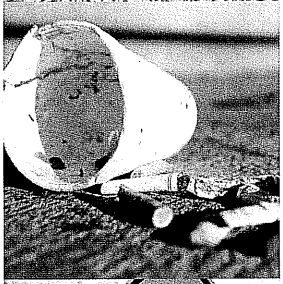
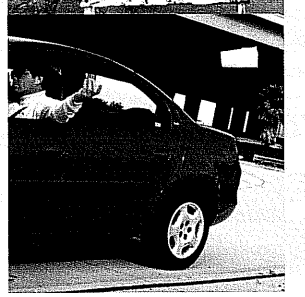
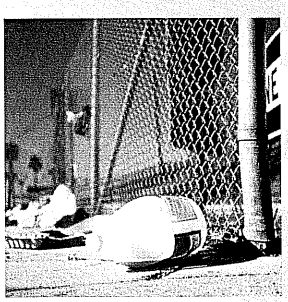
CTSW-RT-03-043







DON'T TRASH
FRESNO

Caltrans Public Education Research Study

Final Report

June 2003

Caltrans Storm Water Program

Table of Contents

Section **Page**

ES EXECUTIVE SUMMARY ES-1

1.0 PROJECT BACKGROUND AND INTRODUCTION 7

1.1 Organization of this Document 9
1.2 Program Research 10
1.2.1 Litter Monitoring 11
1.2.2 Literature Review 12
1.2.3 Public Opinion Baseline Survey 12
1.2.4 Trash Reduction Strategy 13
1.2.5 Research Conclusions 14

2.0 PROGRAM DEVELOPMENT 15

2.1 Target Audience 15
2.2 Goals 18
2.3 Developing the Campaign Messages 19

3.0 PROGRAM IMPLEMENTATION 23

3.1 PERS Outreach and Information Materials 23
3.2 Partnership Building 23
3.3 K-6 Education Outreach 27
3.4 Media 28
3.5 Web Site 32
3.6 Sports Teams Partnerships 32
3.7 Public Event Participation 35
3.8 Corporate Sponsorships 40
3.9 Summary of Program Implementation 43

4.0 PROGRAM ASSESSMENT 45

4.1 Public Opinion Survey 45
4.2 Kiosk Survey 46
4.3 Partnerships and Collaboration 47
4.4 Monitoring 48
4.4 Summary of Program Effectiveness 51

5.0 ACKNOWLEDGMENTS AND PROGRAM AWARDS 53

6.0 CONCLUSIONS AND RECOMMENDATIONS 55

6.1 Conclusions 55
6.2 Recommendations 56

Table of Contents

LIST OF TABLES

Table 3.1-1 PERS Outreach Materials 24
Table 3.4-1 Summary of News Coverage 29
Table 3.4-2 Radio Advertisement Summary 29
Table 3.4-3 Summary of Billboard Coverage 30
Table 3.7-1 Summary of Public Event Participation 36
Table 4.4-1 Range of Seasonal Storm Water Litter and Gross Pollutant Loads By Monitoring Site 49

EXECUTIVE SUMMARY

The California Department of Transportation's (Caltrans) Storm Water Program undertook a Public Education Research Study (PERS) to determine the effectiveness of public education as a Best Management Practice (BMP) for reducing the volume of pollutants entering the California highway storm drain system. Caltrans prepared this PERS Final Report to 1) summarize activities undertaken as part of the study; 2) evaluate the effectiveness of the public education program; and 3) recommend approaches to be considered by Caltrans when planning for and implementing future public education programs.

The Fresno Metropolitan Area (FMA) was selected as the location for this research study because it is a definable area with a stable population that is not heavily influenced by outside sources. The FMA is defined as the greater Fresno area and includes the cities of Fresno, Clovis, Fowler, Sanger, and Selena.

Section 1 of this report describes in detail the research that was conducted prior to developing the PERS campaign messages and themes. **Section 2** describes how the research was analyzed and used to develop the program theme and messages. **Section 3** discusses program implementation and the tools used throughout the two year public education campaign to deliver the "Don't Trash Fresno" campaign message to the target audience. **Section 4** is an overall evaluation of the program. This section reviews why monitoring was terminated as one of the program's initial evaluation elements, and how the study team sought alternative methods to measure the amount of litter that was reduced as a result of the program. **Section 5** identifies important acknowledgments and program awards received over the past two years. Program conclusions and recommendations are discussed in **Section 6**. Based on the results of the program, recommendations are made on how the program should be modified and expanded.

From start to finish, this PERS Final Report evaluates the methods of the public education campaign, the logic behind the methods, and the end results. While the overall goal of the research study was to show a reduction in the amount of litter along Fresno area highways, specific outreach goals were developed so that they could also be measured to determine overall program effectiveness. The campaign goals were to achieve the following by the end of the research study:

- Evaluate if there was a decrease in the amount of litter in the Caltrans highway storm drain system included in the Fresno litter monitoring study
- Increase awareness about the fine associated with litter law enforcement
- Increase awareness that a cigarette butt thrown from a moving vehicle is against the law; cigarette butts pollute and they are the leading littered item found along highways
- Begin to change the polluting habits and awareness of the consequences of polluting public property

In order for a public education campaign to be effective, it must change the behavior of the correct audience. During the research phase of the study the target audience for the Caltrans PERS was identified – namely, single 18- to 24-year-old men and women, with an overlap for people aged 25 to 34. The approach used by the research team to develop the communications program was to produce messages specific to each target audience described above. However, an overarching theme was first developed to give the different program messages and components a uniform look, tone, and feel. The theme chosen for the program was "Don't Trash Fresno."

While the "Don't Trash Fresno" theme was specifically targeted to the Fresno area, the overall theme was developed so that it could be used statewide. For effectiveness, some program materials were developed with the "Don't Trash California" theme to achieve greater exposure. For example, the "Don't Trash California" theme was chosen versus "Don't Trash Fresno" for the television public service announcement, because television has fewer boundaries than print, outdoor advertising, or even

radio. People in Modesto who watch Fresno-based television, but do not associate with Fresno, will not tune out the "Don't Trash California" message.

Implementing the program was an effort that used numerous tools throughout the two-year campaign to deliver the "Don't Trash Fresno" and "Don't Trash California" message to the target audience. Once the outreach and information materials were agreed upon and produced, the PERS research team utilized the mainstream methods most likely to create program awareness, educate the target audience, and move the program to the ultimate goal of decreasing litter on our roadways. The methods the PERS research team used included: building partnerships, attending public events, tapping into the media (newspapers, radio, and television), seeking unique modes of advertisement (billboards, pump toppers, etc.), establishing sponsorships, creating a web page to use the benefit of internet communication and advertisement, and educating children (even though they were not a primary target audience).

Overall the program had significant reach within the FMA. The 2002 and 2003 paid advertising programs achieved more than 112,000,000 impressions with an added value of $154,701. Public event participation in 2003 allowed PERS program messages to reach more than 250,000.

The research study was unable to determine if the amount of storm water or roadside litter within the study area was reduced as a result of the public education campaign, since the storm water litter monitoring (or end of the pipe measurement tool) was ended because litter loads were highly variable with more seasonal and site specific variability than anticipated. However, the study was able to prove that people's awareness about litter as a problem did change. Research showed that a relatively long-term monitoring program would be necessary to detect even small changes in the litter volumes as a result of the public education BMP. The lag time that exists between a change in behavior and quantifiable proof is due to the numerous variables within the research study environment that take time to be omitted, and therefore cloud the positive end result. For example, the existing litter on the roadways may not appear to be reduced because the litter is there before people begin to change their behavior, and it will continue to be there until it is entirely cleaned up. Even if the amounts of litter being added to the roadways decreases, it is still added to existing litter.

Therefore, because the actual reduction in the quantity of storm water or roadside litter could not be used because of time constraints and high data variability, other quantitative and qualitative measurement tools were used to measure program effectiveness. A public opinion survey and the kiosk survey were both quantitative methods that scientifically demonstrated that the research study had a number of positive effects from 2001 to 2003. Among English-speaking residents, there were two statistically significant increases in desirable attitudes and awareness: (1) believing that litter looks bad and (2) recognizing that cigarette butts are the number one littered item. Among Spanish-speaking residents, there was one statistically significant increase: believing litter is a major problem.

Qualitatively, the PERS program had great collaboration success with partners and sponsorships. These program tools successfully spread the campaign messages to the appropriate target audience and significantly reduced overall program costs. Several positive acknowledgements and awards were received throughout the course of the program. These awards are yet another qualitative measurement of the success of the program.

In addition to the results of formal surveys and monitoring, the PERS researchers were able to assess the effectiveness of the program by the number of people who acknowledged seeing program messages and the likelihood to change their own behavior or encourage others they know to refrain from littering. Raising awareness about the issue, and changing attitudes to general agreement that litter is a problem, is the important first step in changing personal behavior that contributes to highway litter.

One of the requirements of the Caltrans Statewide NPDES permit is to conduct a research-based statewide public education campaign as one of a host

of BMPs to reduce storm water pollution from California highways. The PERS project was a pilot study to determine not only if the public education BMP was a successful tool at reducing storm water pollution, but also to assess how to implement a storm water pollution prevention public education BMP statewide. As a result of the conclusions and successes of the research study project, several recommendations have been provided to Caltrans on how to develop a successful statewide pollution prevention public education program.

1.0 PROJECT BACKGROUND AND INTRODUCTION

The California Department of Transportation's (Caltrans) Storm Water Program undertook a Public Education Research Study to determine the effectiveness of public education as a Best Management Practice (BMP) for reducing the volume of pollutants entering the California highway storm drain system. Caltrans prepared this Public Education Research Study Final Report to 1) summarize activities undertaken as part of the study; 2) evaluate the effectiveness of the public education program; and 3) recommend approaches to be considered by Caltrans when planning for and implementing future public education programs.

This document provides background information on the reasons for undertaking the study, summarizes program research and strategies, describes program activities and materials, assesses the success of the program, lists endorsements and awards earned by the program, and presents conclusions and recommendations.

In the 2001 SWMP, Caltrans proposed conducting a focused public education research study.

Background

On July 15, 1999, the California State Water Resources Control Board (SWRCB) issued a Statewide National Pollution Discharge Elimination System (NPDES) permit (Order No. 99-06-DWQ) to Caltrans. The statewide permit is intended to cover all municipal storm water activities by Caltrans in California, both in areas that require a Small Municipal Separate Storm Sewer System permit (an MS4 permit) and areas that do not currently require a permit. One of the components in the permit requires Caltrans to implement a statewide public education program.

One of the statewide NPDES permit requirements was for Caltrans to prepare and adopt a Storm Water Management Plan (SWMP). Caltrans adopted the current version of the SWMP in August 2001. The SWMP describes how Caltrans will manage storm water activities to ensure NPDES permit compliance. Section Six of the SWMP defines Training and Public Education activities for meeting the NPDES permit requirements.

Section Six in the Caltrans SWMP established a protocol for conducting public education throughout the state. Caltrans will comply with NPDES permit requirements by providing pertinent information regarding storm water quality to its employees, construction contractors and the general public. The Caltrans overall approach to public education uses a variety of written materials, monthly and quarterly bulletins, a web site, workshops, and the Caltrans Adopt-a-Highway Program. In addition, some Caltrans Districts have undertaken specific public education programs with local municipalities. However, prior to the current program, Caltrans did not have in place a statewide public education program focusing on the Caltrans Storm Water Program or pollution prevention source reduction.

Therefore, in the 2001 SWMP Caltrans proposed conducting a focused public education research study. The SWMP describes how Caltrans will initiate a public education research study to determine the effectiveness of public education in reducing highway litter. Litter was chosen as the focus of the study because it is perceived by Caltrans as the major highway pollutant that has the greatest potential to be reduced through the implementation of a public education program. In addition, highway litter issues are undergoing increasing scrutiny, as several Regional Water Quality Control Boards (RWQCBs) have begun to implement total daily maximum loads (TMDLs) for litter in water bodies throughout the state.

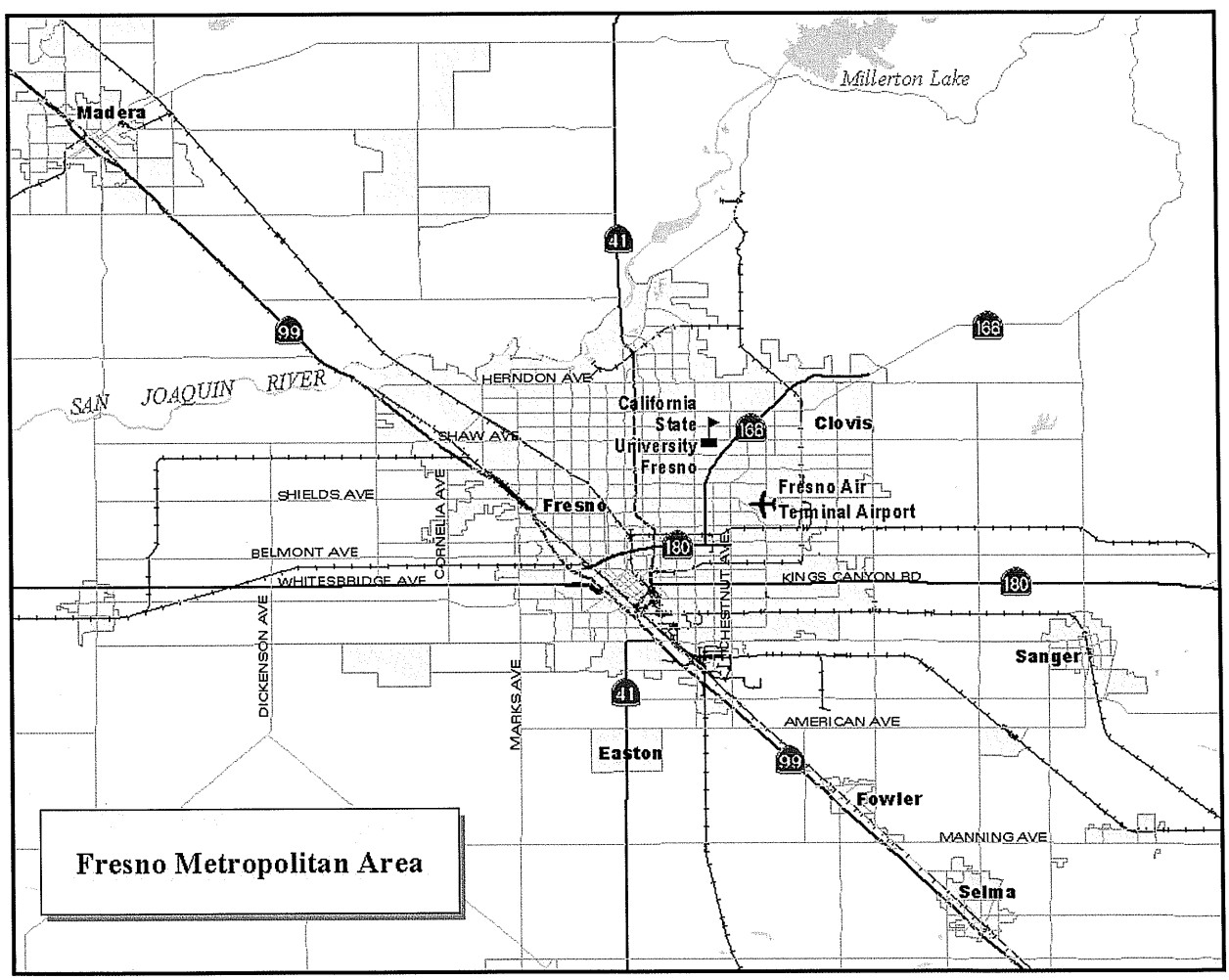
The SWMP describes a general schedule for the public education research study. During the first year of the research study (winter of 2000/01), highway litter baseline data would was collected. The SWMP identifies the focus of years two and three of the study

(Fiscal Years 2001/02 and 2002/03) as the development and implementation of methods to inform and educate the public on ways of reducing highway litter.

