant eligibility, product eligibility, project eligibility, evaluation process, and maximum award amounts will be determined by CalRecycle, using input from stakeholder meetings, the annual tire market survey, and other sources.

   Activity Funding
   FY 2011/12 …… $3,400,000*
   FYs 2012/13-2013/14 ……..…..... $2,800,000 per fiscal year
   FYs 2014/15-2015/16……..$3,000,000 per fiscal year
***** *Additional funding in FY 2011/12 was received through a Budget Change Proposal for this activity*

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 provides 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.

The industrywide activities contract will include a small number of projects designed to promote the tire-derived product industry and to provide analysis and research to support growth in the industry. One specific project will include producing the *California Scrap Tire Market Report*. The report consists of a market analysis study to assess the California market for scrap tires. It provides information on the waste tire diversion rate, market trends, and supply/demand balance based on research. It also examines the outlook for increased diversion and future trends, potentially including further examining the fiber and steel markets related to scrap tires.

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

Activity Funding

FY 2011/12.....$674,000
FY 2012/13.....$1,626,000
FY 2013/14.....$1,200,000
FY 2014/15.....$800,000
FY 2015/16.....$1,050,000

9. **Tire Equipment Loan Program:** The 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, in order to encourage tire recycling manufacturers to site new facilities and expand existing operations,. 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 a 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 2011/12……..……..$4,000,000*
FY 2012/13……..…….. $2,016,000
FY 2013/14……..…….. $2,400,000
FY 2014/15……..……...$2,500,000
FY 2015/16.……...$2,500,000
***** *Additional funding in FY 2011/12 was received through a Budget Change Proposal for this activity*

10. **Spanish Translation Services:** This contract would provide both verbal interpretation and written translation from English to Spanish and Spanish to English. These services would be used for tire events, reports, and educational material that are of interest to the border area.

Activity Funding
FYs 2011/12, 2013/14, and 2015/16…….$50,000 per fiscal year

11. **WRAP Activities:** 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 2011/12-2012/13.....……..$23,000 per fiscal year
FYs 2013/14-2015/16.....……..$15,000 per fiscal year

12. **Tire Events:** CalRecycle will continue to hold tire workshops, forums, and/or trainings, as it has in past years. 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 staff and stakeholders to meet and focus on issues of common concern. Wherever possible, events will be conducted in conjunction with related events organized by organizations such as the League of California Cities, California Public Works Association, California State Association of Counties, etc. In addition, 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**.** All events also will be coordinated with CalRecycle's Office of Public Affairs.

Activity Funding
FY 2011/12.....…….$30,000
FYs 2012/13- 2015/16.....…… $75,000 per fiscal year

Administrative Costs

Program Staffing and Administration

Tire-related activities are performed by a total of 59.5 positions within CalRecycle. The total cost of staffing and administration is approximately $5.5 million.

Activity Funding

FYs 2011/2012–2015/16……..…$5,557,000 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 and 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 CalRecycle (i.e., indirect or overhead costs). This Administration funding represents the distribution of "indirect costs" to direct CalRecycle program activities that include the tire program.

Activity Funding

FYs 2011/2012–2015/16.....$2,277,000 per fiscal year*
**Estimate 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, Professional Recovery Systems, and the University of California, Davis.

Activity Funding

FYs 2011/2012–2015/16.....$1,700,000 per fiscal year*
**Estimate of costs for mandatory contracts*

Appendix A: Accomplishments Based on Performance Measures from the July 2009 Five-Year Plan

This section contains performance measures from the Five-*Year Plan for the Waste Tire Recycling Management Program (Fifth Edition Covering Fiscal Years 2009/10-2013/14)*, dated July 2009, with accomplishments reported after each performance measure. Data collected is for fiscal year 2009/10 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 2009 *Five-Year Plan*:

