

CALIFORNIA INTEGRATED
WASTE MANAGEMENT BOARD
TIRE RECYCLING PROJECT

*Opinion Research Results
and Recommendations*

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I. INTRODUCTION

Californians dispose of approximately 30 million tires each year, mostly in stockpiles and landfills. The stockpiled tires, which do not decompose, create public health and safety problems. They become breeding grounds for insects and rodents, and they are vulnerable to intense, smoky, long-lasting fires. To address these problems, the California Integrated Waste Management Board (CIWMB) is creating a tire-recycling program designed to encourage new, innovative uses for old tires and to reduce tire stockpiling by 50% by the end of 2000.

Moore Iacofano Goltsman (MIG), Inc., conducted an opinion survey to provide information that will be useful to the CIWMB in creating a tire-recycling and reuse education and marketing program. MIG surveyed local government decision-makers and state and local government consumers of recycled tire products. Questions concerned surveyed organizations' awareness of these products and their current use and potential use of the products. This report summarizes the survey results.

Purpose

The survey's purpose was to assess policy-maker and consumer knowledge and support for tire recycling, and to test potential messages and communication methods to build into the education and marketing program. Questions addressed awareness of tire-recycled products and sources of information regarding those products. The survey identified the organizations' **current uses** of recycled tire products and the **criteria considered** in deciding whether or not to use these products. It assessed the relative effectiveness of various **promotional messages or themes** and of various **communication methods** used to encourage use of recycled tire products. Finally, the survey addressed whether or not respondents would consider using **contract provisions or incentives** to encourage use of the products.

Methodology

Through discussions between the representatives from the CIWMB and MIG, a sampling plan was designed to solicit responses from groups that would best represent consumers of recycled tire products and potential consumers in California. Five target groups were selected to participate in the survey. One of these groups consists of local decision-makers and the other four groups represent current or potential consumers of recycled tire products.

- Local government decision-makers, including city council members, county supervisors, city managers and county executives (local decision-makers);
- Staff of Departments of Parks and Recreation (consumers);
- School district personnel (consumers);
- Local public works department staff (consumers); and

- Caltrans District Office staff (consumers).

The CIWMB provided a master list of potential contacts for city managers. MIG requested an address database from the California Parks and Recreation Society and the California Department of Education for consumers other than Caltrans. The sampling plan for the larger lists consisted of random selections from the lists by group with controls for geographic distribution and urban/rural representation; sampling was proportionate to group size. For Caltrans, representatives were selected from each of the 12 districts. A total of 1,000 contacts were chosen from the lists. The number of contacts in each target group was limited due to time and cost constraints, so the survey's results are more anecdotal than strictly scientific.

The mailed survey instrument was a two-page questionnaire along with a cover letter explaining the purpose of the survey (see Appendix A). After completion, respondents were asked to return the instrument by fax within one week; an added incentive was a drawing for a "prize" item that was made of recycled tires.

Pilot Test

MIG conducted a pilot test to assess the survey instrument. Questionnaires were sent to 146 representatives of these groups:

- Local government decision-makers, including city council members, county supervisors, city managers and county executives (local decision-makers);
- Staff of Departments of Parks and Recreation (consumers);
- School district personnel (consumers); and
- Local public works department staff (consumers).

Caltrans districts were omitted due to the small sample size (12).

The response rate was very good - approximately one response for every three questionnaires sent, for a total of 50 responses. The questionnaire was determined to be effective. The respondents generally answered open-ended questions and completed all sections of the questionnaire. The wording of questions 4 and 5 was changed slightly to increase response accuracy. Because changes to the survey instrument were so minor, the pilot survey's results were incorporated into the larger survey's results.

Survey Respondents

For the full survey, 1,000 questionnaires were distributed via U.S. mail and 343 were returned. This provides a level of confidence of 95% and a margin of error of $\pm 5.5\%$. Figure 1 shows the percentages and numbers ($n =$) of respondents in each of the four groups: 19.8% of the respondents were local government decision-makers, 46.4% were California Departments of Parks and Recreation staff and school district personnel (a combined sample because product needs are similar), 32.7% were local public works department staff and the remaining 1.2% were Caltrans District Office staff.

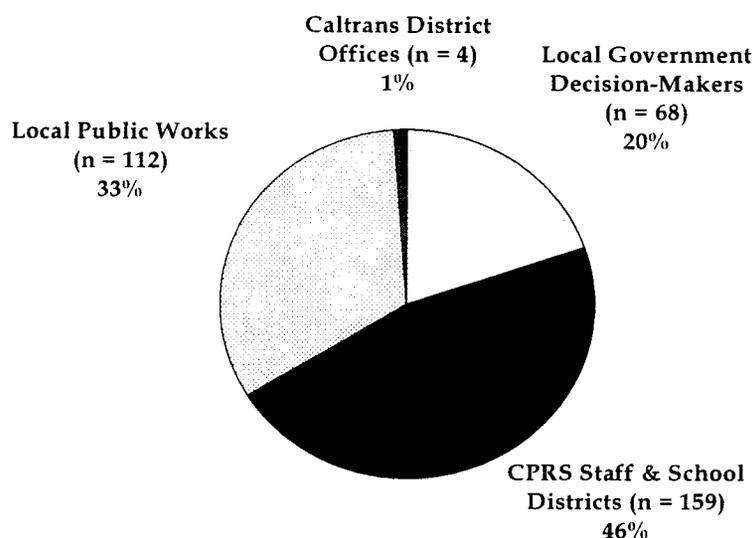


FIGURE 1: Percentages of Respondents in Each of the Four Groups ($n=343$)