The SWMP also specifies that the results of the education campaign would be determined by directly measuring the reduction of litter at designated litter monitoring sites monitored during the first year (winter of 2000/01). Storm water monitoring had never been used in California to measure the success of a storm water public education program. Texas was the first state to measure the success of an anti-litter public education campaign by measuring the amount of litter reduced along the highway. In addition to measuring the reduction of litter due to public education, the SWMP calls for a public opinion survey to determine if the public reports changing their litter behavior on highways.

As part of the compliance requirements for the NPDES permit Caltrans submitted to the SWRCB a Plan for the Development of a Public Education Program. On September 5, 2001, the SWRCB approved the departments Plan for the Development of a Public Education Program. This plan was used as a guide to develop the tasks that were undertaken to complete the Public Education Research Study.

The Fresno Metropolitan Area (FMA) was selected as the location for this research study because it is seen as a definable area with a stable population that is not heavily influenced by outside sources, as is the case in most other major metropolitan areas in California. It was anticipated that this well-defined study area would allow the public education methods to be better focused and analyzed. The FMA is defined as the greater Fresno area and includes the cities of Fresno, Clovis, Fowler, Sanger, and Selena (see figure below).



Three-Year Study

Caltrans has conducted several studies to assess the effectiveness of structural and non-structural BMPs for reducing litter. However, Caltrans had not previously studied the effectiveness of public education as a BMP. A Public Education Research Study (PERS) was developed to assess the effectiveness of a public education campaign in reducing litter in storm water runoff from Fresno highways. The study was designed to measure the success of a targeted two-year public education campaign by looking at both traditional evaluation methods (public opinion polls, surveys, etc.) and end-of-pipe storm water monitoring techniques. A key issue facing most agencies conducting storm water public education programs is how to evaluate the effectiveness of public education as one component of an agency's BMP program.

PERS was developed to assess the effectiveness of a public education campaign in reducing litter in storm water runoff from Fresno highways.

The first step undertaken by Caltrans was to develop the PERS campaign implementation strategy and obtain approval from the SWRCB. The implementation plan outlined how Caltrans would first conduct one year of storm water monitoring followed by two years of public education. Storm water monitoring and baseline and post public opinion polls would determine if the public education campaign had been successful.

The Caltrans PERS was initiated with the Public Education Litter Monitoring Study (PELMS). During the 2000-2001 rain season, storm water litter data was collected at designated Caltrans highway sites in Fresno and Stockton, California. The purpose of the PELMS was to provide baseline data to be used by the PERS.

The public education portion of the research study began with an intensive research effort to define the target audience. After the target audience was confirmed, the research team developed targeted program messages and strategies for testing these messages. The research team also developed a strategic plan to best disseminate the selected messages. The first year of the public education program was rolled out with a mass media campaign in February 2002. The second year continued with a focused mass media campaign and expanded to include community outreach at public events, additional corporate partnerships and additional government partnerships.

This report summarizes the results of the three-year public education research study along with recommendations by the research team on how to implement a statewide storm water public education program to meet the requirements of the statewide permit.

1.1 Organization Of This Document

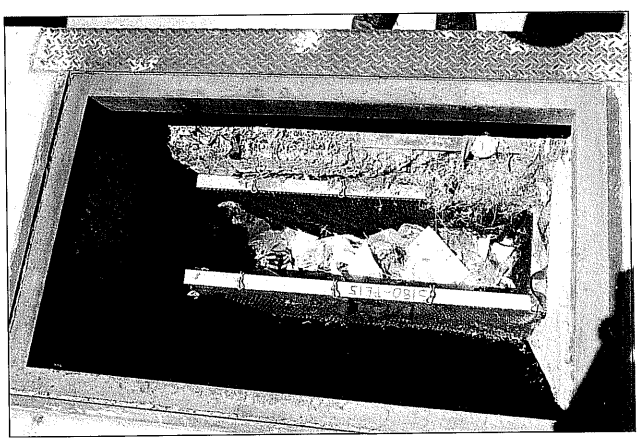
The remainder of **Section 1** of this document describes in detail all of the research that was conducted prior to developing the PERS campaign messages and themes. **Section 2** describes how the research was analyzed and used to develop the program theme and messages. **Section 3** discusses program implementation and the tools used throughout the two years of public education to deliver the "Don't Trash Fresno" campaign message to the target audience. This section also includes the number of people reached by the campaign, materials distributed and impressions made by each tool. **Section 4** evaluates the overall program. This section reviews why monitoring was terminated as one of the program's initial evaluation elements, and how the team looked for alternative methods to measure the amount of litter that had been reduced as a result of the program. This section also presents the results of the program evaluation measurement tools. **Section 5** identifies important acknowledgments and program awards received over the past two years. Program conclusions and recommendations are discussed in **Section 6**. Based on the results of the program, recommendations are made on how the program should be modified and/or expanded.

1.2 Program Research

As discussed above, Caltrans has spent several years studying the effectiveness of various prescribed or commonly accepted BMPs to determine if they actually reduce storm water pollution or prevent impairments to water quality. All of these studies consisted of robust scientific research that either supported or did not support the statewide implementation of the proposed BMP. The goal of this public education research study was the same.

For more than a decade, storm water public education campaigns have been touting the usefulness of public education as a cost effective means of reducing storm water pollution. In fact, the California SWRCB and nine RWQCBs have been including public education as a key element of the agencies' NPDES permits since the early 1990s. However, no program in California has been able to show that water quality has been improved as a result of these public education campaigns. One of the main reasons for this is because unlike an engineered BMP, which removes a pollutant before it enters the storm drain system or water body, public education starts at the root of the problem. It attempts to influence people to stop polluting so the pollutant will not have to be removed from the system.

The process of getting people to stop doing one thing and start doing another is termed "behavioral change." Public education campaigns have been trying to change people's behavior for many decades. Examples of well-known programs include "Keep America Beautiful," the recycling movement and getting people to wear seat belts. However, unlike a recycling campaign where you give a person a container and tell them to put paper, plastic and aluminum in it, there is no one tangible item that directly relates to keeping storm water pollution free.



Example of a highway litter monitoring basin

Therefore, the strategy that storm water public education campaigns have used to demonstrate that their programs were successful has been by using public opinion polls. Public opinion polls are a quantitative scientific technique that uses a representative sample of the target audience to test knowledge about an issue. The poll also asks other questions that public relations professionals use to develop public education campaigns. To determine if a public education program is successful, a baseline survey is conducted and then compared at a later date with a survey using the same questions. If poll respondents report being more aware of the program, program messages, and program concepts, the program assumes an increase in awareness and that people are changing their actions and are not doing what they used to do. While this is a scientifically accepted method of determining behavioral change, positive poll responses are not a confirmation that water quality is being improved.

Therefore, to assess if the Caltrans public education BMP was successful in improving water quality, a component of storm water monitoring (PELMS program) was incorporated. In addition to litter monitoring quantitative scientific measurement, public opinion polls and other baseline quantitative and qualitative research was conducted for the research study. Research was conducted prior to developing the public education campaign to not only establish a baseline of existing litter within the Caltrans storm drain system and a baseline of existing littering behavior and attitudes, but also to help identify the target audience for the campaign.

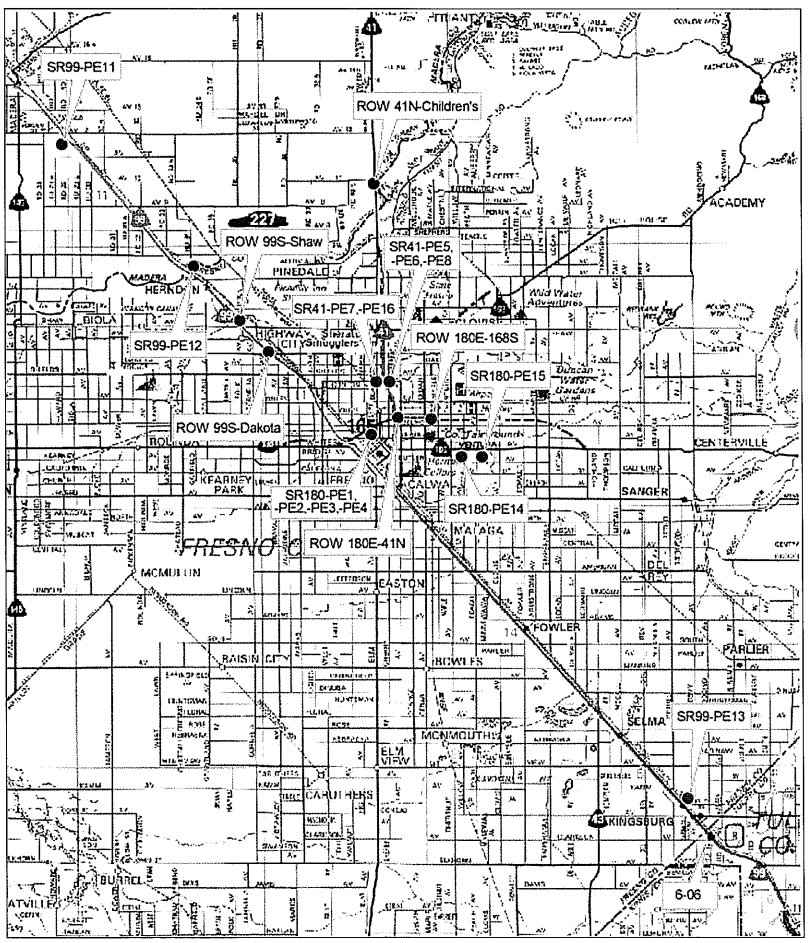
In addition, program research after implementation of the campaign included a component to assess why and how the program was working so that the research could continue to help in the refinement and improvement of the program. Other anecdotal, qualitative and quantitative measurements were implemented throughout the study to assess the

effectiveness of the program among specific audiences. These overall program assessments are discussed in detail in Section 4.

1.2.1 Litter Monitoring

The Public Education Litter Monitoring Study, or PELMS, was initiated in July 2000 to establish storm water litter monitoring sites in Fresno and collect storm water litter data prior to and after implementation of the PERS. Storm water litter monitoring was conducted at 14 sites in Fresno and two sites on Interstate (I) 5 in Stockton. The 14 Fresno sites consisted of four sites on State Route (SR) 41, four sites on SR180, four sites on SR99, and two sites on Old Highway 180 (See figure below). The Old Highway 180 sites monitored runoff that enters curb inlets on a Caltrans surface street. The remaining 12 sites monitored freeway runoff at fill-slope outfalls or standard taper entrances from at-grade freeway sections. The SR41, SR180, and I5 sites were installed in October 2000 and were monitored for the entire rain season, October 2000 through April 2001 (12 events in Fresno and 13 events in Stockton). The SR99 and Old Highway 180 sites were added to the program in December 2000 and January 2001, and between eight and ten of the 12 Fresno storms were monitored during the 2000/2001 rain season. All 16 sites were monitored throughout the 2000/2001 rain season. The Stockton sites were included in the program to assess seasonable variability without influence of the monitoring programs.

Litter monitoring was conducted by attaching 5-mm (¼-inch) mesh collection bags to study outfalls or curb inlet monitoring devices. Precipitation data was collected at two Fresno sites and near the Stockton sites. Flow data was collected at two Fresno sites where chemical water quality samples were also collected to supplement the Caltrans Statewide Program. Litter collection nets were in-place at all times once a monitoring site was installed. This allowed the collection of samples resulting from incidental rain or nuisance flow for periods between monitored trigger storms. Litter samples were analyzed in accordance with the Caltrans Standard Litter Laboratory Analysis Method (CTSW-RT-00-025).



Location of storm water monitoring sites in Fresno Metropolitan Area

The Caltrans PELMS defined litter in storm water as manufactured items made from paper, plastic, cardboard, glass, metal, etc. that can be retained by 5-mm (1/4-inch) mesh. This definition does not include materials that are of natural origin (i.e., sand, soil, gravel, vegetation, etc.). Samples collected during storm water litter monitoring are considered gross pollutants, which consist of co-mingled litter and vegetation.

The monitoring element and outcomes of the PERS are discussed in detail in Section 4.4.

1.2.2 Literature Review

To help gain a better understanding of the lessons learned by other anti-litter and pollution prevention public education campaigns, the PERS team conducted a literature review. The literature review researched the most effective methods used by other agencies to reduce polluting behavior. This research reviewed a variety of litter programs that had either been conducted or were currently ongoing within the FMA, the City of Stockton, the state of California and other states, the federal government, and in locations around the world.

The literature search was conducted by using computer searches to identify potentially useful articles and reports. This resulted in approximately 80 references that were evaluated and four follow-up telephone interviews. A summary of the sources utilized in this search was provided in the Public Education Research Study Literature Review (CTSW-RT-01-045, August 2001). The following is a brief summary of the Literature Review's findings.

Each article or report was evaluated against the following three questions:

- What were the objectives of the study/report?
- What were the conclusions and recommendations?
- Were there any public education elements in the study?

The results of this literature review indicated that, in general, highway litter is a worldwide problem. A majority of states have reported that people tend to litter if (1) litter already exists; (2) they feel no connection with the community; or (3) they feel that others are hired for the sole purpose of cleaning up their mess. Litterers are predominantly single males in their teens and 20s.

Regarding types of litter, the Texas Department of Transportation reported that cigarette butts are the most commonly littered item, making up half of all roadside litter. The Cigarette Litter Organization also considers cigarettes to be the most littered item in America. Furthermore, the Clean Virginia Waterways organization reports that every year during the International Coastal Cleanup, cigarette butts top the list as the most abundant item collected.
The most effective public education campaigns utilized billboards, radio, television, and web sites as the key sources of pollution prevention information for the general public. Other communication tools, including public service announcements (PSAs), entertainment industry tie-ins, and corporate partnerships were also successful when used in conjunction with these other key communication sources. In addition, research found that support from public agencies such as the California Highway Patrol, Flood Control Districts and local municipalities proved to be useful in enforcing and relaying the pollution prevention message.

The most effective public education campaigns utilized billboards, radio, television, and web sites as the key sources of pollution prevention information for the general public.