1. **Inspections:**
    e. Inspect all active major and minor permitted facilities at least once every fiscal year.
        i. *Baseline data: For fiscal year 2007/08 (cycle 14), there were 33 active permitted facilities and 32 (97 percent) had been inspected.*
        ii. Accomplishment: For fiscal year 2008/09 (cycle 15), there were 27 active permitted facilities and 21 (77 percent) were inspected. For fiscal year 2009/10 (cycle 16) there were 27 active permitted facilities and 25 (92 percent) were inspected.
        iii. Conclusion: The number of facilities inspected greatly increased but not all active major and minor permitted facilities were inspected at least once every fiscal year due to position vacancies and losses, and staff reductions.
    f. Inspect all active registered haulers at least once every two fiscal years.
        i. *Baseline data: As of June 30, 2008, there were 1,076 active registered haulers and 723 (68 percent) had been inspected. Additionally, all haulers were subjected to office-based monitoring and evaluation*.
        ii. Accomplishment: As of June 30, 2010, there were 1,316 active haulers and 1,274 (96 percent) were inspected during fiscal year 2008/09 (cycle 15) or 2009/10 (cycle 16). Additionally, all haulers were subjected to office-based monitoring and evaluation.
        iii. Conclusion: The number of haulers inspected greatly increased but not all active registered haulers were inspected at least once every two fiscal years due to position vacancies and losses, and staff reductions.
    g. Inspect all active generators at least once every three fiscal years.
        i. *Baseline data: As of June 30, 2008, there were 18,399 active generators and 11,224 (61 percent) had been inspected.*
        ii. Accomplishment: As of June 30, 2010, there were 26,440 active generators and 16,062 (60 percent) were inspected during fiscal year 2007/08 (cycle 14), 2008/09 (cycle 15) or 2009/10 (cycle 16).
        iii. Conclusion: Staff and grantees did not meet the objective of inspecting all active generators at least once every three fiscal years due to position vacancies and losses, and staff reductions. In the future, additional tire enforcement resources should increase active generator inspections.

h. 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 (now CalRecycle) which resulted in an enforcement action.

i. *Baseline data: For fiscal year 2007/08 (cycle 14), 9,968 inspections were performed, 696 Notices of Violation (NOV) were issued, 493 sites were brought into compliance after an NOV was issued, and 11 referrals were made to the Board.*

ii. Accomplishment: For fiscal year 2008/09 (cycle 15), 17,523 inspections were performed, 1,425 Notices of Violation were issued, 1,330 sites were brought into compliance after an NOV was issued, and 42 referrals were made to the Board. For fiscal year 2009/10 (cycle 16), 17,512 inspections were performed, 1,459 Notices of Violation were issued, 1,519 sites were brought into compliance after an NOV was issued, and 38 referrals were made to CalRecycle.

iii. Conclusion: All measures increased from the baseline fiscal year of 2007/08, and remained steady for fiscal year 2008/09 and 2009/10.

2. Surveillance:

b. Monitor the effectiveness of surveillance activities by compiling comparative annual data of illegal tire piles identified via grantee or CHP surveillance.

i. *Baseline data: For fiscal year 2007/08 (cycle 14), 828 illegal tire piles were identified.*

ii. Accomplishment: For fiscal year 2008/09 (cycle 15), 1,451 illegal tire piles (defined as one or more illegally dumped tire) were reported by grantees. For fiscal year 2009/10 (cycle 16), 2,978 illegal tire piles were reported by grantees. Conclusion: Grantee reports have indicated a significant increase in the number of illegal tire piles found during fiscal years 2008/09 and 2009/10. This may be partially explained by the economy and the increase in illegal dumping as a result. Staff also believes that a renewed emphasis on completing and submitting surveillance forms to support grant costs claimed for surveillance activities may account for part of the reported increase.

3. Non-Compliant Tire Businesses:

b. Monitor the effectiveness of progressive enforcement actions by compiling comparative annual data of enforcement actions initiated and resolved.

i. *Baseline data: For fiscal year 2007/08 (cycle 14), 11 enforcement actions were issued and three from that and earlier fiscal years were resolved. Unresolved items are under active enforcement orders*.

ii. Accomplishment: For fiscal year 2008/09 (cycle 15), 10 enforcement actions were issued and 11 from that and earlier fiscal years were resolved. For fiscal year 2009/10 (cycle 16), four enforcement actions were issued and two from that and earlier fiscal years were resolved. Unresolved items are under active enforcement orders.

iii. Conclusion: Enforcement actions issued and resolved declined during fiscal year 2009/10 due to CalRecycle inspector and legal office position vacancies and losses, and staff reductions.

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.

i. *Baseline data: For work performed during fiscal year 2007/08 (cycle 14), 77 percent of active tire businesses were covered by grantees*.

ii. Accomplishment: For work performed during fiscal year 2008/09 (cycle 15), 79 percent of active tire businesses were covered by grantees. For work performed during fiscal year 2009/10 (cycle 16), 77 percent of active tire businesses were covered by grantees.

iii. Conclusion: Staff performed outreach to new potential grantees; however, the objective of increasing tire enforcement grantee coverage to 80 percent of active tire businesses was not met because the jurisdictions that applied for the grant only covered up to 79 percent of active tire businesses.

b. Conduct at least two grantee roundtables per fiscal year.

i. *Baseline data: For fiscal year 2007/08, two grantee roundtables were conducted*.

ii. Accomplishment: For fiscal years 2008/09 and 2009/10, two grantee roundtables were conducted each fiscal year.

iii. Conclusion: Staff met the objective of providing training and ongoing technical assistance to tire enforcement grantees.

c. Participate in the Annual Tire Conference.