Report Organization

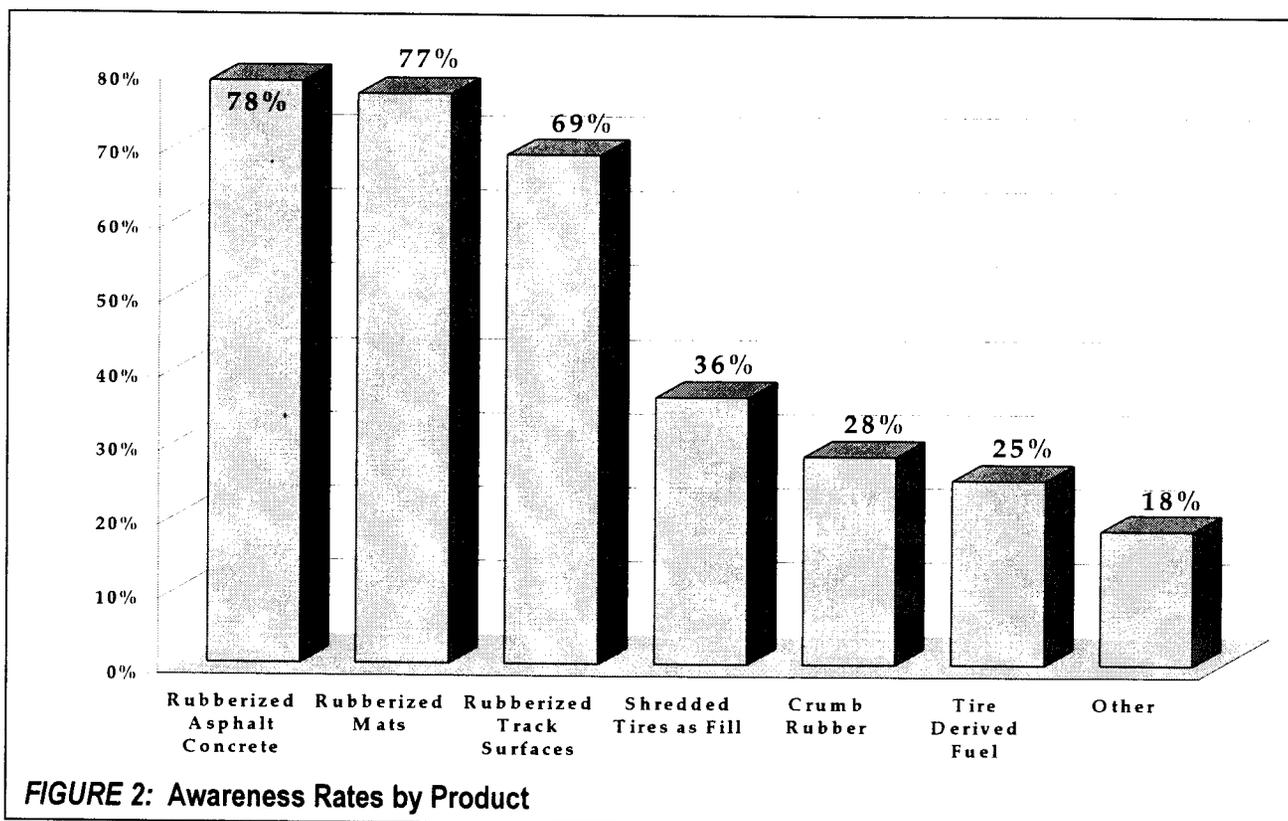
The outline of this report follows the format of the questionnaire. Results to each question are analyzed in various ways to best illustrate major findings and facilitate decision-making regarding the education and marketing campaign. Cross-tabulations were performed for selected questions and results are reported where significant differences among sub-samples were found. The Appendices contain detailed data of raw percentages, open and "other" comments, and the Tire Recycling Project Questionnaire.

II. SURVEY RESULTS

General Knowledge of Recycled Tire Products

Product Awareness (Question 1)

As shown in Figure 2, most respondents were aware of recycled tires used for rubberized asphalt concrete (78.4%), rubberized mats (76.7%) and rubberized track surfaces (68.5%). Shredded tires as fill were a known use to 36.7% of respondents. Approximately one quarter of the respondents indicated awareness of crumb rubber and tire-derived fuel (TDF). Eighteen percent (18.0%) of respondents wrote in other products, with 7% indicating awareness of playground surfacing and athletic equipment.



Sources of Information (Question 1)

Respondents were asked to write in a "source" for all known products. Sources are listed in detail in Appendix D. Articles from trade journals, magazines and newspapers were the most frequently noted information source. Over half of the respondents who had heard about crumb rubber and tire-derived fuel found their information from this source. Between 32.2% and 45.6% of the respondents who had heard of the other products also received information from articles in trade journals, magazines and newspapers. Advertisements and word of mouth were the next most frequently noted information sources, followed by conferences/workshops and vendors.

Table 1 illustrates the most frequently mentioned sources by ranking the top six sources by product.

Table 1: Most Frequently Mentioned Sources

		SOURCE										
		Articles	Word of Mouth	Ads	Conference/ Workshop	Public Works	Always Used/ Current Use	Personal Obs./Exp.	CIWMB	Vendors/ Catalogs	Engineer/ Contract/ Projects	TV/ Media
PRODUCT	RAC	1	2	3	4	5	6	--	--	--	--	--
	Mats	1	5	2	--	--	4	6	--	3	--	--
	Track	1	5	2	--	--	--	3	6	4	--	--
	Crumb Rubber	1	3	2	4	--	--	--	--	5	6	--
	Fuel	1	2	3	6	--	--	--	5	--	--	4
	Fill	1	2	3	--	--	4	--	6	5	--	--
	Other	1	4	3	--	--	5	2	--	6	--	--

Current Use of Recycled Tire Products (Questions 2 and 3)

Use in General

About half (49%) of the respondents reported that they currently use recycled tire products in their organization (see Figure 3).

Figure 4 shows the percentage of products used by those respondents who said they currently use recycled tire products ($n = 167$). The most widely used products are rubberized mats (57.7%), rubberized asphalt concrete (41.9%) and rubberized track surfaces (13.2%). Few respondents use crumb rubber, tire-derived fuel or fill.