1.2.3 Public Opinion Baseline Survey

The objective of the Public Opinion Baseline Survey was to quantitatively measure the community's level of awareness and perception of the critical impacts of polluting on public property, and the community's understanding of how littering affects the public storm water system. The survey studied the public's basic understanding of how litter affects Caltrans, and the methods that would encourage people to stop littering. The primary purpose of the survey was to serve as a baseline measure of awareness, attitudes, and behaviors relative to littering on roadways and highways.

A telephone survey of 804 residents was completed in August 2001. The survey consisted of 400 English-speaking and 404 Spanish-speaking randomly selected residents within the FMA. The survey was implemented between July 9 and July 26, 2001.

The following is a brief summary of the results from the survey. For detailed results, please refer to Survey of Fresno Area Residents Concerning Litter (CTSW-RT-01-046, July 2001).

- **Extent to Which Litter Is a Problem in the Greater Fresno Area** – Close to half of English respondents (46 percent) thought litter was a major problem in the greater Fresno area. The comparable figure for Spanish respondents was 58 percent.

- **Legality of Littering Roadways and Highways and Associated Fine** – Virtually all respondents in both samples (97 percent of the English sample and 95 percent of the Spanish sample) knew that it is illegal to litter the roadways and highways. Of these, more than a third of English respondents (37 percent) knew the fine for littering roadways and highways is $1,000. The parallel figure for Spanish respondents was 17 percent.

- **Number One Item of Litter Along Roadways and Highways** – Nine in ten English respondents (90 percent) and virtually all Spanish respondents (98 percent) thought the number one item of litter found along roadways and highways is something other than cigarette butts. Of these, close to half of English respondents (47 percent) and somewhat more than half of Spanish respondents (54 percent) were surprised to find out that the number one item is cigarette butts.

- **Litter, Storm Drains and Water Pollution** – Close to three-quarters of English respondents (73 percent) said they were aware that litter from roadways and highways goes into the storm drain system. The comparable figure for Spanish respondents was two-thirds (67 percent). Both groups knew that storm water has a major effect on water pollution.

- **Frequency of Littering** – Around a third of English respondents (34 percent) said people they know never litter by throwing trash or cigarettes out their car windows. In addition, a quarter (25 percent) said they rarely litter themselves. In contrast, close to one in five (18 percent) said that people they know often litter this way. In contrast, Spanish respondents said about a quarter (26 percent) of the people they know never litter from their cars and 15 percent said they rarely litter themselves. More than one in five said the people they know often litter this way.

The survey also confirmed the best approach to reaching the target audience, which helped to determine the effectiveness of various strategies of outreach within the FMA. The following information was gathered:

- Respondents would be less likely to litter if they had litter bags in their vehicles and if "easy-to-reach" trashcans were located at fast food drive-throughs and in parking lots.

- Respondents get their information from the television, newspaper, radio, at public events, and in schools.

And finally, the survey helped to better define the specific target audience in the FMA. The research found that the English and Spanish respondents don't necessarily agree on every point or have the same understanding of the issue. Given these findings, it was determined that Caltrans should develop not one but two campaigns: one for those who speak English (including Hispanics), and one for those who prefer or whose only language is Spanish. In this regard, the analysis should probably be of primary consideration, which suggests that English respondents are stronger in knowledge and positive behaviors while Spanish respondents are stronger in positive attitudes.

1.2.4 Trash Reduction Strategy

The PELMS analyzed litter collected in the storm drains and assessed the litter along the highway to determine if there are specific types of litter or if litter varies by highway in the FMA. As part of the PELMS program, litter was quantified by weight, volume, and location.

While the study could not determine the actual source of the litter, it was able to determine what type of person was doing the littering by identifying the most commonly collected items (i.e., cigarette butts, fast food wrappers, etc.). For example, cigarette butts found in the samples can be correlated to people who smoke. This study was done to further define the target audience for the campaign.

The study reviewed the collected litter data and storm event photos taken during the initial year of monitoring and presented a characterization and assessment of the data. Researchers also chose five photo points within the highway right-of-way (ROW) in the FMA to assess the types and quantities of litter that did not make it into the storm drain system to supplement the Fresno monitoring sites. Some general determinations could be made initially after reviewing the summarized data. Cigarette butts, plastic, and paper appeared to be the main components of litter at all of the sites. Therefore, cigarette smokers were determined to be a significant target audience of the PERS campaign. This is consistent with what was found in other campaigns throughout the country.

The other two most predominant types of litter were paper and plastic. It was difficult to associate this litter with any given source; therefore, it was assumed that the litter could come from either intentional or unintentional litterers (the concept of intentional and unintentional litterers is further discussed in Section 2).

Photos taken at the litter monitoring collection sites displayed the type of litter occurring throughout the entire ROW, whereas the litter collected from the monitoring site storm drains only captured the litter that actually landed in specific locations within the storm drain system. The four items found along the ROW were candy and/or gum wrappers, fast food wrappers, and cups, plastic, and paper. This evidence suggests the main litter source within the ROW were people throwing litter from their vehicle, either intentionally or unintentionally, as opposed to litter coming from the beds of uncovered trucks.

For specific details regarding this litter analysis, refer to the Preliminary Litter Characterization and Assessment for the Public Education Research Study (URS, September 2001).

1.2.5 Research Conclusions

The research conducted prior to the development of the PERS program was crucial to the research study's success by not only providing a better understanding of the current state of similar public education campaigns, but also by creating a baseline measure to assess the success of the study when completed. The research documented what other agencies had done successfully, better defined the target audience, and determined the types of litter within the ROW and the quantities of litter in the storm drain system. Research found that other agencies were most successful when they used television public service announcements, corporate sponsorships, and entertainment industry tie-ins as ways to influence behavioral change. The target audience for this program was determined to be consistent with the target audience for similar programs: namely single people ages 18 to 34, both males and females. The research also concluded that the predominantly littered item is cigarette butts, followed by candy wrappers and other plastic and paper. As a result of these research efforts, the focus areas of the program were determined.

2.0 PROGRAM DEVELOPMENT

Storm water public education programs in California have been underway since the early 1990s. What has been learned during this time is that in general people will act responsibly if they are aware of the problem and given the necessary facts about the problem along with simple ways to change their behavior. This section discusses the approach that this campaign took to develop messages, and the plan to deliver those messages to a specified target audience in order to increase awareness and change people's littering behavior.

The target audience for the Caltrans PERS was single 18- to 24-year-old men and women, with an overlap for people ages 25 to 34.

The first aspect of developing an approach to changing people's behavior is to determine whose behavior you are trying to change (the target audience). Once the target audience is defined, an appropriate communications program can be developed, which includes message development, strategy, and tactics that will best support the overall program objectives.

The remainder of this section describes the components of the communications plan for the PERS. Section 2.1 describes the process used to define the target audience. Section 2.2 describes the goals of the public education campaign. Section 2.3 describes the process that was used to develop the communications program, and Section 2.4 describes how the program messages were tested within the target audience.

2.1 Target Audience

In order for a public education campaign to be effective, it must change the behavior of the correct audience. It is important to note some segments of the population pose a greater threat to storm water pollution than other segments. Various forms of scientific research are used to determine the target audience. In 1997, Los Angeles County conducted an intensive study called a segmentation study to determine which segments of the County posed the greatest threat to storm water pollution. While this study was specific to Los Angeles County, the segments that were identified as the most promising in terms of allocating public education resources are similar to the target audience for the Caltrans PERS – namely, single 18 to 24-year-old men and women, with an overlap for people ages 25 to 34.

To produce a measurable change in public awareness and behavior change concerning storm water quality issues, the public education/information strategy must prioritize communication with broad audiences on a repeated basis with simple, clear messages. The research analysis discussed in Section 1 was the basis for defining whom the program should target to create the most change and in turn reduce the amount of highway litter. The research found that in the FMA, those who reported knowing someone who litters or who themselves admit to littering are typically 18 to 34 years old, both male and female. However, there are no statistically significant differences between litterers and non-litterers in terms of race, education, or household income.

Perhaps the most interesting findings from the research conducted concerned the differences between English and Spanish audiences. In the first place, there were only four areas in which the two groups were generally in agreement:

- Both groups were overwhelmingly aware that littering from cars was illegal.
- About equal proportions of both groups were aware that litter winds up in highway storm drains.
- Strong majorities of both groups believed the contents of storm drains have a major effect on water pollution.
- Both groups tend not to feel that the provision of information would deter people from littering from their cars.

In the second place, neither group consistently reported the knowledge, attitudes and behaviors a promotional campaign would be designed to achieve. The research identified messages that should be used for the English-speaking audience to increase awareness and invoke behavioral change, including the following:

- Knowing what the fine is for littering from a car
- Knowing what the number one item of litter is
- Knowing where the contents of storm drains go

Messages that would increase awareness and invoke the Spanish-speaking audience to change their behavior and attitudes were as follows:

- Believing litter is a major problem
- Believing litter looks bad
- Believing litter has a major effect on health
- Tending to believe that various strategies for deterring littering from cars could help
- Believing that messages from various information sources could help

Given these findings, it was clear that the public education campaign would have to develop not one but two campaigns: one for those who speak English (including Latinos), and one for those whose preferred or whose only language is Spanish. Of primary consideration in this regard were the above comparisons, which suggested that English respondents were stronger in knowledge and positive behaviors while Spanish respondents were stronger in positive attitudes.

Also worth noting are the striking demographic differences between the two groups. Spanish respondents were noticeably younger, less educated and less affluent than English respondents. This finding in turn suggests not only a different content for the two campaigns, but also a different style or tone.

In addition to the two languages, the research also identified two other target audiences: intentional and unintentional litterers. Intentional litterers are those people who willingly toss litter out of car windows knowing that it is illegal. The Los Angeles segmentation study termed this group as "Rubbish Rebels." While "Rubbish Rebels" only account for a small percent of the population, they account for a large percent of the pollution generated. Therefore, targeting this smaller audience could have a greater impact overall on pollution than targeting other polluters. To reach this audience, the PERS team would have to create program materials that would grab the attention of predominantly single males between the ages of 18 to 25.

Unintentional litterers are those people who unknowingly litter. Generally with this group, informing them that they are littering will change their behavior. One segment of this group specific to the Fresno area is garbage haulers whose loads or trucks are not properly covered. The highway off-ramps that serve the two local landfills contain more litter than do other off-ramps. While visually surveying these areas, it was easily determined that the cause of the excess litter at these off-ramps was trucks whose loads were not properly covered or trucks which were covered, but with tarps that had holes. A focused message delivered to this specific audience informing them of the laws requiring trucks to be covered would help to educate this segment of the unintentional litterer subgroup.

Both intentional and unintentional litterers were a focus... messages would focus on single males in their teens and 20s with an "edgy" message to grab their attention and make it "cool or hip" to change their behavior toward littering.

Given all of these research findings, the program determined to target the following audiences:

- Single 18- to 24-year-old men and women, with an overlap for people aged 25 to 34. Separate program messages would be targeted to the English-speaking and Spanish-speaking audiences.

- There was no need to publicize the illegality of littering since the survey showed a high level of awareness in this regard; however, the campaign determined that it would publicize the punishment or fine for littering for both English-speaking and Spanish-speaking audiences.

- Since the English audience would respond to knowing what the number one littered item was and the Spanish audience would respond to what looked bad and had major health effects, the campaign would promote knowledge of the number one littered item: cigarette butts.

- Because there was already a high level of awareness that litter goes into the storm drain system, the campaign capitalized on this in terms of an incentive, especially among Spanish speakers.

- Both intentional and unintentional litterers were a focus, but with specific messages targeted to both audiences. Intentional litter messages would focus on single males in their teens and 20s with an "edgy" message to grab their attention and make it "cool or hip" to change their behavior toward littering. Unintentional litter messages would focus on tying down loads properly and carrying a litterbag in the car to dispose of litter.

English Speaking Members of the General Public

Certain media, including radio and television, sell time based on demographics, making it necessary to identify target audiences by age, gender, and location. For radio and television, demographics are used to select the programming and stations that deliver to the most appropriate broadest audience for the resources allocated to the effort. For PERS the audience was broken down into primary and secondary audiences:

- Primary audience: Men and women, ages 18 to 24
- Secondary audience: Men and women, ages 25 and older

One of the largest audiences to be reached included single males and females ages 18 to 24. There is less homeownership among the 18 to 24 group, but they litter the most and participate in other activities that present sources of storm water pollution.

The secondary audience was the English speaking general public 25 to 34 years of age. This group was important because of its size and the level of use of substances (pollutants) determined to pose particular risks to water quality in the Fresno area and throughout California. Within this demographic, most homeowners and the driving public can be targeted.

Studies on pollution prevention attitudinal change indicate that women in general feel more intensely about environmental issues and concerns. For this reason, they play an important role in motivating behavior change by influencing those around them. When appropriate for teaching a proper disposal practice, the primary demographic target would be adult women 25 and older.

A combination of media was selected for both years of the campaign based on each medium's ability to deliver messages to all or targeted segments of the general public in a cost-effective and message-appropriate manner.

Non-English Speaking Members of the General Public

Within the state of California there are many residents who do not speak English as a primary language. The PERS campaign only focused on the Spanish-speaking members of the Fresno area, since research showed that within the Fresno area Spanish speakers had a greater tendency to litter more frequently than did members of other non-English speaking groups.

Research showed that the Spanish-speaking community looks for messages through Spanish language radio, television, signage, and one-on-one communication. The Latino communities can be looked at more closely by identifying generation. In general, the communities are made up of three generations, each having a different degree of assimilation into Californian culture. The most effective way to reach these three population segments is to provide messages in Spanish through Spanish radio, television, and one-on-one communication in schools and at community events.

While the Southeast Asian community is another key demographic in the Fresno area, it was not a target audience for the research study. If Caltrans determines to take the "Don't Trash California" program statewide, messages to the Southeast Asian community will need to be developed. There are many Southeast Asian languages that Caltrans will have to accommodate when developing and deploying a "Don't Trash California" statewide campaign. The Southeast Asian community is much different from the Latino communities in California as they are newer to California and are not as trusting. It is important to gain the trust of Southeast Asian elders who make decisions for their communities. This can be done effectively through one-on-one communication and message delivery through radio and signage.

Media

The media representatives are considered to be an audience because of the important role they play in disseminating program messages for the research study, particularly in news coverage of events and related stories. This group, prioritized in general categories below, includes representatives from the following:

- Television stations
- Local cable stations
- Radio stations
- Local print media

2.2 Goals

While the overall goal of the research study was to show a reduction in the amount of litter along Fresno area highways, specific outreach goals were developed so that they could also be measured to determine overall program effectiveness. The campaign goals were to achieve the following by the end of the research study:

- Evaluate if there was a decrease in the amount of litter in the Caltrans highway storm drain system included in the Fresno litter monitoring study
- Increase awareness about the fine associated with litter law enforcement
- Increase awareness that a cigarette butt thrown from a moving vehicle is against the law; cigarette butts pollute and they are the leading littered item found along our highways
- Begin to change the polluting habits and awareness of the consequences of polluting public property

Based on the analysis of our public opinion poll, literature review, and target audience, it was determined that the most effective public education program would be one that incorporated the following:

- Separate strategies for English and Spanish speaking audiences; encouraging English speakers to change their behaviors while encouraging Spanish speakers to raise their awareness and change their attitudes
- Focus on cigarette butts, the $1,000 fine for littering, and health issues in addition to general "don't litter" messages
- Keep messages about polluting (littering) generic to include the entire Fresno Metropolitan Area, as opposed to focusing on storm water litter only
- Remain cost effective through narrow targeting, messaging, and strategy
- Account for the potential for unintentional and pass-through driver littering

- Take advantage of existing storm water public education programs, community enthusiasm, and partnerships to increase our resources available for dollar added value to increase dissemination of our message

2.3 Developing the Campaign Messages

The approach used by the research team to develop the communications program was to produce messages specific to each target audience described above. However, an overarching theme was first developed to give the different program messages and components a uniform look, tone, and feel. Other considerations included:

- Although Caltrans' objective was to determine the effectiveness of public education on reducing litter found in the storm drain system, it was unlikely that people who litter would know the difference between litter in the storm drain and litter than ends up in the right-of-way.