i. *Baseline data: For fiscal year 2007/08, staff participated in the Annual Tire Conference*.

ii. Accomplishment: For fiscal years 2008/09 and 2009/10, staff participated in each year's Annual Tire Conference.

iii. Conclusion: Staff met the objective of providing training and ongoing technical assistance to tire enforcement grantees.

d. Monitor the effectiveness of the grant program by compiling comparative annual data of grant funds awarded and expended.

i. *Baseline data: For work performed during fiscal year 2007/08 (cycle 14), grantees were awarded $5,703,000 and spent $2,969,586 (52 percent)*.

ii. Accomplishment: For work performed during fiscal year 2008/09 (cycle 15), grantees were awarded $6,588,142 and spent $4,556,388 (69 percent). For work performed during fiscal year 2009/10 (cycle 16), grantees were awarded $6,749,989 and spent $5,266,873 (78 percent).

iii. Conclusion: Grantee expenditures on eligible grant activities have significantly increased. Moreover, due to diligent grant oversight, among other things, grantee requests for funds in grant applications are now more closely aligned with grant expenditures.

Hauler and Manifest Program

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.** *Baseline: In 2008, CalRecycle registered more that 1,150 waste tire haulers; however, approximately 106 of these tire haulers (9 percent) failed to submit Comprehensive Trip Log forms to CalRecycle since 2005. Staff investigates these haulers and takes action against these haulers as appropriate.*

   Currently, CalRecycle registers more that 1,300 waste tire haulers. Approximately 110 of these tire haulers (8 percent) have failed to submit any Comprehensive Trip Log forms, or manifests, to CalRecycle since January 2009. This represents an 11 percent improvement in the performance metric; this is less than the December 2011 objective, but is a worthy achievement particularly given the increase in the number of registered haulers. One explanation is that some new haulers have not

yet hauled tires under their registration, thus generating no manifests. Staff expects to continue to make progress toward the objective in the coming years.

2. **Reduce the percentage of manifest form errors that are submitted by waste tire haulers by 45 percent by December 2010.** *Baseline: Ninety-two percent of the manifest forms submitted from June 2003 to January 2007 by waste tire and used tire haulers had errors. From January 2007 to September 2008, this error rate has been reduced to 25 percent.*

   A review of the paper manifest forms submitted to CalRecycle during the time period of January 2009 to October 2010 shows that the error rate is currently at 13 percent (62,153 of 462,369 manifest forms showed Serious Level 1 errors). "Serious Level 1" errors are defined as manifest forms that contain invalid or missing TPIDs, missing or multiple load types, invalid or missing load amounts, missing load date, and neither or both pick-up or delivery box checked. The 13 percent error rate represents a 48 percent reduction from the previous reported error rate of 25 percent and achieves the performance objective.

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*: *98 percent (44 out of 45) of the enforcement cases in 2006 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*.*

   During the time period from January 2009 to October 2010, approximately 83 percent (95 out of 114) of the enforcement cases used manifest information to assist in the enforcement actions*. This data continues to demonstrate the importance of the manifest system in providing data to support the vast majority of CalRecycle's enforcement cases.

   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.*

   During the time period from January 2009 to October 2010, approximately 1,298 complaints (204 Forms) were submitted to CalRecycle; of this number, eight enforcement actions* were taken against repeat violators. Enforcement action on complaints is generally reserved for repeat offenders; the vast majority of complaints are resolved with letters of violations and/or staff counseling of offenders on the legal requirements for hauling of used and waste tires.

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

4. **Track the number of penalties levied for violations of the Public Resources Code (PRC) pertaining to waste and used tire hauling and report annually.** *Baseline: This is an ongoing performance measure to track the enforcement actions and penalties sought by the Board (now CalRecycle) against waste tire haulers. Since 2004, staff initiated enforcement actions against 133 waste tire haulers. The Board (now CalRecycle) has assessed penalties of $311,392 and an additional $129,575 was held in abeyance pending satisfactory compliance with waste tire laws and regulations.*

During the time period of January 2004 to November 2010, 261 enforcement cases were resolved against tire haulers, resulting in assessed penalties of $544,700 along with $290,850 held in abeyance pending satisfactory compliance with waste tire laws and regulations.