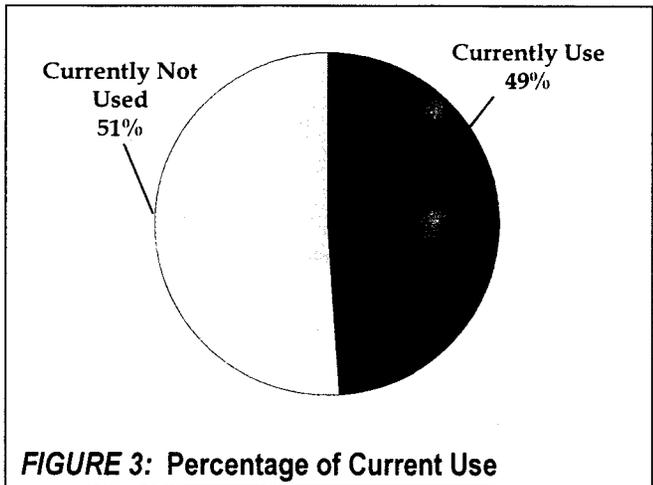


FIGURE 3: Percentage of Current Use

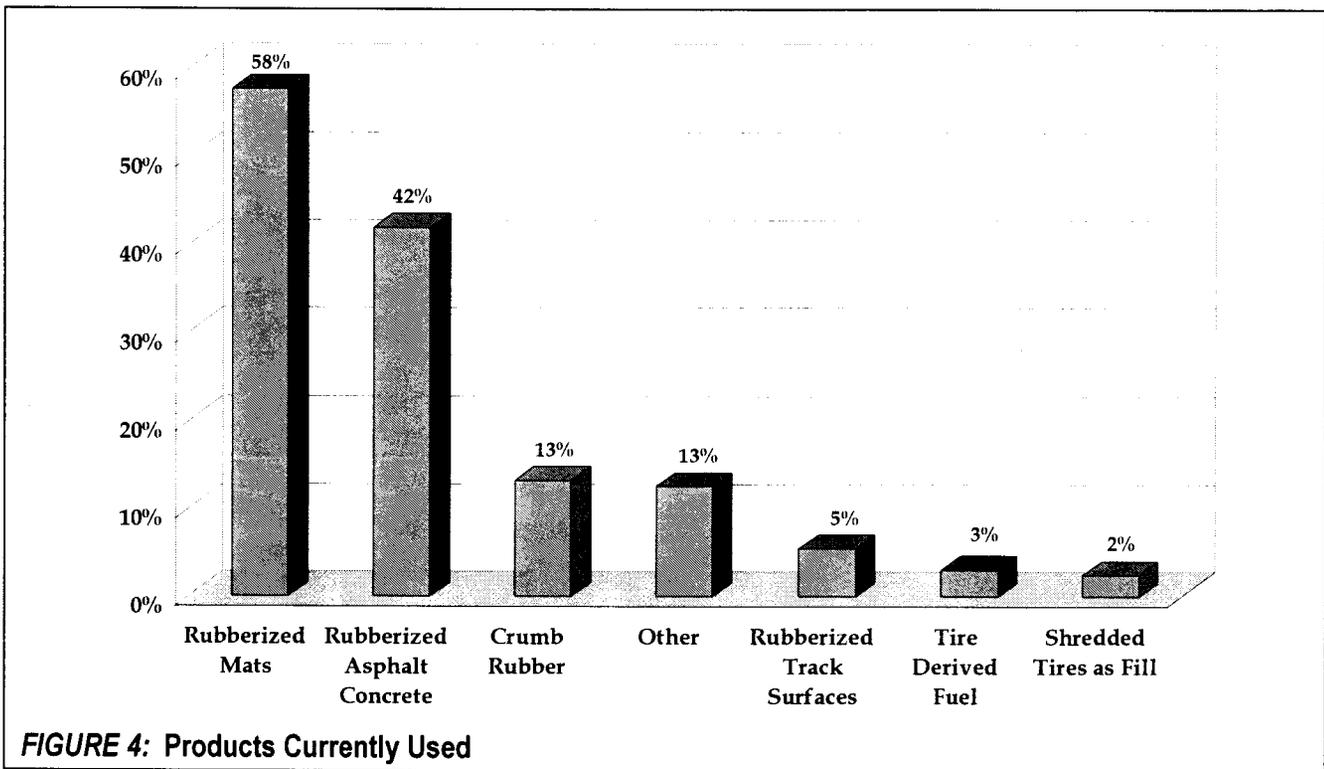


FIGURE 4: Products Currently Used

Awareness and Use by Agency

Table 2 cross-tabulates the awareness rate and use rate by agency. The results of the cross-tabulations show that the information source did not vary between agency with the exception of Caltrans (see results under Full Sample).

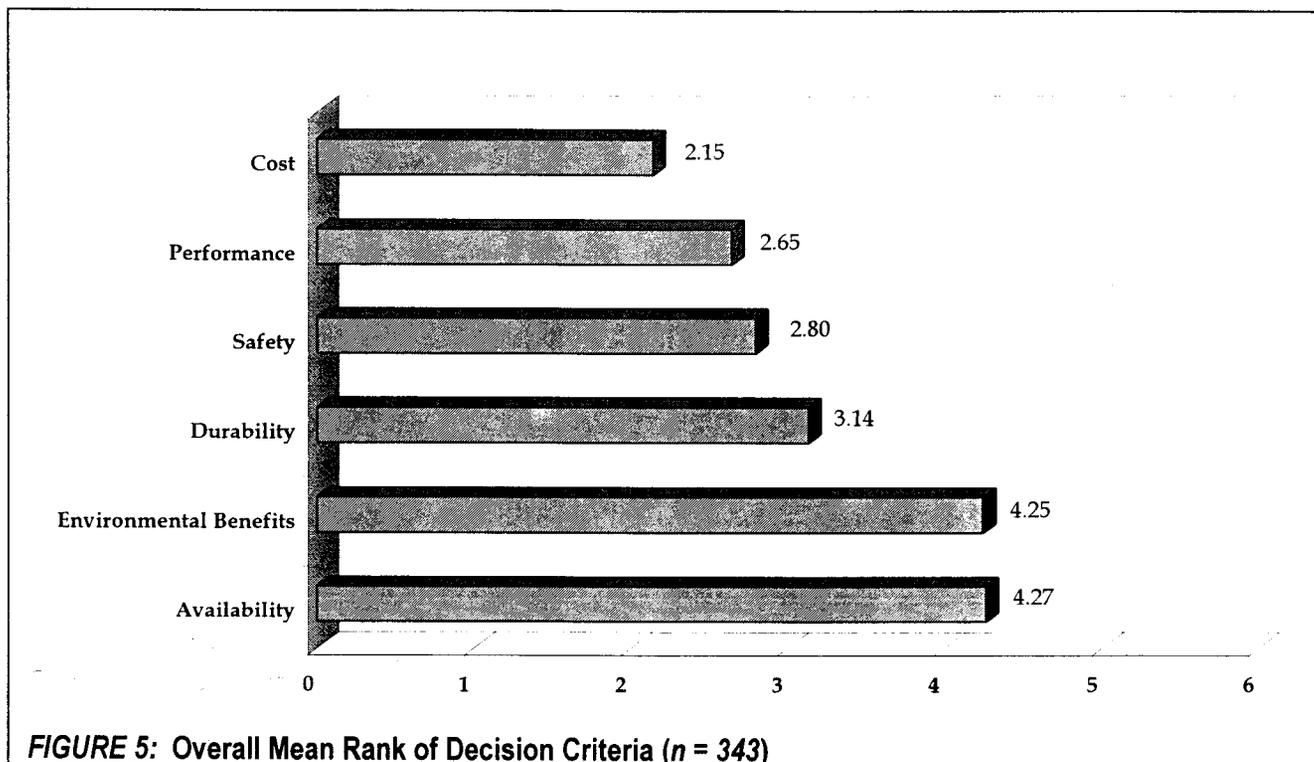
Across product types, awareness rates are highest for local public works respondents followed by local decision-makers. Public Works staff are also the most frequent users, across all product types (excluding Caltrans). The gap between awareness and use is smallest for users of rubberized mats, followed by RAC users. The gap is widest, across all groups for rubberized track surfaces.