- A certain amount of the litter is unintentional, and some of the litter certainly comes from pass-through drivers as opposed to Fresno area residents.

- Isolating the direct effect that this particular public education program could have on behavior was improbable at best, given the effect that other influences out of Caltrans' control have on people in the Fresno area. These other influences could include other litter or pollution campaigns, neither of which was measurable with any certainty.

While the PERS focused on the Fresno area, the research team was aware that in the event that the program was taken statewide, the program's "anti-litter" theme and messages would have to be easily adaptable to a statewide venue. Therefore, the theme would have to be applicable to all residents of California. Lastly, while the PERS public education campaign was concentrating on litter, it was recognized that the overall issue of pollution prevention source reduction is the broader issue for Caltrans to meet the requirements of the statewide NPDES permit and SWMP.

Given these other considerations, the research team conducted several brainstorming meetings to come up with themes for the overall public education campaign. The first round of brainstorming did not limit any ideas, with the main purpose being to put ideas "on the table" for further discussion later. The second and third rounds of brainstorming refined the ideas suggested in the first round, with the goal that any idea would not exclude any part of the research study's target audience. At the end of the third round of brainstorming, the research team had three themes that did not exclude any part of the target audience and were believed to meet the goals of the campaign.

The next step was to take the three themes and attach a visual element. Since the research team knew, based on the research described in Section 1, that billboards would be one of the key elements of the media advertising campaign, billboards were used to further develop the three messages. Once the research team was confident with the look and tone of each billboard concept, the themes and visual elements were tested with a representative group of the target audience.

The research team conducted intercept interviews with visitors to the Big Fresno Fair, which is one of the biggest community events held each year in Fresno. Interviewees were asked to look at several billboard concepts and answer a series of questions. The questions were used to evaluate whether the intended

Billboard concepts being tested at the Big Fresno Fair

message was the one that was perceived by the viewer. For the research study, the intercept interviews were conducted during two days of the Big Fresno Fair.

In order to ensure that the target audiences were the primary participants in the intercept interviews, partnerships with Fresno radio stations Star 101 (adult contemporary) and Super Q (Spanish language) were developed. The radio stations attracted people to the booths where the creative concepts were displayed and the feedback was solicited from fair-goers. Hence, both English-language and Spanish-language messages were tested. Public relations students from California State University, Fresno conducted the informal polling in English and a bilingual professional interviewer conducted Spanish language interviews during the "Big Fresno Fiesta" day.

Over the two-day period, 218 interviews were completed, including 171 in English and 47 in Spanish. The English-language sample group was relatively balanced in terms of gender (91 female, 80 male), while the Spanish-language group was weighted more heavily with females (31 female, 16 male).

The findings from the intercept interviews clearly demonstrated that the "Don't Trash Fresno" concept visually represents the anti-litter message to Fresno area residents. The next step was developing the theme further with additional photos that clearly showed the different aspects of highway litter.

After the theme was completed and tested, the next step was to develop a communications plan, which would describe all of the different media outlets and other venues that would be used to disseminate the program messages. The communication plan took into account all of the research, which defined how other programs had successfully changed other target audiences' behavior, effectiveness of various information sources in Fresno, differences between English-speaking and Spanish-speaking audiences, and intentional and unintentional litterers.

The communications plan described how paid media would be used along with other strategies to deliver focused messages to the target audience. The communications plan described how paid media was used to focus messages while local news outlets would be used to keep information in front of the community. The plan described how program messages would be developed in English and Spanish to be effective with both target audiences. It also showed how partnerships would be developed to establish credibility and expand the impact of the program. The plan also discussed how outreach and information materials would be developed and distributed at public events to reinforce the campaign goals.

The plan that was developed for the first year of the public education campaign included the following components:

- **Traffic Radio Advertisements** – This 10-second live read format proceeds or follows traffic reports. Traffic in Fresno occurs during morning and afternoon drive times; therefore, these "traffic tag" commercials were planned to run during this time of day, when the volume of radio listeners is highest.

- **60-second Radio Advertisements** – The strategy was to encompass all times of the day to ensure a strong reach for the target audience. The advertisements were scheduled to reach 60 percent of adults 18-24 an average of 15 times during a six-week period. During one 12-week summer flight, the 60-second radio ads were scheduled to reach 70 percent of adults 18-24 an average of 25 times.

- **Outdoor Billboards** – The strategy was to use two large illuminated 14 x 48 boards to cover the major thoroughfares in the Fresno area and supplement these with 10 additional 10 x 30 boards located in areas with a high density of potential offenders. The locations were concentrated in the high-density areas for adults 18-24.

- **Pump Toppers** – Located on top of gasoline station pumps, these messages reached drivers when they were near a trash can to remind them to remove litter from their car and dispose it properly.

- **Television PSAs** – Since the 60-second radio advertisements had been received by the target audience with great enthusiasm, the PERS team developed an English and Spanish public service announcement "bringing the radio ads to life."

- **Web Site** – A web site was developed to provide overall information and details on the PERS program. The content included a program overview, summaries of research conducted, samples of all campaign materials, anti-litter tips, a media kit, endorsements and awards, a kids page, and information on community partnerships and links. Key information has been made available in Spanish translations.

- **Public Events** – To reinforce the messages being delivered through the media, the PERS program sponsored several public events to distribute more detailed information to the target audience, teaching simple ways to stop from intentionally or unintentionally littering the highway.

- **Sports Team Sponsorships** – Given the target audience, disseminating program messages and material at sporting events was determined to be a good way to reinforce the messages of the paid media advertisements. During the first year of the program, the PERS program was approached by the Fresno Grizzlies Triple A baseball team to become a major sponsor of the Fresno Grizzlies Stadium, which had just opened.

The combined reach of the first year of the public education campaign was 93 percent of adults 18-24, with an average impression rate of 90 times. Each of the above elements of the program is discussed in more detail in Section 3.

At the beginning of the second year of the campaign, strategies were reevaluated to ensure the best possible results. Some minor changes were made in the second year to better reach the target audience; this is also discussed in Section 3.

"Don't Trash Fresno" vs. "Don't Trash California"

While the "Don't Trash Fresno" theme was specifically targeted to the Fresno area, this theme was designed so that it could easily be directed to other target areas (e.g., "Don't Trash California," "Don't Trash the Beach," or "Don't Trash the Bay Area"). In other words, the overall theme was developed so that it could be used statewide. For effectiveness, some program materials were developed with the "Don't Trash California" theme to achieve greater exposure. For

example, the "Don't Trash California" theme was chosen versus "Don't Trash Fresno" for the television public service announcement, because television has fewer boundaries than print, outdoor advertising, or even radio. For example, people in Modesto who watch Fresno-based television, but do not associate with Fresno, will not tune out the "Don't Trash California" message. Details on the items developed using the "Don't Trash California" theme are discussed in Section 3.

3.0 PROGRAM IMPLEMENTATION

The following is a summary of the tools that were used throughout the two-year public education campaign to deliver the "Don't Trash Fresno" and "Don't Trash California" messages to the target audience. Each subsection describes the number of people reached, materials used to deliver the specific message, and impressions made by each tool.

3.1 PERS Outreach and Information Materials

One of the key objectives of the "Don't Trash Fresno" program was to develop, create and distribute consumer education materials to the public and the target audiences to increase awareness of storm water pollution prevention to reduce highway litter in storm drains. The PERS Team produced the collateral material discussed below to support the "Don't Trash Fresno" program (Table 3.1-1). As mentioned previously, some of the materials were developed using the "Don't Trash California" slogan, so that these materials could be distributed to a broader audience range.

These program educational materials supported the mass media portion of the campaign by providing more information to the target audience on the consequences of highway littering and on the simple things people can do to decrease the amount of litter.

3.2 Partnership Building

A main tactic of the Public Education Program was to establish a community responsibility link to engage the target community (FMA) in the Caltrans PERS. One of the strategies for engaging the community was establishing partnerships with community-based organizations with an interest in educating their constituents about storm water pollution prevention. Several partners came on board and were dedicated to helping spread program messages.

In order to build mutually beneficial community partnerships to help reach target audiences, the program: 1) identified the most appropriate individuals and organizations for outreach and set up meetings with them to discuss the PERS; 2) developed a PERS information presentation which provided an overview of the program; and 3) worked to establish a mutually beneficial relationship with partners.

Building community partnerships involved the preparation of materials to help communicate information about the research study. Materials produced included brochures, graphics and signage, and other public outreach materials.

Partnerships allowed the PERS program to leverage budget dollars and extend program reach with the support of the 16 organizations that came on board. Beginning in 2001, the PERS program formed the following community-based partnerships:

County Landfills

The two landfills associated with the FMA were identified as excellent locations for the program to reach a large population of the target audience. Trucks carrying materials to be deposited at the landfills are often unintentional litterers due to poorly covered loads and/or the often large amounts of trash/debris they transport. Therefore, the research team took photos of poorly covered loads and developed a "tip card" (both in English and Spanish) for distribution at the American Avenue Landfill and the Coalinga Disposal Site, both managed by the Fresno County Public Works Department. The tip card offers facts about the litter problem as well as simple tips to stop littering behavior. The landfills distribute the tip cards to all truck visitors.

Tree Fresno

Tree Fresno is a non-profit organization devoted to creating a naturally beautiful community by planting trees in the Fresno area. The organization's primary goals are to improve the environment by planting trees and educate the public about tree care. While Tree Fresno's constituents are not a primary target audience for the campaign, their work in the community presented a unique way to distribute program materials.

Table 3.1-1
PERS Outreach Materials

Outreach Material	Goal	Location	Amount Distributed
Postcards	To reach out to the target audience where they live, work, and play	197 Fresno area restaurants, bars, and retail outlets between 2002 and 2003	88,000
Coffee Sleeves	To promote the importance of properly discarding fast food packaging	5 coffee shops within the FMA	15,000
Bumper Stickers: "Pollution Free" "Don't Trash California" "Litter Bugs"	To support program messages and branding by increasing awareness of roadway storm drain pollution	Distributed stickers through community organizations and at public events	45,000
T-shirts: "Don't Trash Fresno"	Produced in English and Spanish to help promote program awareness	Distributed T-shirts at sports marketing events, public events, and via community organizations	3,250
Storm Water Display	To educate the general public about storm water and pollutants	Used at public events	Designed, developed and printed a four panel display
Environmental Engineering Display	To educate about the Caltrans Environmental Engineering Department's four areas, one of which is storm water	Used at trade shows	Designed, developed, and printed a four-panel display
Litter bags: Displayed "anti-litter" tips and corporate and media partner logos	Produced in English and Spanish to promote and encourage a behavioral change	Designed to attach to a car cigarette lighter and distributed via public events, community organizations, and in rental cars at the Fresno airport	107,000
Internal Brochure: "Reducing Litter in Storm Water," outlined PERS's goals and project schedule	To keep the general public and agencies appraised of PERS	Distributed to Caltrans employees in Traffic Operations, Environmental Programs, etc., and posted on the PERS program web site	5,000

Table 3.1-1 (continued)
PERS Outreach Materials

Outreach Material	Goal	Location	Amount Distributed
Tip Cards: Offers tips for preventing unintentional littering	To educate people, in English and Spanish, about securely covering truck loads	Distributed at two Fresno County area landfills, public events, and via community organizations	10,000
Megaphones: Displayed the "Pollution Free" and "Don't Trash Fresno" logos	To support the sports marketing efforts	Distributed at Fresno Grizzlies baseball games, Fresno Falcons hockey games, and via community partners	22,000
Business Cards: Produced for the lead Caltrans PERS program coordinator	"Pollution Free" and "Don't Trash California" logos on the cards helped to promote program awareness	Distributed at public events and to potential program sponsors	1,000
Pencils: Displayed program logos and web site address	Produced in English and Spanish to promote program awareness	Distributed at public events, through community partners, and as part of prize packages at sports games	10,000
Key Chains: Displayed program logos and web site address as well as litter prevention tips	Produced in English to promote program awareness	Distributed at public events and through community partners	5,000
Buttons: "Don't Trash Fresno"	Produced in English and Spanish to promote program awareness	Distributed at public events, through community partners, and in goody bags at sports games	6,000
Temporary Tattoos: "Don't Trash Fresno" "Litter Bugs" "Don't Trash California"	Produced in English to promote program awareness	Distributed at public events, through community partners, and in goody bags at sports games	10,000
Activity Book: Contained four children's exercises and a certificate of completion signed by Smith &Jones program characters	Produced in English and Spanish to help teach children about storm water pollution prevention	Distributed at public events and through community partners and posted on the web site	20,000

"Don't Trash Fresno" partnered with Tree Fresno to distribute program materials at their Run through the Trees, Tree Planting, Arbor Day, and Trade for Shade events, as well as their after school programs.

Through the various events, Tree Fresno distributed several hundred "Don't Trash Fresno" litter bags, postcards, stickers, pencils, and buttons, and the "Don't Trash Fresno" program provided T-shirts for Tree Fresno staff members. Tree Fresno is also featured as a program partner on the web site.

Boys and Girls Club of Fresno County

The mission of the Boys and Girls Club is to inspire and enable all young people, especially those from disadvantaged circumstances, to realize their full potential as productive, responsible, and caring citizens. The Boys and Girls Club was another organization whose members were not primary program targets; however, this partnership provided the research study with an outlet to distribute program materials to people who are younger than the target audience.

"Don't Trash Fresno" partnered with the Boys and Girls Club to distribute program materials at their character and leadership development events. At these events, 500 pencils, 500 buttons, and 1,000 tattoos were distributed. In addition, "Don't Trash California" program materials were distributed at a career day for the Boys and Girls Club of Santa Barbara. "Don't Trash Fresno" also hosted a group from the Boys and Girls Club at the March 22 Fresno Falcons game.

Highway 99 Beautification

The Highway 99 Beautification group is dedicated to improving all aspects of the Highway 99 corridor's appearance, including maintenance of existing landscaping, design ideas for new landscaping, potential funding sources for new landscaping projects, guidelines for private developments adjacent to the freeway, and guidelines of signage for properties adjacent to the freeway. The group was very supportive of the "Don't Trash Fresno" program and gave the PERS team their endorsement at the program launch in February 2001.