Chart 1: Number of Penalties Levied for Violations of the PRC Pertaining to Waste and Used Tire Hauling and Report

	2004	2005	2006	2007	2008	2009	2010*	Totals
# of cases	2	12	15	29	98	67	38	261
Penalty amt.	$5,500	$91,950	$37,125	$156,975	$134,100	$99,300	$19,750	$544,700
Held in Abeyance	$12,500	$72,800	$26,625	$39,475	$96,450	$43,000	$0	$290,850

* January 1, 2010 through November 5, 2010

In 2008, the Board (now CalRecycle) implemented the Streamlined Penalty Process to assist in the majority of enforcement actions taken by program staff. Staff time and the cost of preparation have been significantly reduced by the implementation of the Streamlined Penalty process rather than the using the Administrative Complaint process. Since the Streamlined Penalty can be issued in a relatively short time period (within a few days), staff is able to issue a larger number of enforcement orders and penalties, which has improved overall compliance with waste tire law and regulation. Listed in the tables below are the statistical figures for late renewals of hauler registrations and manifesting violations over the past three years.

Chart 2: Reduction of Late Renewals Attributable to Using the Streamlined Penalty Process

Year	Renewals	Late Renewals	% Late Renewals
2008	1123	32	2.8%
2009	1191	22	1.8%
2010	1260	7	0.5%

Chart 3: Reduction of Manifesting Errors Attributable to Using the Streamlined Penalty Process

Year	**Audits of Haulers with Manifest Error Rates > 10%**	Secondary Audit of Same Haulers (at least 6 months later) with Manifest Error Rates still > 10%	**% of Haulers exceeding 10% After Penalties**
2008	47	30	64%
2009	23	13	57%

5. **Determine the quantity of waste or used tires being picked up or delivered for each county by December 2010.** *Baseline: 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 reports 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 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 in a more populated county where there may be several end use facilities that accept tires.

During the time period from January 2007 to December 2009, a total of 180,976,421 waste or used tires were picked up and 203,012,698 waste or used tires were delivered within the state. Chart 9 in Appendix A shows the individual county tire flow information. Information on shipment of waste tires overseas through the sea ports in the state is also provided to address specific requests from the regulated community for this information. Additionally, Chart 10 shows the total amount 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; explanation for the discrepancy remains largely as reported in the previous Five-Year Plan revision, noted in the italicized paragraph above.

Chart 4: Pick-up and Deliveries of Waste/Used Tires Within California

County	Year 2007		Year 2008		Year 2009	
	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups
Alameda	2,724,913	4,849,838*	1,889,141*	1,214,482*	6,402,012*	2,428,133
Alpine	0	0	0	14	0	17
Amador	1	79,934	62	32,933	23	52,724
Butte	14,508	285,898	17,380	191,079	11,962	272,530
Calaveras	240	46,615	719	27,372	72,860	43,893
Colusa	1,434	43,821	330	25,677	591	44,383
Contra Costa	40,494	851,811	21,374	605,024	28,525	876,451
Del Norte	0	10,182	4	9,811	0	20,019
El Dorado	2,335	168,087	255	75,407	369	140,976
Fresno	609,647	1,315,756	701,894	813,497	1,418,772	1,558,988
Glenn	225,111	109,443	217,983	100,006	426,839	199,006
Humboldt	41,456	225,747	31,216	156,341	42,003	278,522
Imperial	433,468	456,256	165,597	235,272	788,554	1,446,725
Inyo	10,910	20,775	4,870	16,202	7,338	11,015
Kern	7,200,161	1,624,727	8,732,257	2,499,680	4,855,995	2,358,246
Kings	599,195	163,170	207,210	87,536	490,688	139,308
Lake	13,816	77,419	3,199	48,197	5,637	86,860
Lassen	15,096	217,939	9,732	1,394,568	11,078	62,149
Los Angeles	29,362,811	17,737,002	13,321,350	9,516,499	26,692,235	34,089,099
Madera	6,564	180,719	3,855	137,210	220,812	418,611
Marin	35,055	217,209	14,428	130,075	18,199	218,704
Mariposa	27	13,750	0	9,288	97	15,085
Mendocino	13,205	199,429	436	97,843	687	130,404
Merced	3,705,163	3,268,358	2,347,525	757,480	3,219,741	738,961
Modoc	386	13,655	800	6,518	0	8,218