Table 2: Summary of Awareness and Use by Agency Type

AGENCY	PRODUCT					
	RAC	Mats	Track	Crumb Rubber	Fuel	Fill
Local Government Decision-Makers (n = 68)						
Awareness Rate (Q1)	90%	69%	63%	24%	25%	32%
Use Rate (Q3)	63%	44%	9%	0%	0%	0%
School Districts and Departments of Park and Recreation (n = 158)						
Awareness Rate (Q1)	62%	84%	73%	20%	12%	34%
Use Rate (Q3)	17%	70%	18%	9%	0%	0%
Local Public Works (n = 111)						
Awareness Rate (Q1)	96%	74%	69%	42%	45%	43%
Use Rate (Q3)	60%	53%	9%	2%	7%	6%
Caltrans (n = 4)						
Awareness Rate (Q1)	100%	25%	25%	25%	0%	75%
Use Rate (Q3)	100%	0%	0%	0%	0%	50%
Full Sample (n = 341)						
Awareness Rate (Q1)	78%	77%	69%	28%	25%	37%
Use Rate (Q3) (n = 167)	42%	58%	13%	5%	2%	3%
Primary Information Source (Q1)	Articles (Caltrans: Word of Mouth)	Articles and Ads (Caltrans: Word of Mouth)	Articles	Articles	Articles	Articles (Caltrans: CIWMB)

Decision Criteria (Question 4)

The questionnaire asked respondents to rank in importance (from 1 to 6) factors they considered in deciding whether or not to use recycled tire products. The highest ranking received a 1 and the lowest ranking received a 6. The criteria ranked as most important were cost, performance and safety. Approximately 70.3% of respondents ranked cost as most important, while 53.1% ranked performance most important and 50.5% gave safety the highest ranking. Availability and environmental benefits were ranked least important compared to the other factors. Approximately 54.6% of respondents ranked availability as least important, and 54.3% ranked environmental benefits least important. Figure 5 shows the mean rank of factors by all respondents. The lowest number equals the highest ranking.



Decision Criteria by Agency

Table 3 shows the mean rank of the decision criteria by agency type. Among all groups, "cost" is the primary concern of those respondents considering the use and reuse of recycled tire products. "Performance" ranks second for all groups except for school districts and Departments of Park and Recreation staff. "Safety" was a close second after cost for these groups.

Table 3: Mean Rank of Decision Criteria by Agency Type

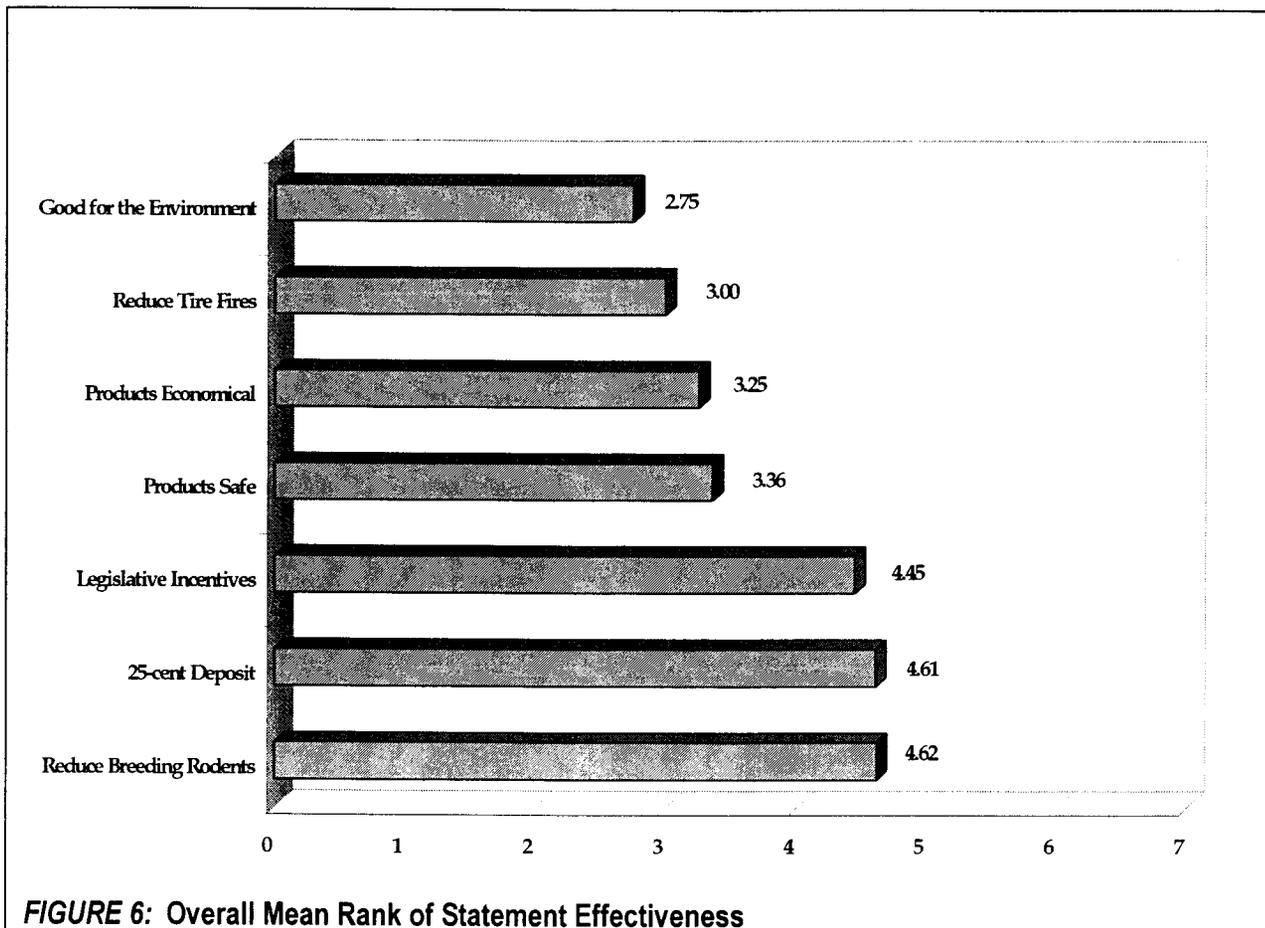
AGENCY	DECISION CRITERIA					
	Availability	Environment Benefits	Cost	Performance	Durability	Safety
Local Government Decision-Makers (n = 68)	4.0	4.4	2.2	2.4	3.3	3.3
School Districts and Departments of Park and Recreation (n = 158)	4.5	4.3	2.2	2.9	3.0	2.4
Local Public Works (n = 111)	4.1	4.1	2.0	2.4	3.2	3.2
Caltrans (n = 4)	4.3	4.3	1.8	2.5	3.0	2.7
Full Sample (n = 341)	4.3	4.3	2.1	2.6	3.1	2.8

Effective Promotional Messages and Communication Methods (Question 5)

Promotional Messages

Respondents ranked seven statements on effectiveness at promoting use of recycled tire products. The highest ranking received a 1 and the lowest ranking received a 7. Approximately 50.7% of respondents ranked, "Recycling tires is good for the environment," as most effective (combined rank of 1 and 2). Forty-eight percent ranked, "Recycling tires will reduce tire fires," most effective, and 43.1% gave "Recycled tire products are economical," the highest ranking of 1 or 2. "Recycled tire products are safe," was considered most effective by 39.1% of respondents. The statements about the 25-cent deposit and reducing rodent breeding grounds were ranked moderately effective. The statement about legislative incentives was ranked least effective compared to the other statements.