Highway 99 Beautification representatives provided their input on the PERS program in the initial stages of program development. Pete Esraelian, chairman of the Highway 99 Beautification, provided a quote for inclusion in the program launch event news release and was also a speaker at the "Don't Trash Fresno" program launch event on February 15, 2001.

Big Brothers/Big Sisters of Fresno

The mission of the Big Brothers/Big Sisters is to make a positive difference in the lives of children and youth, primarily through a professionally supported one-on-one relationship with a caring adult. Similar to the Boys and Girls Club, Big Brothers/Big Sisters provided the research study with an outlet to distribute program materials to people who are younger than the target audience.

"Bigs" and "Littles" enjoying a Fresno Grizzlies Game

"Don't Trash Fresno" hosted a group from the Big Brothers/Big Sisters at six Fresno Grizzlies games and distributed "goody bags" with "Don't Trash Fresno" collateral materials enclosed. The program hosted a total of 66 Big Brothers/Big Sisters at the six games between 2002 and 2003. "Don't Trash Fresno" supplied 50 each of program T-shirts, pencils, buttons, and tattoos for the organization's Kids with Character class, and the Big Brothers/Big Sisters are featured as

a partner on the program web site. This partner provided the research team with a unique opportunity to receive anecdotal feedback on the visibility of the program.

Keep California Beautiful

In coordination with the Keep California Beautiful program, the PERS research team helped to develop the Statewide Speakers' Bureau. The Bureau publicizes state officials and other appropriate experts available to make presentations to radio and television talk shows, local community organizations, civic groups, girls and boys clubs, schools, and other local organizations. "Don't Trash California" is promoted by the speakers of this Bureau. A stock presentation was developed along with a Question and Answer element, regarding the problem of litter/pollution on highways, waterways, beaches, and the ocean.

Announcements regarding the availability of speakers were sent to cities, local community groups, and organizations. A request to appear on talk shows was distributed to both print and broadcast media in cities throughout the state.

An education kit was also designed to raise awareness about the pollution problem in California in schools, colleges, universities, businesses, municipalities, local civic groups and organizations throughout the state. A 30-second PSA was produced featuring World Champion Surfer Sunny Garcia. The PSA was distributed statewide targeting coastal communities.

Slow for the Cone Zone

The PERS team participated in a cross-promotion with the Caltrans "Slow for the Cone Zone" campaign. Participating Clear Channel Radio stations in Los Angeles directed traffic to Unocal 76 stations to pick up a LA Traffic Guide presented by "Slow for the Cone Zone." A combined minimum of 200 promotional radio announcements included the "Slow for the Cone Zone" and "Don't Trash California" slogans. The cross-promotion printed 750,00 LA Traffic Guides featuring a print ad dedicated to "Don't Trash California" and the Cone Zone campaigns. Each of the 630 Unocal 76 stations also dedicated four double-sided pump topper ad panels to the promotion, directing customers inside for the LA Traffic Guide. A total of 2,500 two-sided pump topper ad panels were included.

The media value of this partnership is excellent, considering the LA Traffic Guides will be a long-lasting reference guide for Southern California commuters. This was an exceptional opportunity for the "Don't Trash California" campaign, as the media value of this promotion is 5.8 times its cost.

Partnerships Summary

The PERS program established partnerships with the above-targeted organizations to help spread program messages. Building partnerships "close to home" is a very important element to any successful public education campaign. The partnerships help to validate and reinforce awareness within a community. Through these partnerships, the program was able to distribute additional PERS program materials. The program was also included in several partner newsletters, further promoting the program messages.

3.3 K-6 Education Outreach

While elementary school children were not the main PERS program target audience, it was still important to reach out to teachers and students with our program messages through the following educational partnerships.

Newspapers in Education

"Don't Trash Fresno" partnered with *The Fresno Bee* Newspapers in Education (NIE) program to produce an educational supplement entitled "Talkin' Trash." The partnership consisted of four ads in the regular circulation of *The Fresno Bee*, with the "Don't Trash Fresno" logo, soliciting teachers to participate in the program. Each participating teacher/student received five deliveries of class sets of *The Fresno Bee* with the special supplement. The supplement focused on environmental issues and concerns that youth have about the Earth's future, and included a full-page "Don't Trash Fresno" ad on the back page.

The results of this outreach included three ads in the regular circulation of *The Fresno Bee* soliciting teachers to participate in the "Talkin' Trash" program. Approximately 250 teachers, each with an average of 30 students, participated in the program with an estimated total audience of 6,000 students.

The Discovery Center

The Discovery Center, Museum of Science and Natural History, is a hands-on science museum serving families, children, and teachers in the Fresno area. The Center includes five miles of exploration grounds, provides science field trips, classes, and science camps.

"Don't Trash Fresno" partnered with The Discovery Center to distribute program materials at their Saturday Science events. Through these Saturday events, 40 each of the "Don't Trash Fresno" pencils, buttons, tattoos, and stickers were distributed. The Discovery Center is also featured as a program partner on the web site.

3.4 Media

A media plan was developed for the PERS program in November 2001, which outlined the mass media approach. The plan described how the two best mediums for reaching litterers in their cars were through radio and outdoor billboards. A third recommendation for the away-from-home target was using pump toppers, installed at the gas pumps, directing drivers to toss their garbage in the bins located at the stations. In addition, a cable schedule was recommended to support the overall campaign. The plan also included a schedule for when each piece of the media campaign would be implemented. This media plan was updated for a second year in November 2002. The components of the media plan are described in detail in the following sections.

The challenge with the media campaign was developing a message that would hit the hard to reach age group demographic of 18 to 25 year olds who don't like to be preached to, but would also resonate with the 25 to 34 year olds. For the radio advertisements, two scientist characters, "Smith & Jones," were developed to meet this challenge and appeal to all audiences in a humorous yet educational manner. Smith & Jones turn the tables on litter offenders in a somewhat rebellious, yet entertaining way. In the advertisements, the litter offender is portrayed as "un-cool" and a bit of a "slacker" (not someone anyone would want to emulate) and the eccentric scientists are the ones who are "cool." Later, these characters were incorporated into the program web site, TV PSAs, and kid's activity books.

News Conference

A launch event for the "Don't Trash Fresno" public education campaign was held on Friday, February 15, 2002 at the Caltrans District 6 Office in Fresno. Local community leaders, government officials, and the media were invited to kick-off the regional effort to reduce litter and pollution. The purpose of having a news conference to announce the public education program was to gain free media through local television, radio, and news coverage.

Mike Leonardo, Director of Caltrans District 6; Captain George Fetters, California Highway Patrol; Pete Esraelian from the Beautification of Highway 99; as well as representatives for Governor Gray Davis, Assemblyman Mike Briggs and Mayor Alan Autry participated in the event.

At the event, "Don't Trash Fresno" program representatives were presented with a resolution from Assemblyman Mike Briggs and a letter of commendation from Governor Gray Davis.

In preparation for the launch of the public education campaign, a media kit was developed to help educate the media about the campaign and raise awareness of the program.

Media kit materials included a campaign backgrounder, a fact sheet, litter statistics, frequently asked questions and answers, and a campaign launch news release. The media kit was distributed as part of the launch event and is also available through the PERS web site. In addition, B-roll footage of the launch event was developed by the PERS team and submitted to five

local television stations. Four of these stations (KSEE, KFSN, KGPE, and KFTV) featured the PERS campaign launch in their daily news broadcasts. Two television stations (KSEE and KMPH) included interviews with the Caltrans PERS program manager in the segments. Coverage was positive and served to inform the Fresno community of the importance placed by local leaders on litter reduction.

Table 3.4-1 identifies the media coverage generated for the launch of the "Don't Trash Fresno" campaign between February 11 and February 15, 2002 in the FMA.

Table 3.4-1
Summary of News Coverage

Source	Affiliate	Time	Date
	Radio		
KMPH-AM		4 PM	2/11/02
KMPH-AM		5 PM	2/11/02
	TV		
KSEE-24	NBC	5 PM	2/15/02
KMPH-26	FOX	10 PM	2/15/02
KFSN-30	ABC	5 PM	2/15/02
KFSN-30	ABC	11 PM	2/15/02
KGPE-47	CBS	6 PM	2/15/02
KFTV-21	Univision	6 PM	2/15/02

Radio

To make the greatest number of impressions on the target audience, the media plan recommended that short format radio advertisements should run throughout the campaign. The PERS team developed 10-second live reads to proceed or follow traffic reports in the FMA. This short format "traffic tags" rotated on 26 stations in the Fresno market, including six Spanish language stations. The commercials ran during the morning and evening commute hours, when exposure to drivers was the greatest.

The traffic radio was supplemented with 60-second spot radio public service announcements. The Radio PSAs ran on top Fresno stations such as KBOS (Urban), KSEQ (Contemporary Hit Radio), KRZR (Rock), and KOQO and KLBN (both Spanish) during all parts of the day to ensure a strong reach to the target audience.

Radio spots and traffic tag concepts were informally tested in Sacramento in December 2001, using a group of single males and females similar to the target audience in Fresno. Based on the results of the testing, messages were honed to ensure effectiveness.

Following the informal test marketing, three final 60-second radio spots were produced: two versions of the "Smith & Jones" concept; and a "Cell Phone Directions" concept (in which directions were given based on pieces of litter along the road). "Cell Phone Directions" was also produced in Spanish.

In 2002, the spots ran on Fresno area stations from February 11 to June 30, and in 2003 the spots ran from January 20 to April 21 on the stations listed in Table 3.4-2.

In 2002, the traffic spots received an added value of $1,180, while English-language radio received an added value of $20,066 and Spanish-language radio received an added value of $29,431.

In 2003, the traffic spots received an added value of $17,395 and 1,912,600 media impressions. The English-language spot received an added value of

Table 3.4-2
Radio Advertisement Summary

2002	Total[1]	2003	Total[1]
KALZ (English) KBOS (English) KRZR (English) KSEQ (English)	2,080	KALZ (English) KBOS (English) KRZR (English) KSEQ (English)	5,242
KOQO (Spanish) KRRC (Spanish) KMMM (Spanish) KLBN (Spanish)	1,022	KOQO (Spanish) KRRC (Spanish) KMMM (Spanish) KLBN (Spanish)	2,248

[1]The totals indicate the total number of times the radio ads were aired on the listed stations. The totals do not include an additional 1,500 radio spots aired during traffic announcements in 2002, and 3,794 in 2003.

$17,387 and 3,923,500 gross impressions. The Spanish-language spot received an added value of $19,941 and 1,128,200 gross impressions. In total, the radio program received an added value of $54,723 and almost 7,000,000 gross impressions.

Television Public Service Announcement

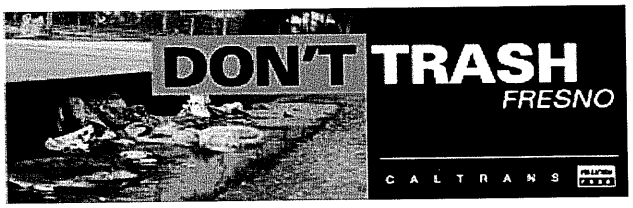
Based on the positive feedback from the "Smith & Jones" radio concepts, the PERS team brought the "Smith & Jones" radio advertisement to life by producing a 30-second television public service announcement (PSA). The television spot included the tagline "Don't Trash California." The Don't Trash California tagline was chosen versus the Don't Trash Fresno tagline to reach viewers outside the immediate FMA. Based on the positive feedback received from the English Television PSA, a Spanish-language version was also produced.

The 30-second English and Spanish PSAs were distributed to all television stations in the FMA, resulting in $5,400 of free media and 432,000 impressions. Later in 2003, partnerships were established with Univision (KFTV) and FOX (KMPH), which resulted in an additional $40,000 in added value.

Billboards

The media plan also included placing billboards along major Fresno area highway routes throughout the duration of the campaign to capture the attention of drivers and helped draw their attention to the actual litter along the highway. The billboards supported the radio advertisements by providing large visuals of the problems associated with highway litter. Two large illuminated 14'x48' boards were recommended to cover the major thoroughfares in the FMA. The plan also recommended concentrating the billboards in the high-density areas for adults aged 18 to 24. The media plan also recommended supplementing the campaign with ten 10'x30' boards located in neighborhoods with a high density of potential offenders; these boards were in place from February through June of 2002. The PERS team was also able to negotiate two additional 10'x30' boards to be posted during this time period at no cost to Caltrans.

Sample Spanish-language billboard



Sample English-language billboard

The billboards first ran from February 11 to June 30, 2002. In 2003, the PERS web site URL was added to the billboard artwork and two additional illuminated boards were added. In 2003, the number of billboards was significantly increased along major highway routes and in high-density areas, helping to further increase program awareness. The new line of billboards ran from February 27 to April 14, 2003. The size and number of billboards displayed within the FMA are listed in Table 3.4-3.

Table 3.4-3
Summary of Billboard Coverage

Time Frame	14' X 48' Illuminated Boards	30-Sheet Boards
2002	2	7
2003	4	40

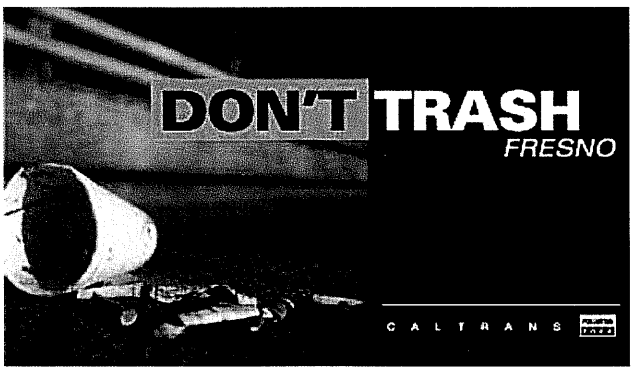
In 2002 the billboard campaign generated 44,805,900 impressions and received an added value of $8,700.

In 2003, the billboard program generated 36,825,810 impressions and received an added value of $19,500.

Pump Toppers

Located on top of gasoline pumps, a "pump topper" is a message that reaches drivers when they are at a gasoline service station. The message encourages drivers to remove litter from their cars and dispose of it properly. The 2001 media plan recommended placing pump toppers at 30 service stations

concentrated in the areas where adults aged 18 to 24 live and work. This program was intended to reach 91 percent of the target audience. The pump toppers were displayed from April 1 to June 17, 2002 at 30 Texaco, Shell, Union 76, Exxon, Independent, Arco, and Chevron gas stations within Fresno and Clovis. Each station posted six pump toppers asking drivers to properly dispose of their garbage.



Sample pump topper

The pump topper program received 12,908,745 impressions over the course of the campaign and received $4,650 in added value.

The pump toppers were not included as part of the media buys for the second year. The PERS team felt that the program would reach more individuals by increasing the number of billboards, given the number of gas stations where the pump toppers would have to be displayed in order to reach a significant number of people in the target audience.

Theater Slides

Theater slides appear prior to movie previews or prior to the beginning of the featured film. In this way, they reach a "captive audience." In 2002, using a variation of the billboards created by the campaign, three creative concepts were developed into theater slides. These slides ran from February 25 to April 15, 2002 and then again from May 6 to June 30, 2002. In 2003, the slides were shown from February 27 to April 14.