County	Year 2007		Year 2008		Year 2009	
	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups
Mono	0	6,302	0	2,961	0	9,152
Monterey	9,375	333,037	10,070	241,390	490,881	349,602
Napa	3,605	119,276	831	68,381	960	311,480
Nevada	1,028	139,545	221	74,695	494	104,654
Orange	109,796	3,267,238	102,958	1,394,343	147,932	2,855,012
Placer	5,735	408,324	889	235,830	1,095	351,121
Plumas	658	20,171	4	15,402	11	27,331
Riverside	509,373	2,111,637	264,649	1,462,227	1,104,194	2,119,612
Sacramento	2,183,393	4,639,619	642,088	1,134,108	2,855,456	4,059,246
San Benito	145,642	85,051	252,511	120,649	847,286	178,812
San Bernardino	9,885,150	6,614,853	4,570,510	5,002,250	23,640,935	9,109,133
San Diego	3,429,452	2,753,428	2,552,874	1,609,377	1,354,373	2,656,511
San Francisco	32,197	258,622	11,415	191,209	428,282	417,286
San Joaquin	2,677,211	2,197,790	855,284	692,603	1,066,698	1,304,547
San Luis Obispo	456,762	240,964	329,134	127,608	4,435,747	255,639
San Mateo	6,471	522,833	4,155	356,952	5,834	595,943
Santa Barbara	182,268	443,141	3,891	139,165	7,465	233,322
Santa Clara	5,092,928	1,997,628	1,628,665	1,005,659	1,550,947	2,780,196
Santa Cruz	16,065	593,021	311	129,181	11,914	196,547
Shasta	972,289	468,197	623,227	321,937	797,474	547,142
Siskiyou	13	65,431	28	49,164	65	77,378
Solano	88,953	621,084	59,774	370,732	136,883	893,112
Sonoma	172,628	843,109	90,599	370,992	140,122	599,375
Stanislaus	2,232,665	974,843	113,443	429,304	152,680	565,868
Sutter	6,609	211,919	5,697	68,936	994	104,349
Tehama	9,486	189,997	2,936	135,778	6,504	182,154
Trinity	0	11,222	18	4,605	27	23,101
Tulare	60,557	438,202	33,904	336,833	58,924	477,083
Tuolumne	449	79,176	38,832	86,489	12,678	76,158
Ventura	1,559,602	642,141	61,037	409,685	93,181	623,082
Yolo	1,345,770	1,066,895	1,252,635	650,594	1,474,255	3,084,671
Yuba	6,855	80,673	5,534	47,639	4,668	71,177

- Totals include deliveries and pick-ups from sea port locations

Chart 5: Pick-up and Deliveries of Waste/Used Tires in Other States (Including California) and Mexico

State	Year 2007		Year 2008		Year 2009	
	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups	Total Deliveries	Total Pickups
AL	0	0	0	0	0	2
AR	2,742	32,842	737	20,683	2,446	53,655
AZ	263,942	92,768	7,870	34,323	178,786	534,479
CA	76,296,005	64,700,459	40,948,123	35,391,310	71,488,133	71,147,195
CO	0	0	300	323	0	516
CT	3,345	0	0	0	0	0
DC	0	428	0	76	0	1,154
FL	0	0	0	3	0	4
ID	66	121	0	35	0	20
IL	3	4	0	8	0	8
IN	0	0	0	0	0	4
KS	14,371	1	0	0	5,751	1
MA	0	0	0	9	0	28
MI	0	0	0	0	0	0
MN	0	0	0	0	0	1
MO	0	49	0	30	348	656
MT	0	0	0	1,117	0	1,233
NC	0	5	0	3	0	9
NE	0	16	0	28	1	1,066
NJ	0	18	0	0	0	0
NM	4,493	92	0	0	41,943	269,291
NV	850,772	54,942	97,075	43,138	47,905	515,731
NY	7,584	0	0	0	0	0
OH	629	102	468	7	0	40
OR	369,745	294,229	265,979	1,258,148	614,918	271,835
PA	0	137	0	21	0	13
RI	0	0	0	0	0	0
SC	181	17,082	114	2,151	848	10,685
SD	6,341	0	0	0	873	0
TN	0	280	0	0	0	349
TX	237,591	14,039	2,011	9,585	212,918	4,400
UT	0	21	0	0	1,550	6
VA	0	224	0	0	0	0
WA	3,097	2,236	0	680	1,154	33,101
WI	0	3	0	3	0	1
Mexico	1,167,920	3,647	206,352	5,917	519,710	6,368
Long Beach Sea Port	1,205	15,367	1,241	22,450	10,352	21,802

Los Angeles Sea Port	25	16,662	17	16,760	27,919	13,030
Oakland Sea Port	0	69,600	341,010	64,400	766,414	0

Cleanup Program

To evaluate the cleanup program's success in achieving its objectives, the following measures were proposed in the July 2009 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 (now CalRecycle) on an annual basis.

   A total of five waste tire sites were cleaned up for the period from July 2007 to June 2010. The sites included two Sonoma County legacy tire piles, two sites referred from the enforcement program, and one voluntary cleanup on state property. For the period, more than 206,100 passenger tire equivalents (PTEs) were removed from waste tire sites at a total cost of $770,700. Finally, the Board (now CalRecycle) assisted the Department of Parks and Recreation in cleaning out sediment, solid waste, and waste tires from the capture system in Border Field State Park that protects the Tijuana River Estuary from sediment and waste discharges originating in Mexico. The project was funded equally from the Solid Waste Disposal Trust Fund and the Tire Recycling and Management Fund. Approximately $925,000 of tire funds was used for this project. Finally, the program is in the process of finalizing the Tijuana River and Estuary Trash Characterization Study, which will aid in planning future waste tire and/or solid waste remediation work in the area.