Figure 6 shows the overall ranking of effectiveness of each statement, with the lowest number indicating the highest ranking. It is interesting to note that although "Recycling tires is good for the environment," is considered the most effective message to promote use and reuse of recycled tire products, respondents ranked "Environmental Benefits" behind "Cost," "Performance," "Safety," and "Durability" as factors they consider in their decision to use these products.



Potential Messages by Agency Type

Table 4 details the mean rank for each agency evaluating the effectiveness of the potential messages. "Recycling tires is good for the environment," still ranked first for all agency types; however, local government decision-makers felt that "Recycled tire products are competitively priced with products not made with recycled tires," as equally an effective potential message for promotion. "Recycling tires will reduce the potential for environmentally harmful tire fires," ranked a close second for all agencies.

Table 4: Mean Rank of Potential Messages by Agency Type

AGENCY	POTENTIAL MESSAGES						
	Good for the Environment	25 Cent Deposit	Reduce Tire Fires	Reduce Breeding Insects/Rodents	Proven Safe	Competitively Priced	Promote Incentives
Local Government Decision-Makers (n = 68)	3.0	5.0	3.1	4.6	3.3	3.0	5.1
School Districts and Departments of Park and Recreation (n = 158)	2.7	4.4	3.0	4.8	3.6	3.4	4.1
Local Public Works (n = 111)	2.8	4.6	2.9	4.4	3.1	3.2	4.6
Caltrans (n = 4)	2.0	5.0	2.8	4.8	3.8	4.8	3.3
Full Sample (n = 341)	2.8	4.6	3.0	4.6	3.4	3.3	4.4

Communication Methods (Question 6)

The questionnaires asked respondents to rate eight potential communication methods on effectiveness at reaching the target audiences. Respondents rated each method excellent, good, fair or poor. Incentive programs received the highest percentage (55.6%) of excellent ratings with a combined excellent/good rating of 88%. The methods generally rated good were direct mailings (36.5%), television (34.7%) and legislation (33.4%) with combined excellent/good ratings as shown below. Fair ratings were received by posters (50.8%), newspaper ads (42.6%), radio (35.6%) and flyers included with new tires (35.0%). Detailed tabulations for this question are provided in Appendix E. Figure 7 combines the "excellent/good" and "fair/poor" responses to better illustrate the results.

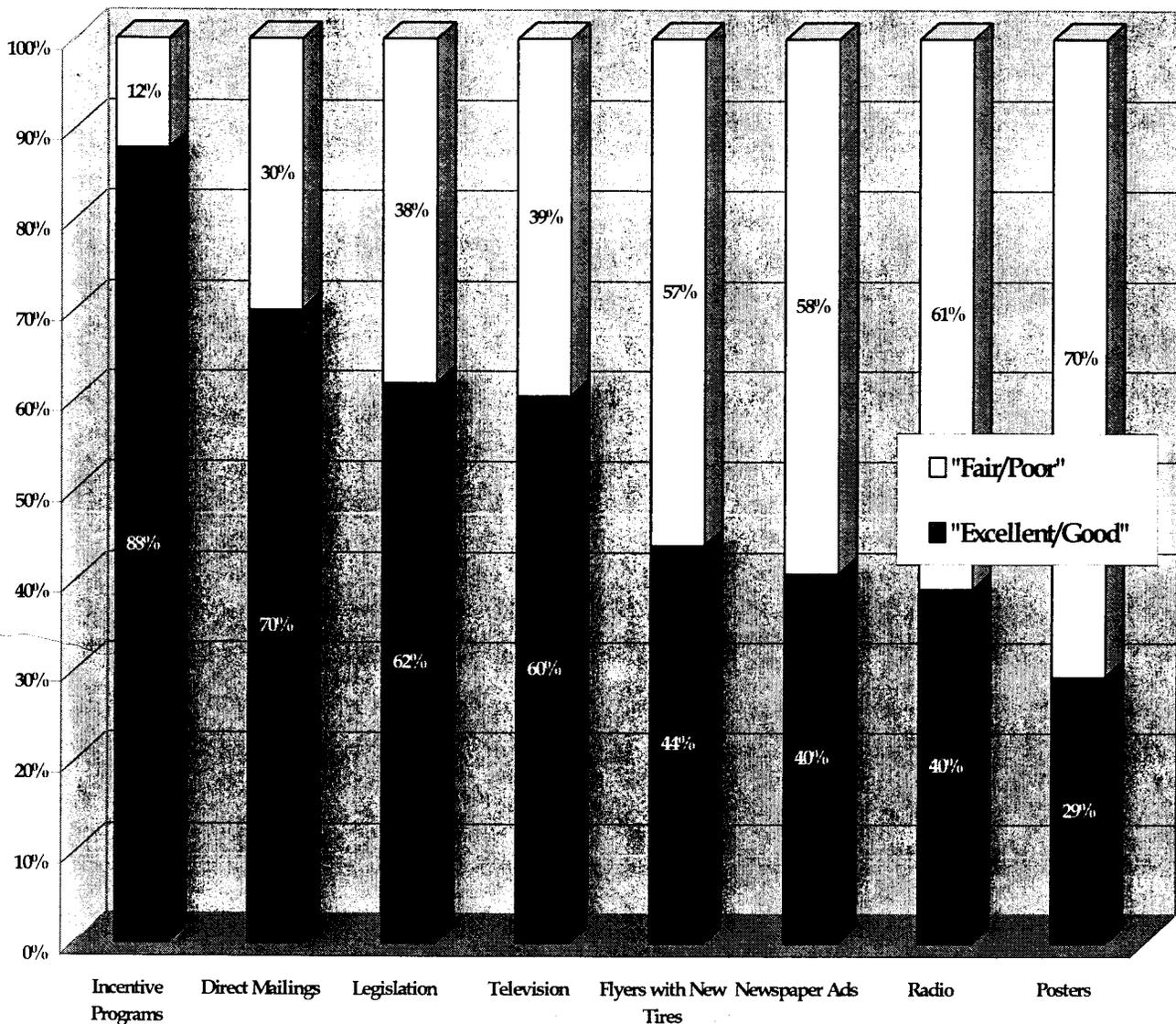


FIGURE 7: Combined Percentages of Communication Method Effectiveness

Incentives to Encourage Use of Recycled Tire Products (Question 7)

Most respondents said that they would be willing to consider contract provisions or incentives to encourage use of recycled tire products. Seventy-two percent of respondents would consider awarding contract preference points to contractors who will use recycled products in a proposed job. More than 80% said that they would consider other incentives. Other incentives mentioned were grants, listed by 13.3% of respondents, and subsidies to bring down retail prices, which was mentioned by 5% of respondents.