Six theatres in the FMA displayed the slides, which were shown on a total of 44 screens in 2002 and 61 screens in 2003. In 2002, the theater ads were shown 73,920 times and received 2,847,888 impressions.

Bus Advertisements

In 2003, the outdoor campaign expanded to include king-sized bus boards. King-sized panels are 30"x144" and are located on the street and curbside of Regional Transit buses. By placing "Don't Trash Fresno" boards on buses, the research team was able to bring the same outdoor billboards down to the automobile or street level. Buses move throughout the entire Fresno area, thus reaching a potentially larger audience than the outdoor billboards. The "kings" were produced in both English and Spanish and placed on 40 buses on selected routes from February 27 to April 14.

Along with the bus kings, English and Spanish bus cards were also posted on the interior of Regional Transit buses from February 27 to April 14, thus reaching the riders inside the bus with the program message. Two hundred interior bus cards were placed on 100 buses in Fresno (with equal amounts in English and in Spanish).

The bus kings generated 33,600,000 impressions over the course of the program and received an added value of $31,000.

Sample bus king

Media Clips

Following the initial media event launch, the majority of campaign efforts focused on the development of materials, securing partners, and involvement in public events. Due to the high level of visibility of the program, the following news articles or "Don't Trash Fresno" slogans appeared in the print media in 2003:

- Bob Shallit's Column, April 14, 2003, *The Sacramento Bee*
- "Evidence is clear: Falcons on thin ice," April 30, 2003, *The Fresno Bee*
- "Wearing her heart on her head," May 18, 2003, *San Francisco Chronicle*
- "Fresno spruced up with 51 trees," May 18, 2003, *The Fresno Bee*

These clips had a combined circulation of 1,203,402.

3.5 Web Site

The web site, www.DontTrashCalifornia.info, was developed to promote the PERS program by sharing information and resources with interested anti-litter organizations and agencies, as well as with the public. Web site content included a program overview, summaries of research studies conducted as part of the program, samples of all campaign materials, anti-litter tips, a media kit, endorsements and awards, a kids activities page, and information on community partnerships and links. Site visitors can still use the site to request full copies of the research studies and other materials. Key materials have been translated into Spanish. In addition, the web-links were added to each of the research study's public and private partners web sites and where appropriate they added links to the PERS web site.

To ensure that a cohesive message is presented, the design of the PERS web site follows the existing layout of the Caltrans Storm Water Program web site, using consistent fonts and formatting.

3.6 Sports Teams Partnerships

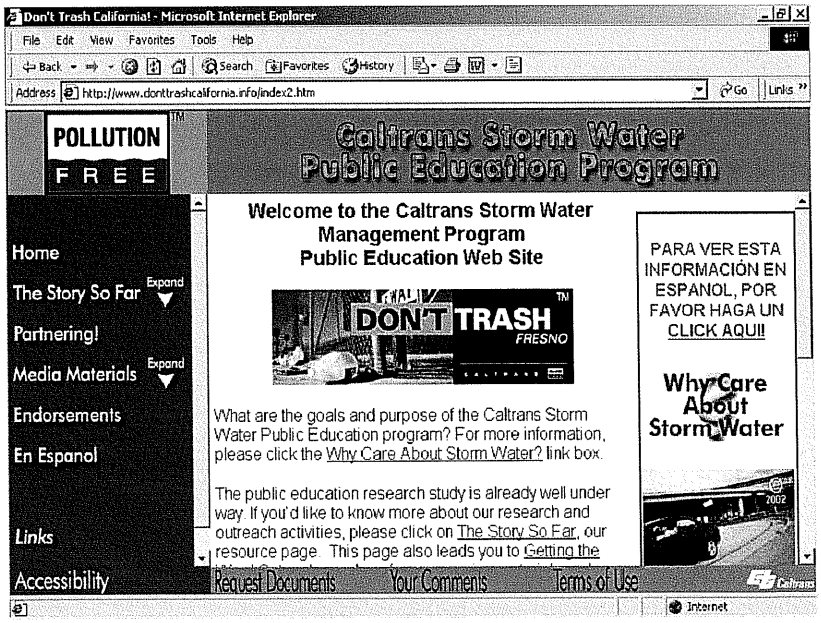
By partnering with local sports organizations, the PERS campaign was able to take great advantage of opportunities to share program messages.

Fresno Grizzlies Baseball

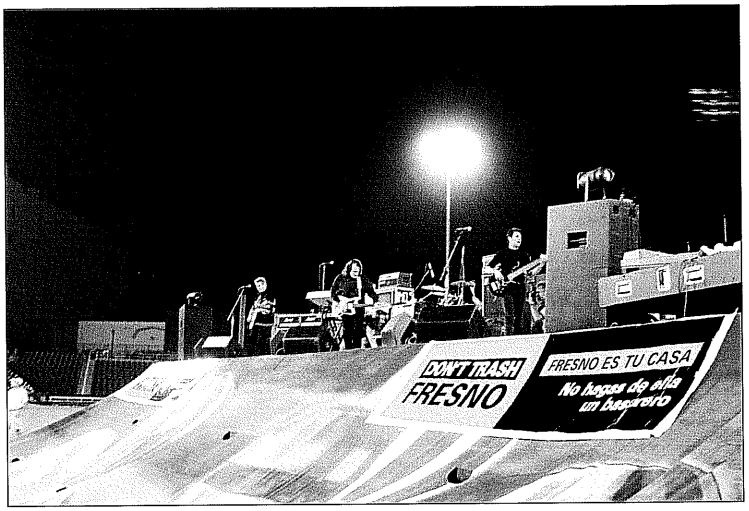
A partnership with the Fresno Grizzlies Triple A Baseball Club was established as a means of reaching the target audience with program messages during the 2002 and 2003 seasons. Fresno Grizzlies baseball games presented a special opportunity to display program messages for two and three hour time blocks.

In spring 2002, the "Don't Trash Fresno" campaign was approached as a possible sponsor of the newly constructed Fresno Grizzlies Stadium. Grizzlies management sought to establish connections with the PERS campaign as a result of the program's high visibility and positive reputation within the community.

The PERS team successfully negotiated a year-long sponsorship of the Fresno Grizzlies Triple-A Baseball



Sample page from the Don't Trash California Web site



"Don't Trash Fresno" signs during a concert at Grizzlie Stadium

team. The sponsorship included signage and advertisements at the new downtown stadium, airing of both the radio and television PSAs during sporting events, and sponsorship of five special events held at the stadium. Advertisements at stadium sporting events provided an opportunity to have the "Don't Trash Fresno" message reinforced to the portion of the program's target audience who attend events at the stadium, an audience that fits the target demographics of the PERS program.

Sponsoring the Fresno Grizzlies has broadened the overall paid media for the program and has helped to reinforce the program message to the target audience.

Stadium Signage

In an effort to reach a year-round audience at all events at the Fresno Grizzlies Stadium, two 2' 8" X 25' field level signs displaying the "Don't Trash Fresno" message in English and Spanish are displayed behind first and third base in the stadium.

In-Stadium Promotions

The "Don't Trash Fresno" public education campaign is recognized as the sponsor of the Grizzlies pitching change at all home games. The PERS sponsorship is noted via the public address (PA) system during every Fresno Grizzlies pitching change (a minimum of two PA announcements are read per night). Further, during a minimum of two pitching changes over the course of the game, the "Don't Trash Fresno" 30-second TV PSAs are shown on the 18' X 24' LED board.

Radio Broadcasts

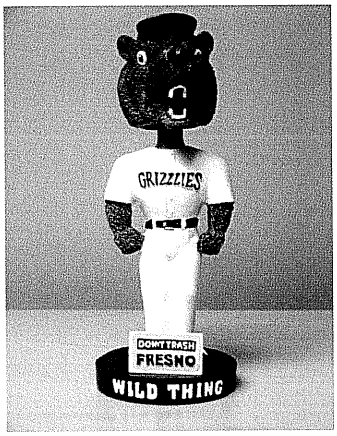
The Fresno Grizzlies broadcast all games live on KCBL 1340 AM. During these broadcasts, the "Don't Trash Fresno" radio public service announcements ran three times per game. The PERS program was also recognized a minimum of two times per game via live radio reads during the Grizzlies pitching change.

The Fresno Grizzlies also broadcast all games live on KGST 1600 AM, a Spanish-language radio station. During these broadcasts, the Spanish-language version of the "Don't Trash Fresno" radio public service announcements ran three times per game. The PERS program was also recognized a minimum of two times per game via live reads during the Grizzlies pitching change. Live radio reads included simple tips on how to reduce highway litter, which helped to reinforce the PSA messages.

Additional radio entitlements included opening and closing billboards on the LED board, ten English-language radio PSAs throughout the day on KCBL 1340 AM, and ten Spanish-language radio PSAs throughout the day on KGST 1600 AM.

Sponsorship Nights

In 2002, three "Don't Trash Fresno" nights were designated over the course of the season. These nights included the Baseball Cap Giveaway, Village People concert, and Baseball Card Giveaway. Baseball Cap Giveaway included baseball caps with the "Don't Trash Fresno" message affixed to 5,000 caps, which were distributed to the first 5,000 fans to arrive at the stadium, and Baseball Card Giveaway included Grizzlies team card sets with the "Don't Trash Fresno" message affixed. To promote the sponsorship nights, the Fresno Grizzlies promoted the games on June 24, July 13, and August 15, 2002.



Bobblehead giveaway

In 2003, three "Don't Trash Fresno" nights were designated over the course of the season. These nights include Opening Night (April 3), Opening Weekend/ThunderStix Giveaway (April 4), and a Bobblehead Giveaway (April 19). The ThunderStix giveaway included Grizzlies ThunderStix with the "Don't Trash Fresno" message affixed, which were distributed to the first 10,000 fans.

Bobblehead Giveaway included a Wild Thing Bobblehead with the "Don't Trash Fresno" message affixed to the dolls, which were distributed to the first 3,500 fans.

To help reinforce the importance of not littering, the Smith & Jones characters were very involved on game sponsorship nights. They threw out the first pitch, distributed collateral items, threw T-shirts to the crowds, and collected trash with the Caltrans Adopt-A-Highway trash bags. The Fresno Grizzlies noticed a reduction in the amount of trash at the stadium.

Cup Holders

The "Don't Trash Fresno" message was stuck on all stadium cup holders. These stickers were affixed to the cup holders for both the 2002 and 2003 seasons.

Web Site Linkage

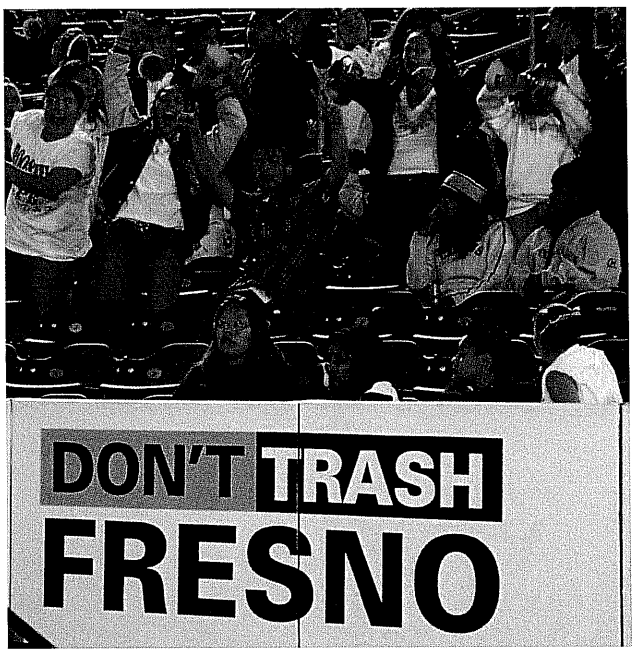
The PERS DontTrashCalifornia.info web site was listed as a sponsor on the Fresno Grizzlies web site, and included a link from the Grizzlies site to the DontTrashCalifornia.info site.

Starting Line Up Board

In the 2003 season, the "Don't Trash Fresno" logo was added to the starting line-up board.

Fresno Grizzlies Baseball Summary

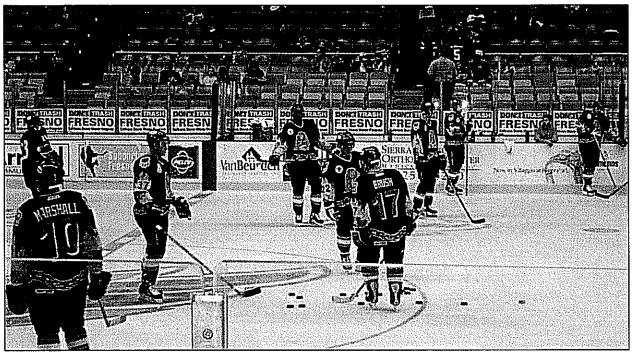
The Fresno Grizzlies sports marketing partnership received an added value of $88,520 in the 2002 season and $79,840 in the 2003 season. Approximately 605,135 impressions were made in the 2002 season with Grizzlies fans and approximately 700,000 in 2003 season.



Grizzlies fans with megaphones behind 3rd base

Fresno Falcons Hockey

The Fresno Falcons Hockey Team approached the Don't Trash Fresno campaign in December 2002 as a potential partner at the Selena Arena. The Falcons had heard of the success the Don't Trash Fresno campaign had had with the Fresno Grizzlies and thought the Falcons attendees were similar to the PERS target audience. Therefore, in 2003, a partnership with the Fresno Falcons Hockey Team was also established as an additional means of reaching the target audience with our program messages during the 2003 season. Again, the Falcons audience fit in perfectly with the target demographics for the PERS program.



Stadium signage at Selena Arena behind player's bench

Stadium Signage

The "Don't Trash Fresno" logo was affixed to the plexi-glass behind each player's bench. The signs were two feet high and extended the full length of the benches (54 feet in length).

Sponsorship Nights

In 2003, two "Don't Trash Fresno" nights were designated over the course of the season. These nights included Beanie Puck Giveaway on January 31 and a Pennant Giveaway on March 22. The Beanie Puck Giveaway included Fresno Falcons beanie pucks with the "Don't Trash Fresno" affixed to them for the first 1,500 fans. The Pennant giveaway included the "Don't Trash Fresno" logo affixed to them for the first 1,000 fans.

Sponsorship nights also included:

- **Radio Interview** – The Caltrans PERS coordinator was interviewed during an intermission about the PERS program, and the interview was broadcast on 103.1 FM.

- **Tickets** – The PERS program also received 20 tickets to both sponsorship games. The tickets were given to the Big Brothers/Big Sisters and the Boys & Girls Club along with program goodie bags and food vouchers.

- **PA/Message Board** – The program received public address and message center announcements with recognition as a sponsor of the games.

- **First Puck** – Program representatives dropped the first puck at sponsorship nights and were honored during the ceremony.

- **Radio Drop-Ins** – The program received radio drop-ins on all Falcons radio broadcasts leading up to the event on 103.1 FM.

- **Goals of the Game** – PA announcements toward the end of every home game reminded fans of the "Goal of the Game" sponsored by the "Don't Trash Fresno" program.