2. Increase the number of sites remediated through the Waste Tire Local Government Cleanup Grant Program by 5 percent annually through 2012.

   The Waste Tire Local Government Cleanup Grant Program no longer tracks the number of sites cleaned up due to the increased number of small nuisance sites remediated by grantees. It was determined that this was no longer a meaningful performance measure for the program. A total of 15 grants (totaling $790,900), 15 grants (totaling $834,900), and 19 grants (totaling $1,027,900) were awarded for FY 2007/08, 2008/09, and 2009/10, respectively. While the number of grants awarded did not increased slightly during the period, funding requests for the period increased an average of 14 percent per year.

3. Increase the number of waste tire amnesty grants issued to local governments by 5 percent annually through 2012.

   A total of 43 grants (totaling $1,198,600), 39 grants (totaling $1,240,300), and 44 grants (totaling $1,320,800) were awarded for FY 2007/08, 2008/09, and 2009/10, respectively. While the number of grants awarded did not increase, funding demand for the period increased an average of 5 percent per year.

4. Increase the number of sites remediated through Farm and Ranch Cleanup Grants issued to local governments by 10 percent annually through 2012.

A total of 44 sites (17 grants awarded totaling $877,600), 37 sites (13 grants awarded totaling $625,800), and 40 sites (13 grants awarded totaling $780,100) were cleaned up in FY 2007/08, 2008/09, and 2009/10, respectively. While performance has varied, the number of sites cleaned up and amount of funding requested has slightly decreased for the period.

Research Program

To evaluate the research program's success in achieving its objectives, the following measures were proposed in the July 2009 Five-Year Plan:

1. **Investigate and evaluate obstacles to existing and emerging highway construction and civil engineering applications that use tire-derived materials.** *As noted above, significant progress has been made in identifying the obstacles and educating both local and state governments; the Board (now CalRecycle) has conducted several successful civil engineering applications and awarded grants for numerous rubberized asphalt concrete projects. The success of these projects over the past few years demonstrates that environmental obstacles and concerns can be overcome.*

   In, 2010, obstacles and barriers were further investigated as part of a study conducted under CalRecycle's tire business assistance program. The primary obstacles and barriers identified were the lack of familiarity with specific civil engineering applications and regulatory restrictions that may not allow the use of tire-derived products in certain applications in California.

   CalRecycle is addressing the lack of familiarity of civil engineering applications, specifically rubberized asphalt concrete and tire-derived aggregate, by increasing outreach efforts through a "Green Roads" campaign. It uses a combination of marketing and technical outreach to promote the benefits of using both products to local and state governments where these technologies are viable. In fact, CalRecycle has conducted several successful civil engineering applications and continues to award grants for numerous rubberized asphalt concrete projects. The success of these projects over the past few years demonstrates 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 (now CalRecycle) has contracted for a market analysis that will be completed in 2009. Once the analysis is completed, staff will refine the in-house tracking system for market uses and disposal data.*

   The contracted market analysis was completed in 2009. The Board (now CalRecycle) contracted for another market analysis, based on 2009 data, that was completed in 2010. CalRecycle has determined that the best course of action is to contract for a series of annual market analyses through calendar year 2012. Staff will work with the contractor during this period to learn how to more effectively gather data from the tire-derived products industry and to use in-house tracking system for market analysis and disposal data. Staff will develop the capability to provide market analysis if CalRecycle chooses to eliminate it as a contracted project.

Market Development Program

To evaluate the market development program's success in achieving its objectives, the following measures were proposed in the July 2009 Five-Year Plan. The baseline date published in the July 2009 Five-Year Plan are listed in italics.

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.*

   The diversion rate for 2009 was estimated to be approximately 72.7 percent, which is 1.3 percent less than what was reported for 2006 (given inherent data uncertainties, in reality there has been little or no significant change in the overall diversion rate during this period). The U.S. economy began 2009 mired in a deep recession and reeling from a financial system crisis, and this had a profound influence on tire recycling markets (though less than for many other recycling markets). Most directly impacted were waste tire generation and segments tied to construction (such as certain molded products and use of tire-derived fuel by cement plants).

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.*

   Various civil engineering demonstration projects have been completed since 1997 at an average rate of one project per year. These projects were completed by the Board (now CalRecycle) through partnerships with state and local governments. CalRecycle continues outreach and educational efforts, which will increase the acceptance of this technology and result in future growth of the civil engineering applications program.

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.*

   Based on the performance measure, the survey results for FY 2009 are: 25 percent of respondents indicated that they had purchased tire-derived products prior to the grant, 28 percent have purchased additional tire-derived products with their own funds since receiving the grant, 26 percent said that they would not purchase tire-derived products with their own funds in the future, and 97 percent were satisfied with the tire-derived products.