III. RECOMMENDATIONS

A marketing and education program about the uses and availability of recycled tires can be very effective in increasing awareness of the products among the respondents to our survey. The respondents also showed a willingness to use the products when cost and performance criteria were met. Therefore, our program must be multi-dimensional and ongoing.

We recommend the CIWMB continue building its incentive programs with grants for research and innovative uses of tire recycled products. In addition, CIWMB staff should increase presentations at conferences, workshops and tradeshows.

These efforts should be supported with a marketing and education campaign that includes the following:

- Articles written for professional and trade publications co-authored by MIG and CIWMB directors and staff.
- Develop print advertising for these same publications.
- Create a short (4-5 minute) video to be used at workshops and conferences. It could also be shown without a presenter at tradeshows.
- Prepare scripts and b-roll video for television and place with TV news directors in every market in the State.
- Make editorial board presentations to major news outlets as well as trade journals and professional publications.
- Expand the marketing and education program to the general public to garner support for regulation and legislation. Methods would include surveys, focus groups and point-of-purchase brochures.
- Create an ongoing evaluation component to measure results of the program.

APPENDICES

Appendix A

Tire Recycling Project Questionnaire



California Integrated Waste Management Board

Dan Eaton, Chairman

8800 Cal Center Drive • Sacramento California 95826 • (916) 255-2200
www.ciwmb.ca.gov



Gray Davis
Governor

Winston H. Hickox
Secretary for
Environmental
Protection

March 20, 2000

Dear «Name»,

The California Integrated Waste Management Board is conducting a faxed-back survey about tire recycling and we'd like you to be a part of it.

As a Californian, you know how much we rely on our cars. As a result, we generate 30 million discarded tires requiring landfill disposal or stockpiling *every year*. And that number is increasing. These huge, ugly piles are extremely vulnerable to intensely smoky, long-lasting fires. They're breeding grounds for mosquitoes and home to rodents. And they simply do not decompose – they're here forever unless we can use the tires in other ways.

The Board is aiming to increase tire recycling and reduce stockpiling. Cities and counties are required to reduce their trash by 50 percent by the end of this year (2000). The State is working with cities and counties to achieve this waste reduction goal, and tires are an important part of the waste stream – one for which beneficial uses can be found.

We're distributing this questionnaire to gather information about current and potential uses for tires. Your feedback will be particularly valuable because you represent an agency that could potentially participate in new tire recycling programs.

Please take two minutes to fill out the short questionnaire and return it to us by fax (510/845-8750) or mail. As an added incentive, if we receive your response by March 31, 2000, we'll enter your name in a drawing for a prize made completely from recycled tires!

Your response will be confidential, but should you wish to contact us directly for more information about tire recycling, please call Roni Java at (916) 255-2326. Thank you very much for your participation.

Sincerely,

Don Eaton, Chairman
California Integrated Waste Management Board

**California Integrated Waste Management Board
TIRE RECYCLING PROJECT QUESTIONNAIRE**

**Please fax to 510/845-8750
By March 31, 2000**

Name: _____ Title: _____

Organization: _____ Fax# _____

Californians currently generate approximately 30 million used tires every year. These tires do not decompose and are frequently disposed of in landfills or are stockpiled. Stockpiles of tires are breeding grounds for insects and rodents and are vulnerable to intense, smoky, long-lasting fires. In an effort to reduce tire stockpiling by 50 percent, by the end of this year (2000), California's Integrated Waste Management Board is looking to create a tire recycling program that encourages new, innovative uses for old tires. This questionnaire is intended to probe your organization's awareness, current use, and potential use of recycled tire products.

General Knowledge of Potential Uses of Recycled Tires

1. Many states currently use recycled tires for a number of purposes. Please check all uses or products you have heard of and note the source of your information (advertisements, articles, word of mouth, etc.)

Rubberized Asphalt Concrete (RAC)
Source: _____

Crumb Rubber (as a soil amendment)
Source: _____

Rubberized Mats
Source: _____

Tire Derived Fuel (TDF)
Source: _____

Rubberized Track Surfaces
Source: _____

Shredded Tires as Fill
Source: _____

Other: _____
Source: _____

Current Use of Recycled Tires

2. Does your organization currently use any product(s) made from recycled tires?
 Yes No

3. If yes, please note which products you currently use (check all that apply).

Rubberized Asphalt
Concrete (RAC)

Crumb Rubber (as a soil
amendment)

Rubberized Track
Surfaces

Rubberized Mats

Tire Derived Fuel (TDF)

Fill

Other: _____

Decision Criteria

4. We know that you may consider a variety of factors when deciding whether to use recycled tire products. Please rank the relative importance of the following factors.
(1- highest; 6 – lowest):

____ Availability

____ Cost

____ Durability

____ Environmental Benefits

____ Performance

____ Safety

____ Other: _____

Comments (if any):

Effective Promotional Messages and Methods

5. Please rank the following statements or messages for their effectiveness in promoting use of recycled tire products (1 – highest; 7 – lowest)

- _____ Recycling tires is good for the environment.
- _____ The cost of recycling is covered by a 25 cent deposit included in the cost of a new tire.
- _____ Recycling tires will reduce the potential for environmentally harmful tire fires (which may result in smoke, toxic water runoff, toxic seepage into the water table, toxic ash substances).
- _____ Recycling tires will reduce breeding grounds for insects and rodents.
- _____ Recycled tire products such as RAC, crumb, and mats are proven safe and superior to products made without rubber.
- _____ Recycled tire products are competitively priced with products not made with recycled tires.
- _____ Local government decision makers and the California Legislature would be willing to create and promote incentives for tire recycling if they knew voters would back it.

Comments (if any):

6. Please rate the following methods of communication on their effectiveness in reaching target audiences (Public Works Departments; Parks and Recreation Departments; Departments of Transportation; etc.) for recycled products.

	Excellent	Good	Fair	Poor
Radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flyers Included with New Tires	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incentive Programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Newspaper Advertisements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Legislation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Posters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Direct Mailings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments (if any):

7. Would your City/Agency be willing to consider the following measures to increase use of recycled tire products?

Awarding contracting preference points to those contractors who will use recycled tire products in a proposed job. (n = 322) Yes No
Depends on: _____

Providing other incentives. (Please suggest ideas): Yes No
Depends on: _____

Thank you for your participation!