Web Site Link

The PERS DontTrashCalifornia.info web site was listed as a sponsor on the Fresno Falcons web site, and included a link from the Falcons site to the DontTrashCalifornia.info site.

Fresno Falcons Hockey Summary

The Fresno Falcons sports marketing partnership received an added value of $7,372 in the 2003 season. Approximately 188,511 impressions were made in the 2003 season with Falcons fans.

3.7 Public Event Participation

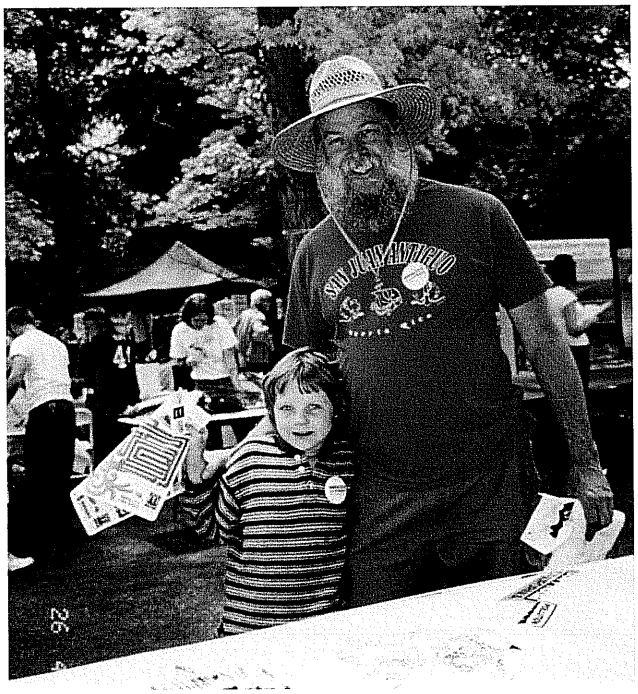
In order to supplement the advertising and sports marketing components of the program, public event participation was added. Public events were also determined by the public opinion poll as one of the best ways to reach the target audience. The goals of public event participation were to increase overall visibility of the campaign, to provide an opportunity for PERS representatives to receive feedback on the program, and to get additional program materials into the hands of the target audience. Participating in community events enabled the distribution of facts about litter, communicating the fine for littering, and educating people about what they can do to change littering behavior. The Table 3.7-1 summarizes all of the public events that the PERS team attended.

Table 3.7-1
Summary of Public Event Participation

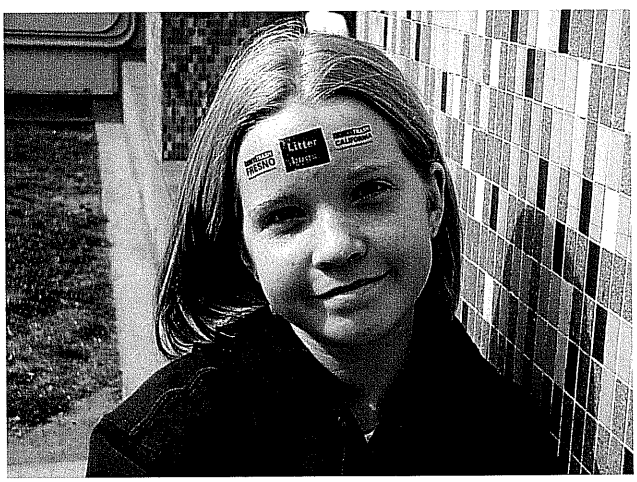
Public Event	PERS Participation	Materials Distributed	Results
Big Fresno Fair	Partnered with the Big Fresno Fair in 2002 on the Traveling Game Show, a self-contained apparatus that made frequent stops around the grounds to host a "game show" with PERS-related questions about littering and storm water pollution. "Don't Trash Fresno" was the sponsor on three nights.	Litter bags and T-shirts for game show participants	PERS program awareness was included in all fair promotional materials (press releases and media advisories), and the campaign logo was placed on The Big Fresno Fair web site.
Teach the River	Attended Teach the River, a hands-on experience, which included information on river studies and water issues. The event was held at the San Joaquin Delta. Approximately 250 K-12 teachers and non-formal educators participated in the event.	200 bags filled with program postcards, T-shirts and stickers	Provided a good opportunity to link the problem of litter to its effect on water quality.
Fresno Home and Garden Show	Partnered with Tree Fresno to distribute materials at the Home and Garden Show on February 28 at the Fresno Fairgrounds. Approximately 35,000 homeowners attended the event.	300 postcards, 300 stickers and 300 litter bags	The Home and Garden Show was chosen as an event due to the opportunity it provided to show how removing litter around the home helps create a better neighborhood.
Fresno Autorama	Partnered with the Fresno Recycling Program to distribute materials at the Autorama in March at the Fresno Convention Center. 12,000 people, primarily males aged 18 to 40, attended.	300 postcards, 300 litter bags, 300 stickers and 300 key chains	The attendees of the autorama matched the target audience of the program.
Earth Day at the Chaffee Zoo	On April 5, participated in Earth Day at the Chaffee Zoo in Fresno. Approximately 3,000 children and families attended the event.	200 buttons, 200 pencils, 200 tattoos, 200 postcards, 200 stickers, 200 key chains, 300 litter bags, 100 tip cards and 30 T-shirts	Provided an opportunity to receive feedback from Fresno residents while reinforcing program themes and messages.
Big Hat Days	On April 5 - 6, participated in the Big Hat Days festival in Clovis. The event included several exhibitors, musical entertainment, food, and a kid's carnival. Approximately 140,000 residents, from Clovis, Fresno, and surrounding areas attended the event.	400 litter bags, pencils, stickers, postcards and buttons, as well as 75 T-shirts	Provided an opportunity to receive feedback from Fresno residents while reinforcing program themes and messages
LA Earth Jam	LA Earth Jam, held on April 9, challenges fourth grade students in Los Angeles County to create kid-friendly PSAs or mock advertisements. The "Don't Trash California" logo was included on the announcement poster, and on LA County collateral materials advertising the event.	400 postcards and 400 "Litter bugs" stickers	This was the first and only event outside the FMA area. This was a test as to the type of partnerships that will be possible when the program is rolled out statewide.

Table 3.7-1 (continued)
Summary of Public Event Participation

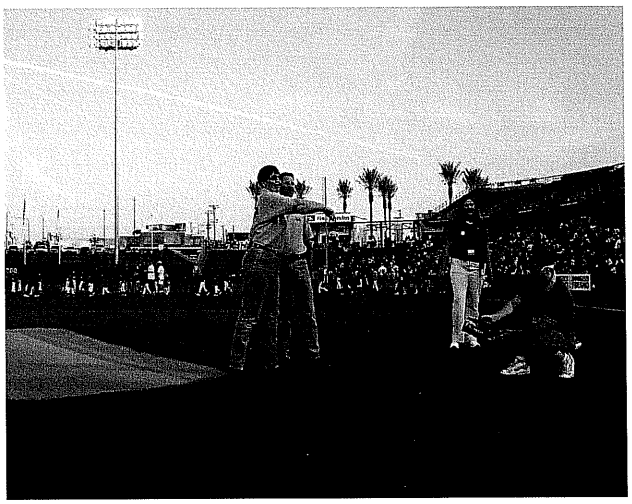
Public Event	PERS Participation	Materials Distributed	Results
Monster Truck Jam	On April 11 - 13, participated in the Monster Truck Jam, a "tough truck" competition, held at the Fresno Fairgrounds. Approximately 15,000 people attended the event; primarily males aged 18 to 40. As a sponsor of the event, "Don't Trash Fresno" had a booth.	300 key chains, 300 pencils, 300 buttons, and 100 temporary tattoos.	Provided an opportunity to receive feedback from Fresno residents while reinforcing program themes and messages
Freshen Up Fresno	Partnered with Tree Fresno to distribute materials at Freshen Up Fresno on April 12. Freshen Up Fresno is an Earth Day celebration that included a tree planting, graffiti clean up, and trash pick-up in downtown Fresno. Approximately 250 families and community members attended the event, which is put on by Assemblywoman Sarah Reyes and Fresno City Council members Cynthia Sterling, Mike Dages, and Tom Boyajians.	Litter bags and stickers were distributed to the participants in the tree planting.	150 Tree Fresno volunteers wore "Don't Trash Fresno" T-shirts.
Festival de Sol	Participated in Univision's Festival del Sol, held on April 20 in Madera, included a musical concert, Easter egg hunt, and food. Estimated attendance at the event was 10,000 area residents.	1,000 Spanish language pencils, 500 Spanish language buttons, and 30 T-shirts.	The attendees of the festival matched the target audience of the program.
Fresno Earth Day	On April 27, participated in the Fresno Earth Day, held in downtown Fresno. Event exhibitors included crafts, vendors, and information on recycling. Estimated attendance at the event was 35,000. As an event sponsor, "Don't Trash Fresno" had a booth at the event.	500 stickers, 500 tattoos, 500 litter bags, 500 buttons, 200 postcards, 500 key chains, 500 pencils, and 75 T-shirts.	Provided an opportunity to receive feedback from Fresno residents while reinforcing program themes and messages.
Radio Unica - Cinco de Mayo	On May 3 - 5, participated in Radio Unica's Cinco de Mayo event in Fresno.	500 Spanish language buttons, 500 Spanish language pencils, and 500 litter bags at the event.	The attendees of the event matched the Spanish-speaking target audience of the program.
Cub Scout Bike Rodeo	On May 4, participated with the Cub Scouts in a bike rodeo in Clovis.	400 megaphones, 150 pencils, 150 buttons, and 200 tattoos.	The attendees of the event matched the target audience of the program.
Hispanic Children's Day	On May 10, participated in the Hispanic Children's Day celebration held in Fresno. As an event sponsor, "Don't Trash Fresno" had a booth at the event. Estimated attendance at the event was 2,000.	75 T-shirts, 500 stickers, 200 key chains, 300 tattoos, 300 postcards, 300 litter bags, 300 pencils, and 300 Spanish language buttons.	The attendees of the event matched the Spanish-speaking target audience of the program.



Fresno Earth Day (April 27, 2003) event attendees pick up program materials.



"Wearing your heart on your head" ran in The San Francisco Chronicle after a tree planting event sponsored by campaign partner Tree Fresno.



"Don't Trash Fresno" research team members throw out the first pitch at the Fresno Grizzlies game in April 2003.

The "Don't Trash Fresno" campaign participated in public events that reached more than 300,000 people in 2003.

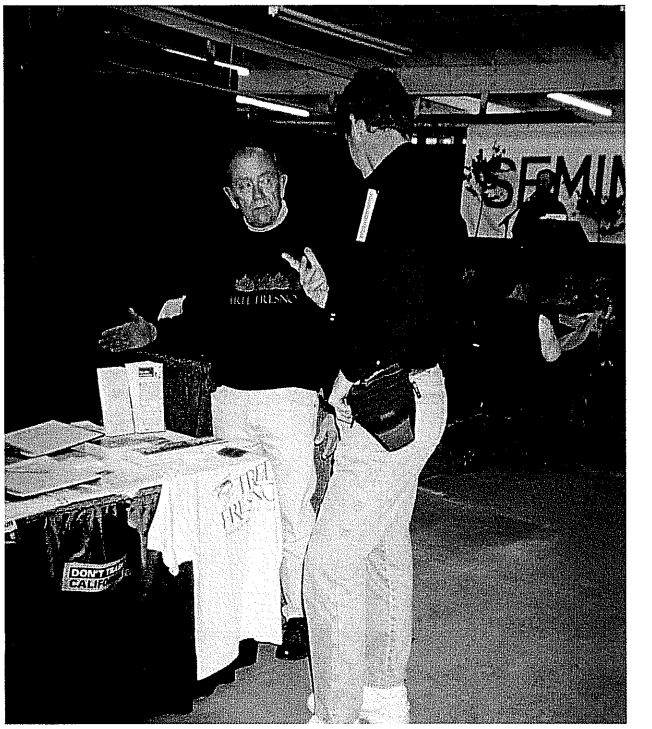
Fresno Earth Day at the Chaffee Zoo April 5, 2003

The "Don't Trash Fresno" campaign participated in the 2002 Big Fresno Fair by partnering with the Traveling Game Show, where participants were rewarded with program materials for answering questions about highway litter.

The "Don't Trash Fresno" campaign distributed program materials at the Monster Truck Jam April 11-13, 2003.

Participants at the Hispanics Childrens Day in May 2003 display "Don't Trash Fresno" program materials.

The "Don't Trash Fresno" campaign participated in more than 15 public events in 2003.



Community partner Tree Fresno distributes "Don't Trash Fresno" program materials at the Fresno Home and Garden Show February 28, 2003.

The "Don't Trash Fresno" campaign distributed more than 15,000 pieces of program materials at public events in 2003.

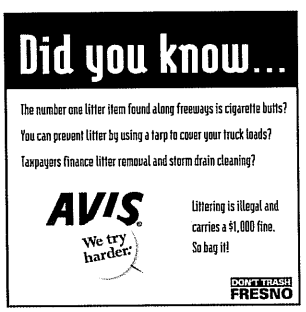
Participant at the Clovis Big Hat Days shows off "Don't Trash Fresno" program materials.

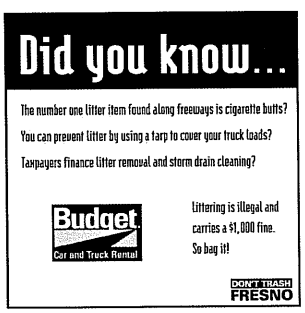
3.8 Corporate Sponsorships

In addition to establishing partnerships with community-based organizations in the FMA, partnerships with private sector organizations with an interest in pollution prevention issues were established. These partnerships helped spread program messages and reduce program costs by distributing produced materials, adding monetary value to the program.

Rental Car Agencies

Corporate partnerships were established with three rental car agencies located at the Fresno Airport. Rental car partnerships were established with Avis, Dollar, and Budget Rent-A-Car. The main partnership strategy was to provide rental car agencies with litter bags to be placed in the rental cars to educate people from out of town not to litter. The litter bags were produced with the "Don't Trash Fresno" message and logo in addition to the specific rental car agency logo provided to URS by the agency. Rental car agencies were provided these litter bags free of charge to encourage their participation. Additionally, they were encouraged to place their local rental car agency web site link on the Caltrans "Don't Trash Fresno" web site. Additional collateral materials including postcards, key chains, pencils, and T-shirts were provided to the agencies either for local employees or to be placed on the rental counter. Three out of five of the rental agencies at the airport accepted sponsorship opportunity of the campaign, based on the readiness of the campaign to provide them with the needed materials and the lack of cost to them to be involved in the sponsorship of the program.





Sample litter bags

By placing these litter bags in the rental cars, renters were encouraged to place litter in the provided litter bags rather than discarding litter from their car and in turn on to the local highways.

Television (FOX and Univision)

In order to secure additional exposure for the English and Spanish-language television PSAs, partnerships were established with FOX (KMPH) and Univision (KFTV) in Fresno. FOX and Univision were selected as media partners due to the demographic make-up of their viewers, which correlated closely with the target audience of the PERS program.