4. **Provide business assistance services to 40 businesses and document successes and obstacles by 2010.** *As of FY 2007/08, the Board (now CalRecycle) 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 first quarter of 2009.*

The 23 third-cycle grants added seven new businesses that received technical assistance grants, bringing the total to 37 businesses. With an emphasis on industrywide support, many businesses in California that were not grant recipients also benefitted from marketing and outreach efforts, as well as the extensive program evaluation that analyzed successes and challenges among all facets of the tire-derived product industry.

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 (now CalRecycle) continues outreach campaigns to educate the public about reducing their impact on California's tire generation rate.*

   As of 2009, the rate of tires generated per person per year was 1.08, which is a significant decrease from the 1.23 reported in 2006. CalRecycle continues outreach campaigns to educate the public about properly maintaining their tires and purchasing longer-life tires.

Appendix B: CalRecycle Border Activities

Used and waste tires continue to flow into Mexico through border entries, and a portion of these tires end up being illegally disposed along the border of California and Mexico. The waste tires that end up along these border are either dumped illegally at various sites or used inappropriately for structural purposes in or near Tijuana, Mexico. CalRecycle has engaged in a wide range of activities to address these serious, shared risks to health and safety and the environment. This appendix lists the activities that CalRecycle has conducted in the past or that are planned.

Waste Tire Enforcement Support Activities

CHP Agreement to Support Enforcement Activities: Up until FY 2011/12, CalRecycle had an agreement with the California Highway Patrol (CHP) to provide law enforcement resources for tire enforcement work. In 2011, however, the CHP was unable to enter into an agreement with CalRecycle due to loss of appropriate CHP resources (in response to hiring freezes, budget cuts, and furloughs).

Satellite Surveillance Project: CalRecycle completed a useful study involving satellite surveillance in 2009, but decided not to pursue further satellite surveillance work until technological advances made it possible for staff to develop and analyze satellite imagery rather than having to regularly contract out for such work.

ARB Surveillance Assistance: Up until FY 2011/2012, CalRecycle had an agreement with the Air Resources Board to provide surveillance cameras and assistance in using those cameras for tire enforcement work. In 2011, the Department of General Services denied the new agreement because a large portion went towards purchase of cameras rather than for services. CalRecycle will be pursuing a modified agreement in 2012.

Training Support for Waste Tire Inspectors and Managers: Loss of CalRecycle, CHP and Office of Emergency Services staff resources due to retirements, vacancies to meet salary savings targets and furloughs have prevented this activity from moving forward.

Analysis of Targeted Study Areas for Waste Tire Enforcement: The California/Mexico Border Tire Flow Study found that about 750,000 tires were taken across the border legally as used tires because there was a market in Mexico. An additional 10 percent (75,000) were taken across the border illegally. Since the number of tires taken into Mexico illegally was relatively low, the California Integrated Waste Management Board decided not to pursue an additional report. Loss of CalRecycle and CHP staff resources due to retirements, vacancies to meet salary savings targets, and furloughs have limited gathering additional information.

Hauler Manifest and Compliance

The Tire Hauler Compliance Unit (THC), which includes the waste tire hauler manifest system, continues to be successful in having Mexican tire haulers become registered with CalRecycle; currently, there are 48 registered waste tire haulers from Mexico. The unit has 5 Spanish-speaking staff, allowing easier and more receptive communications with the Spanish-speaking regulated community. Additionally, the unit

has established a toll-free Waste Tire Hotline number for Mexico. In 2007-08, 77 Mexican tire haulers were trained on California's waste tire manifest program's regulations and requirements and hauler check-point participation; this training was carried out with cooperation from the Association of Used Tire Dealers for the Mexican States of Baja California, Baja California Sur, and Sonora. On-site training has not occurred for the past few years due to safety concerns across the border and staffing and travel constraints; however, staff has worked closely with southern California tire generators who assist in providing the initial contact between new Mexican tire haulers and CalRecycle. The unit continues to work closely with CalRecycle Enforcement staff and Tire Enforcement Grantees to record locations where waste tires are being illegally dumped and to determine their source.