Appendix B

Raw Percentage Data

**California Integrated Waste Management Board
TIRE RECYCLING PROJECT QUESTIONNAIRE**

**Please fax to 510/845-8750
By March 31, 2000**

Name: _____ Title: _____

Organization: _____ Fax# _____

Californians currently generate approximately 30 million used tires every year. These tires do not decompose and are frequently disposed of in landfills or are stockpiled. Stockpiles of tires are breeding grounds for insects and rodents and are vulnerable to intense, smoky, long-lasting fires. In an effort to reduce tire stockpiling by 50 percent, by the end of this year (2000), California's Integrated Waste Management Board is looking to create a tire recycling program that encourages new, innovative uses for old tires. This questionnaire is intended to probe your organization's awareness, current use, and potential use of recycled tire products.

General Knowledge of Potential Uses of Recycled Tires (n=343)

1. Many states currently use recycled tires for a number of purposes. Please check all uses or products you have heard of and note the source of your information (advertisements, articles, word of mouth, etc.)

78.4% Rubberized Asphalt Concrete (RAC) Source: _____	28.0% Crumb Rubber (as a soil amendment) Source: _____
76.7% Rubberized Mats Source: _____	24.8% Tire Derived Fuel (TDF) Source: _____
68.5% Rubberized Track Surfaces Source: _____	36.7% Shredded Tires as Fill Source: _____
	18.0% Other: _____ Source: _____

Current Use of Recycled Tires (n = 343)

2. Does your organization currently use any product(s) made from recycled tires?
49% Yes 51% No

3. If yes, please note which products you currently use (check all that apply). (n = 167)
- | | | |
|--|--|--|
| 41.9% Rubberized Asphalt Concrete (RAC) | 5.4% Crumb Rubber (as a soil amendment) | 13.2% Rubberized Track Surfaces |
| 57.7% Rubberized Mats | 2.4% Tire Derived Fuel (TDF) | 3.0% Fill |
| | | 12.5% Other: _____ |

Decision Criteria

4. We know that you may consider a variety of factors when deciding whether to use recycled tire products. Please rank the relative importance of the following factors.

(1- highest; 6 – lowest):

___ Availability	___ Cost	___ Durability
___ Environmental Benefits	___ Performance	___ Safety
___ Other: _____		

Comments (if any):

Effective Promotional Messages and Methods

5. Please rank the following statements or messages for their effectiveness in promoting use of recycled tire products (1 – highest; 7 – lowest)

- _____ Recycling tires is good for the environment.
- _____ The cost of recycling is covered by a 25 cent deposit included in the cost of a new tire.
- _____ Recycling tires will reduce the potential for environmentally harmful tire fires (which may result in smoke, toxic water runoff, toxic seepage into the water table, toxic ash substances).
- _____ Recycling tires will reduce breeding grounds for insects and rodents.
- _____ Recycled tire products such as RAC, crumb, and mats are proven safe and superior to products made without rubber.
- _____ Recycled tire products are competitively priced with products not made with recycled tires.
- _____ Local government decision makers and the California Legislature would be willing to create and promote incentives for tire recycling if they knew voters would back it.

Comments (if any):

6. Please rate the following methods of communication on their effectiveness in reaching target audiences (Public Works Departments; Parks and Recreation Departments; Departments of Transportation; etc.) for recycled products.

	Excellent	Good	Fair	Poor
Radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flyers Included with New Tires	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Incentive Programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Newspaper Advertisements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Legislation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Posters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Direct Mailings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments (if any):

7. Would your City/Agency be willing to consider the following measures to increase use of recycled tire products?

Awarding contracting preference points to those contractors who will use recycled tire products in a proposed job. (n = 322)	72% Yes Depends on: _____	28% No
Providing other incentives. (Please suggest ideas): (n = 166)	81% Yes Depends on: _____	19% No

Thank you for your participation!

Appendix C

Open and "Other" Comments

Appendix D

Tally of Sources for Question 1

1d. Crumb Rubber

n = 81

Word of mouth, personal contacts	46	56.8%
Articles (from trade journals, magazines, newspapers)	7	8.6%
Advertisements (from organizations, postings, magazin	6	7.4%
Conferences, workshops	6	7.4%
Vendors, catalogs	4	4.9%
Personal observation or experience	2	2.5%
Local college/school	2	2.5%
Radio	2	2.5%
Public Works	1	1.2%
CIWMB	1	1.2%
Grants	1	1.2%
Legislation	1	1.2%
Maintenance Support Association	1	1.2%
Santa Barbara County	1	1.2%

*The n value refers to the number of participants who indicated a source.

1e. Tire Derived Fuel

n = 68

Word of mouth, personal contacts	36	52.9%
Advertisements (from organizations, postings, magazin	10	14.7%
Articles (from trade journals, magazines, newspapers)	4	5.9%
Always used, currently use, used in past	3	4.4%
Grants	3	4.4%
Conferences, workshops	2	2.9%
Vendors, catalogs	2	2.9%
Radio	2	2.9%
Public Works	1	1.5%
Engineers, contractors, projects	1	1.5%
Ford Motor Company	1	1.5%
Outlet for County tires	1	1.5%
Portland Cement Alternative Fuel	1	1.5%
Santa Barbara County	1	1.5%
Tire hauler	1	1.5%

*The n value refers to the number of participants who indicated a source.

1f. Shredded Tires as

Fill

n = 90

Word of mouth, personal contacts	41	45.6%
Advertisements (from organizations, postings, magazin	21	23.3%
Articles (from trade journals, magazines, newspapers)	12	13.3%
Engineers, contractors, projects	4	4.4%
Vendors, catalogs	3	3.3%
Grants	3	3.3%
Always used, currently use, used in past	2	2.2%
Radio	2	2.2%
Conferences, workshops	1	1.1%
Public Works	1	1.1%
RAC Technology Center	1	1.1%
Local college/school	1	1.1%
Vehicles	1	1.1%

*The n value refers to the number of participants who indicated a source.

1g. Other

n = 39

Word of mouth, personal contacts	6	15.4%
Public Works	5	12.8%
Articles (from trade journals, magazines, newspapers)	4	10.3%
Advertisements (from organizations, postings, magazin	3	7.7%
Engineers, contractors, projects	3	7.7%
Vendors, catalogs	3	7.7%
Conferences, workshops	2	5.1%
Always used, currently use, used in past	2	5.1%
Grants	2	5.1%
Caltrans	1	2.6%
Personal observation or experience	1	2.6%
Local college/school	1	2.6%
Radio	1	2.6%
Sacramento County Public Works	1	2.6%
Websites, Internet	1	2.6%
Colton Cement Plant	1	2.6%
Continuing education	1	2.6%
Local task force	1	2.6%
Wesley Tire Plant	1	2.6%

*The n value refers to the number of participants who indicated a source.