CLEANUP ACTIVITIES

CalRecycle has been the lead on a major cleanup in the Tijuana area. Large quantities of trash, tires, and sediment are transported by storm water from Mexico into the Tijuana River Valley and estuary, adversely impacting Border Field State Park and the Tijuana River National Estuarine Research Reserve. The Tijuana River Recovery Team is a collaborative partnership of agencies and organizations to address the broad range of issues affecting the watershed. To spearhead this effort, in 2010 CalRecycle developed and implemented a project with California State Parks to capture tires and solid waste currently discharged to Goat Canyon within Border Field State Park. The Goat Canyon cleanup project removed tires, trash, and sediment from the debris basin and installed a debris netting and capture system to collect ongoing stormwater-related sources of tires and trash from Mexico prior to discharge and environment impact to the estuary. The project cost approximately $2 million and included a related consultant study to evaluate the nature and extent of trash, waste tires, and sediment in the Tijuana River Valley. CalRecycle is currently working with State Parks to assess the performance of capture system to date and needs for ongoing operations and maintenance, in addition to developing potential new cleanup project concepts in the Valley with the Recovery Team.

In addition, CalRecycle implements two local government cleanup grant programs that include projects in the border region. During FYs 2009/10 and 2010/11, approximately $472,000 in Local Government Waste Tire Cleanup Program grants were awarded in the border region (Imperial County, San Diego County, and the City of San Diego), which resulted in the cleanup of an estimated 78,000 waste tires. This represents 22% of the total Cleanup grants awarded ($2,109,414) statewide. During the same period, slightly over $122,000 in Local Government Waste Tire Amnesty Program grants were awarded in the region, which resulted in the cleanup of an estimated 25,000 waste tires. This represents 5% of the total Amnesty grants awarded ($2,675,463) statewide.

RESEARCH, BINATIONAL COLLABORATION, AND TECHNICAL ASSISTANCE ACTIVITIES

Study on the Flow of Used and Waste Tires from California and Mexico: Mexico imports used tires from California that have a very short lifespan. Many of these imported tires are illegally disposed of and may cause environmental hazards. Illegally disposed of tires on the Mexican side of the border have caused environmental issues in California, e.g., tires entering the Tijuana Estuary and smoke from tire fires in Mexicali dispersing into Calexico. This study found that about 750,000 tires were taken across the border legally as used tires because there was a market in Mexico. An additional 10 percent (75,000) were taken across the border illegally. In 2009 the California Integrated Waste Management Board

decided not to pursue an additional tire flow study and instead to pursue activities that were already underway such as work with the CHP, translation of educational materials into Spanish, etc.

Binational Program Participation: In the past CalRecycle has participated with the Resource Conservation Challenge Border Group, California Biodiversity Council, Biodiversity Along the Border Committee, and the 2008 Border Governors Conference. Currently, CalRecycle continues to participate with the Tijuana River Valley Recovery Team and Border 2012 program, and looks forward to participating with the newly formed Border 2020 U.S.-Mexico Environmental Program to resolve the problems caused by illegally dumped waste tires along the border region.

The Border 2012 program (also known as the U.S.-Mexico Environmental Program) is a broad environmental collaborative with binational entities, coordinated by (and with funding from) the U.S. EPA. Important components of the Border 2012 program include community outreach, training, technical support and cleanup addressing waste tire sites near or along the California-Mexican Border. A major recent accomplishment was the cleanup of both the INNOR and El Centinela scrap tire sites in Baja California, which combined contained over 1,250,000 tires. These tires were shredded and used as fuel in various cement kilns in México. To date, over 6.8 million tires overall have been recovered in the border region through the partnership. Cal/EPA is the lead State partner in Border 2012 and CalRecycle will continue to collaborate as necessary through Cal/EPA and Border 2012 to help develop community outreach, additional training and technical support to Mexican Tire Haulers, and training for CHP Commercial Officers who work along the California-Mexico borders.

Technical Assistance for Baja California's Development of Integrated Waste Management Plan: In January 2011 CalRecycle entered into a contract with the University of California Berkeley to provide *Technical Assistance for the Creation of a Methodology for the Development of a Model Integrated Waste Tire Management Plan Framework for the State of Baja California, Mexico*. The contractor has developed a Draft Summary of Issues and conducted a workshop in October 2011 to provide stakeholders the opportunity to discuss the issues. The contractor will hold another workshop in February 2012 along the border region to further discuss the framework for the Baja Tire Plan. The final report is due in June 2012.

Sharing Environmental Education Materials In the Border Region: SB 772 required CIWMB to work with Mexico in areas related 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 CIWMB's Office of Education and the Environment, the Tire Program will develop a mechanism with Mexico's Secretariat for Public Education (SEP), Baja California's Secretaría de Protection Ambeintal, and the Baja California's Education System (SEBS-ISEP) allowing for bi-national distribution of the Cal/EPA-CIWMB's environmental education curriculum entitled "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. In 2007-08 both English and Spanish versions of the curriculum were provided to 12,000 border teachers, educators, and schools. This curriculum contains scientific and resource-based lessons regarding the border area, with key steps toward environmental sustainability. CalRecycle's 2007 Waste Tire Conference, held in San Diego, included two training workshop for border teachers.