Appendix E

Raw Percentages for Questions 4, 5 and 6

Question 4

	Availability		Environmental Benefits		Cost		Performance		Durability		Safety		Other	
1	34	10.9%	31	9.9%	143	45.7%	91	29.1%	43	13.7%	93	29.7%	9	2.9%
2	27	8.6%	25	8.0%	77	24.6%	75	24.0%	68	21.7%	65	20.8%	1	0.3%
3	38	12.1%	41	13.1%	46	14.7%	56	17.9%	79	25.2%	41	13.1%	0	0.0%
4	33	10.5%	40	12.8%	34	10.9%	44	14.1%	62	19.8%	57	18.2%	0	0.0%
5	66	21.1%	79	25.2%	12	3.8%	31	9.9%	39	12.5%	33	10.5%	1	0.3%
6	105	33.5%	91	29.1%	10	3.2%	14	4.5%	19	6.1%	22	7.0%	3	1.0%

The n value is 313 and refers to an average of total persons who completed Question 4.

Question 5

	Good for the environment		25 cent deposit		Harmful tires		Reduce breeding rodents		Products are safe		Products economical		Legislative incentives	
1	120	36.9%	17	5.2%	77	23.7%	17	5.2%	66	20.3%	64	19.7%	42	12.9%
2	45	13.8%	30	9.2%	79	24.3%	37	11.4%	61	18.8%	76	23.4%	44	13.5%
3	59	18.2%	55	16.9%	53	16.3%	48	14.8%	58	17.8%	53	16.3%	35	10.8%
4	49	15.1%	42	12.9%	41	12.6%	55	16.9%	49	15.1%	45	13.8%	28	8.6%
5	27	8.3%	56	17.2%	39	12.0%	41	12.6%	39	12.0%	44	13.5%	38	11.7%
6	12	3.7%	63	19.4%	27	8.3%	54	16.6%	34	10.5%	30	9.2%	48	14.8%
7	16	4.9%	60	18.5%	8	2.5%	75	23.1%	20	6.2%	16	4.9%	86	26.5%

The n value is 325 and refers to an average of total persons who completed Question 5.

Question 6

	Radio		Flyers with new tires		Incentive programs		Television		Newspaper ads		Legislation		Posters		Direct mailings		Other	
Exc.	45	13.7%	38	11.6%	183	55.6%	83	25.2%	25	7.6%	93	28.3%	11	3.3%	111	33.7%	32	9.7%
Good	85	25.8%	108	32.8%	107	32.5%	114	34.7%	107	32.5%	110	33.4%	85	25.8%	120	36.5%	10	3.0%
Fair	117	35.6%	115	35.0%	33	10.0%	82	24.9%	140	42.6%	87	26.4%	167	50.8%	70	21.3%	0	0.0%
Poor	85	25.8%	71	21.6%	7	2.1%	47	14.3%	51	15.5%	38	11.6%	64	19.5%	29	8.8%	1	0.3%

The n value is 329 and refers to an average of total persons who completed Question 6.

Question 1, Other

Playground surfacing/athletic equipment.	24
Retaining walls.	4
Sandals/bags/clothing/etc.	3
Erosion preventing walls.	2
Artificial fish habitat.	1
Coasters.	1
Crack filler.	1
Drain rock material for septic tank drain fields.	1
Foundation layer for leachate collection system.	1
Home construction.	1
Levee supports.	1
Office supplies	1
Railroad crossing surfaces.	1
Replace sand bags to deal with flooding.	1
Shredded tires for ADC.	1
Soil additive to reduce compaction.	1
Sound walls.	1

Question 3, Other

Playground surfacing/equipment.	12
Retaining wall.	2
Crack filler.	1
Erosion control.	1
Heavy duty carpet.	1
Retread, reuse.	1
Rubber chip seal.	1
Rubberized slurry seal.	1
Tennis courts.	1

Question 4, Other

Environmental risks/benefits.	2
Appearance.	1
Don't use rubberized AC because striping paint doesn't adhere to it.	1
Economic risks.	1
Flammability.	1
Grants.	1
Maintenance/ongoing costs.	1
Meets industry standards.	1

Question 4, Comments

Cost/lowest bid.	3
price/performance.	2
A risk management consideration.	1
Different projects may merit different ranking criteria.	1
Heat can ruin rubber products.	1
Many recycled products are not easily available.	1
May be perceived as a public health risk.	1
May cause pollution as they break down.	1
Rubberized asphalt is cost effective.	1
There is no specification history on recycled tire use.	1
They absorb heat and leave black marks.	1

Question 5, Comments

Consumers never see the deposit returned on the fees already put on new tires.	3
Other materials (e.g., woodchips) are much cheaper.	3
Depends on the target audience.	2
Free recycled materials for schools and parks.	1
Legislature should create incentives.	1
Must prove that there is an effective and environmentally sound use for recycled tires.	1
Need to target the group each message is effective for.	1
Product show (with a great catered lunch).	1
Products must be priced and perform competitively.	1
We have little knowledge of products to compare or evaluate properly.	1

Question 6, Other

Professional publications.	9
Professional organizations.	5
Internet/email.	3
Grants	1
Local cable.	1
Mass advertising will reach general public rather than targeted decision makers.	1
Tire distributors.	1
Word of Mouth	1

Question 6, Comments

Create tax on new tires and use money to develop products at a lower cost	2
Directly inform the cognizant agency.	2
Initial cost is high compared to conventional products.	2
Attend and present at different associations annual meetings and conferences.	1
Education in schools.	1
Financial incentives/grants.	1
Short video on alternative uses.	1
We need to get information to decision makers about cost and durability.	1

Question 7, Providing Other Incentives

Grants.	22
Subsidize to bring down retail prices.	16
Product qualifies as diversion for AB 939.	4
Demonstrate how they are better.	3
Include recycled materials in the job specification.	3
Availability and awareness.	2
Exchange or refund with proper disposal of tires.	2
Give tax incentives to manufacturers to develop new products made from recycled tires.	2
Reduce/eliminate matching requirements.	2
Advertise more projects with rubber.	1
Alternative recyclable products.	1
CA redemption for tires.	1
Cooperative purchasing agreements.	1
Credits for recycling to be used towards waste diversion.	1
Give away products for use.	1
Give preference points to communities already using recycled products.	1
Include information in city publications.	1
Increase road maintenance functions for agencies using rubberized asphalt.	1
Joint purchases.	1
Market development.	1
Pilot program.	1
Provide additional help for site preparation.	1
Sponsor local trade show.	1
Tires are taken to a cement plant and used for fuel.	1

Question 7, Awarding Contract Preference Points Depends on

Cost/Price.	65
Performance.	31
City Council/government policy.	19
Scope/purpose of the project.	14
Durability.	12
Availability.	10
Safety.	6
Available information.	1
Bid process.	1
Must be done in lowest responsive bidder environment. Incentives don't work.	1
Public contract law.	1

Question 7, Providing Other Incentives Depends on

Cost.	12
Grant availability.	5
City Council/local government policy.	3
Hold the tire maker responsible for price incentives.	1
Non-partisan support.	1
Performance	1
Requirements.	1
Type of product.	1