Univision's Festival del Sol event April 20, 2003

The partnership with FOX (KMPH) generated $20,000 of added value playtime. The partnership with Univision (KFTV) also generated $20,000 of added value playtime. Both FOX and Univision distributed co-branded "Don't Trash Fresno" T-shirts and litter bags at public events they either sponsored or attended. Univision conducted an interview with a Caltrans District 6 spokesperson on the morning show "Arriba el Valle" to discuss the problem of litter in the FMA on April 9, 2003, which further reinforced the program messages with the Spanish-speaking target audience.

McDonald's

In order to address some of the most commonly littered items (fast food containers), a partnership was established with the corporate-owned McDonald's restaurants in the FMA.

smile™

McDonald's agreed to distribute two-sided tray liners (one side in English and the other in Spanish) during the month of April 2003 in 25 restaurants in Fresno. The program enabled the PERS team to educate adults and children about storm water pollution and offered tips on how to prevent litter.

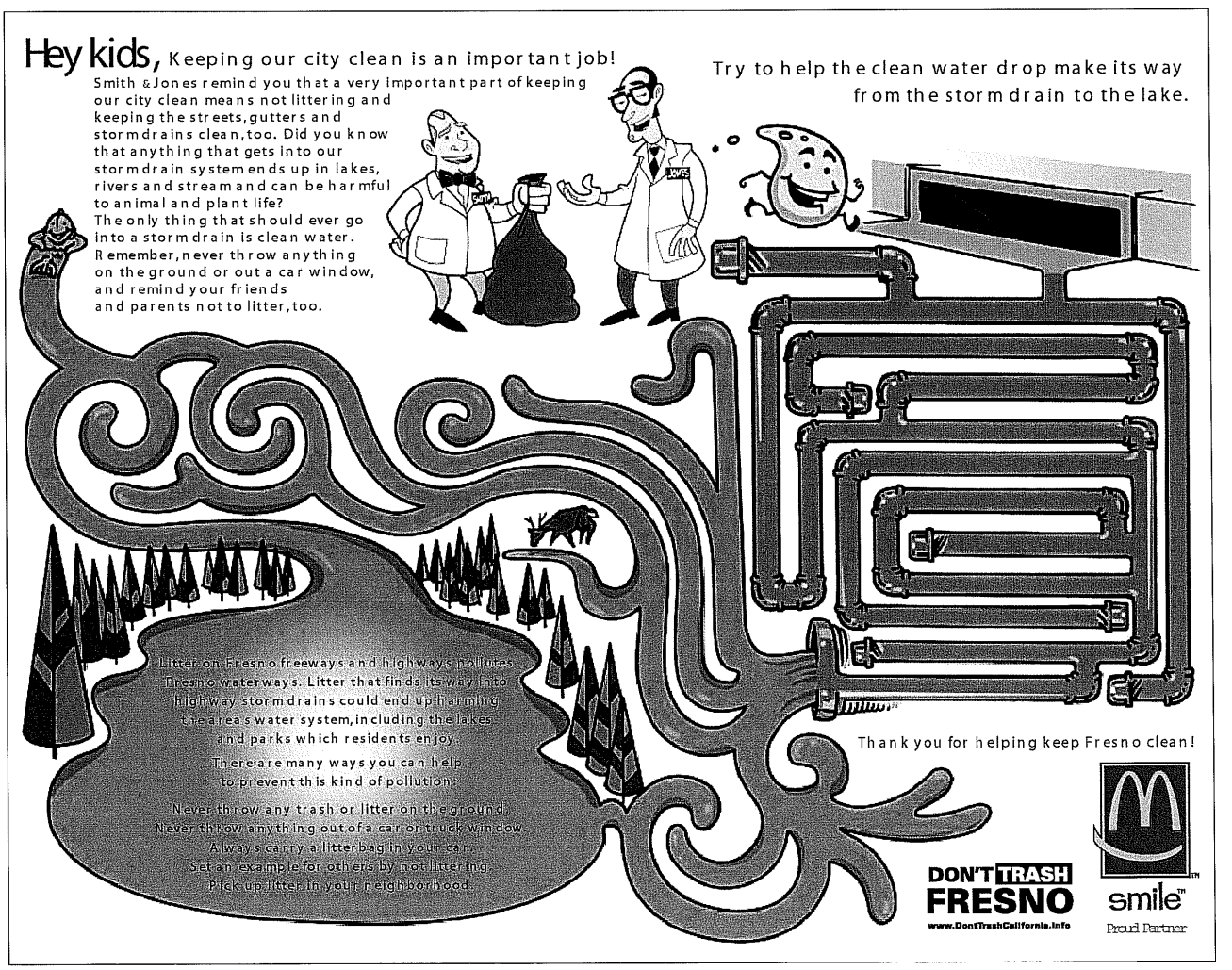
The 25 Fresno area McDonald's restaurants each distributed 3,000 trayliners during April 2003 resulting in 75,000 impressions.

Coffee Shops

Partnerships were established with five local coffee shops for the distribution of the coffee sleeves that were developed to promote the importance of properly discarding fast food packaging (i.e., not littering), particularly beverage cups, also one of the most commonly littered items.

The coffee shop partners' store locations were located throughout the Fresno area and included coffee shops near the local colleges and universities in order to reach out to the 18- to 25-year-old target audience. The coffee shop partners distributed the coffee sleeves during the first two weeks of September 2002 in order to have a high level of visibility with college students returning for the fall semester at colleges and universities in the area.

Partner coffee shops were also provided with "Don't Trash Fresno" program T-shirts for coffee shop staff as well as program bumper stickers for distribution to coffee shop patrons. Five partner coffee shops in the



McDonald's trayliner, distributed at 25 McDonalds in the Fresno area

FMA were recruited to help distribute the sleeves and more than 14,500 coffee sleeves were distributed during a two-week period in September 2002.

The Fresno Bee

A partnership with *The Fresno Bee* was established to secure additional exposure for the PERS program and campaign messages. Again, this partnership involved reaching out to the target audience with simple tips on how to prevent littering. Full-page advertisements featured a picture of someone dumping the contents of their ashtray out on the ground from their car with a call-out box containing the text "Fact: Cigarette butts are the #1 littered item on California freeways." In addition, facts about litter and the "Don't Trash Fresno" logo were on the ad.

A full-page ad was printed on March 30 (circulates to 199,179 readers), another full-page ad was printed on April 5 in the Valley Outlook supplement (circulates to 174,226 readers), and an insert was printed on April 29 (circulates to 150,693 readers). Ad rates were negotiated at 50 percent of the cost.

KMJ Radio

A partnership with KMJ AM 580 radio in Fresno was established to extend the reach of program messages on a community-oriented Fresno area radio station. KMJ is the radio home of California State University, Fresno's football, and men's basketball and baseball. This partnership allowed campaign messages to be targeted towards the male and female college students who are included in the PERS target audience.

The partnership with KMJ radio included the following:

- A 6 1/2" X 4" 2002 baseball/softball schedule was created as a magnet with the "Don't Trash Fresno" logo. The magnet was distributed to people attending the baseball/softball games.
- The "Don't Trash Fresno" 60-second radio spots (PSAs) were placed on pre-game, post-game, and the weekly talk features.

The Fresno Bee full-page ad ran on March 30.

- "Don't Trash Fresno" 60-second radio spots were played twice on all pre-game, in-game, and post-game broadcasts.
- "Don't Trash Fresno" received live reads on all broadcasts during the starting lineup reads.

The result of this partnership included the distribution of 20,000 baseball/softball magnet schedules with the "Don't Trash Fresno" program logo and URL affixed. Thirty-two live reads were conducted with the starting lineup on KMJ broadcasts, as well as public announcements at games leading up to the promotional giveaways.

3.9 Summary of Program Implementation

As defined above, implementing the program was an effort that used numerous tools throughout the two-year campaign to deliver the "Don't Trash Fresno" and "Don't Trash California" message to the target audience. Once the outreach and information materials were agreed upon and produced, the PERS research team utilized the mainstream methods most likely to create program awareness, educate the target audience, and move the program to the ultimate goal of decreasing litter on our roadways. The methods the PERS research team used included: building partnerships, attending public events, tapping into the media (newspapers, radio, and television), seeking unique modes of advertisement (billboards, pump toppers, etc.), establishing sponsorships, creating a web page to use the benefit of internet communication and advertisement, and educating children (even though they were not a primary target audience).

Overall the program had significant reach within the FMA. The 2002 and 2003 paid advertising programs achieved more than 112,000,000 impressions with an added value of $154,701. Public event participation in 2003 allowed PERS program messages to reach more than 250,000.

In addition, partnerships (with corporate, non-profit and County organizations), another significant component of the program implementation, was another source of adding value to the campaign. The partnerships allowed for expanded reach and impact while augmenting the program budget. Collectively corporate partners provided an added value of $116,555 (almost double the investment) and helped distribute more than 160,000 program materials. Furthermore, the third party endorsement of corporations gave the program a level of credibility within the community.

4.0 PROGRAM ASSESSMENT

The PERS program as originally developed was designed to use two elements to evaluate the success of public education as a storm water BMP in reducing the amount of litter in the highway storm drain system. The two main program evaluation tools were (1) storm drain monitoring and (2) public opinion surveys. Additional measurement tools were used to evaluate the success of the program. The following is a description of the various assessments that were conducted to determine the success of the public education campaign in reducing litter along highways in the FMA. The results of each of these evaluation tools will assist Caltrans in determining how best to implement a statewide public education program.

4.1 Public Opinion Survey

A baseline public opinion survey was conducted in July 2001 prior to developing the public education campaign. The baseline survey, as discussed in Section 1.2.3, helped to determine and define the target audience for the research study. In April 2003, a follow-up telephone public opinion survey was conducted to measure post-campaign program awareness and assess whether the target audience had changed their behaviors toward littering. The post-campaign survey reported largely positive results, and included indications as to the issues that should receive greater attention in future campaigns.

The post-campaign survey included interviews with 830 respondents. Of these, 428 interviews were completed in English and 402 in Spanish. The survey was conducted in the communities of Fresno, Clovis, Fowler, Sanger, and Selena, California. The majority of the respondents were female (54 percent of English respondents and 63 percent of Spanish respondents).

The post-campaign survey looked at whether knowledge and attitudes about littering had been impacted in several key areas. One of the research study's goals was to increase Fresno residents' perception that litter is a major problem, is unsightly, and can ultimately effect people's health. Another campaign goal was to educate residents about the fine for littering, since the baseline survey had indicated that some people would change their littering behavior if they knew the fine for littering was $1,000.

The follow-up survey demonstrated that more than half the English and three-quarters of the Spanish respondents thought litter was a "major problem" in the greater Fresno area. This result represents a 15 percent increase in concern expressed by Spanish-speaking respondents. The impression that litter is unsightly increased for both English- and Spanish-speaking respondents. However, the majority of post-campaign respondents still couldn't correctly state the fine for littering. Because the follow-up survey re-confirmed that both English- and Spanish-speaking respondents would be less likely to litter if they knew the fine for littering was $1,000, future campaign materials should consider a greater focus on this issue.

The follow-up survey demonstrated that more than half the English and three-quarters of the Spanish respondents thought litter was a "major problem" in the greater Fresno area.

One of the other focuses of the public education campaign was to educate Fresno area residents that the number one littered item is cigarette butts. The purpose of this focus was to raise awareness that cigarette items are indeed considered to be litter. The follow-up survey demonstrated that there was a significant increase in the number of English respondents who can identify cigarette butts as the number one littered item; however, nearly 75 percent of the respondents overall still believed the most littered item was something other than cigarette butts. For Spanish-speaking respondents, this understanding increased by only five percent, which is not statistically significant. Future campaigns should continue to emphasize the role cigarette butts play in littering.

The public education campaign also focused on educating residents that highway litter ends up in the

highway storm drain system, which leads to creeks, rivers, lakes, and ultimately the ocean. The majority of respondents are still aware that litter ends up in the storm drain system; however, no statistical increase in awareness has occurred. On the other hand, both English-speaking and Spanish-speaking respondents believe litter has a major effect on water quality. Future campaigns should attempt to make a clearer connection between highway litter and the storm drain system.

The primary goal of the public education campaign was to increase the number of people in the Fresno area who do not litter and conversely decrease the number of people who do litter. However, the follow-up survey showed that there was no statistical change in the number of people who report that they either know people who litter or admit to littering themselves. This result is not necessarily a surprise, due to the fact that people are not likely to admit to littering themselves.

Both English-speaking and Spanish-speaking respondents believe litter has a major effect on water quality.

In addition to measuring the success of the public education campaign, the public opinion survey also reassessed the best methods for distributing the program message. The follow-up survey confirmed that for English-speaking respondents, the four best methods were through television commercials, radio commercials, at public events, and through schools. All of these methods were used to educate Fresno residents about littering and the effects of littering.

The follow-up survey statistically showed that the research study had a number of positive effects from 2001 to 2003. Among English-speaking residents, there were two statistically significant increases in desirable attitudes and awareness: (1) believing that litter looks bad and (2) recognizing that cigarette butts are the number one littered item. Among Spanish-speaking residents, there was one statistically significant increase: believing litter is a major problem. Based on the results of the post-campaign survey, we have identified techniques and areas of focus that can be adjusted during future campaigns to achieve greater reported changes in littering behavior.

Kiosk survey respondent at the Fresno Grizzlies game

4.2 Kiosk Survey

At the onset of the public education program, the PERS team was looking for additional methods for testing the program's success. Prior to launching the second year of media advertisements, another method for testing the program's success was identified: kiosk surveys. Kiosk-style surveys use questionnaires similar to those used in telephone surveys. However, in kiosk surveys, respondents are not contacted by telephone but are attracted to a small computer terminal by signage offering a chance to win something free. The Fresno Grizzlies had successfully used kiosk-style surveys in the Fresno area several times previously; the PERS team took advantage of the opportunity to conduct kiosk-style surveys at Fresno Grizzlies games.

The April 4, 5, and 6, 2003 Fresno Grizzlies home games were chosen for the kiosk survey events. The surveys were conducted to obtain feedback from Fresno area residents on:

- Awareness and recall of the "Don't Trash Fresno" media campaign
- Understanding of campaign messages
- Campaign influence on littering behaviors
- Pre-campaign littering behaviors
- Current littering behaviors

- Social demographics and psychographics of the target population

The outcome of the kiosk surveys directly supported the results of the follow-up public opinion survey being conducted at the same time.

Program messages were a success in making people aware of the "Don't Trash Fresno" campaign.

Game attendees were surveyed at 17 electronic data stations located throughout the main level of the stadium and at the "600 Club" level at the Grizzlies Stadium. The data collection devices were mounted on freestanding pedestals, and attendees were attracted to these data stations with "Don't Trash Fresno" signs and the offer to win free San Francisco Giants and Fresno Grizzlies game tickets.

A total of 2,618 people responded to the survey over the three-game period. Of these surveys, 46 were completed in Spanish. The respondents were fairly balanced between males and females: 59.7 percent and 40.3 percent, respectively. The mean age of the respondents was 31.6, which is within the target audience for the research study. The respondents were predominantly from the FMA, with only 23.8 percent stating they live outside of the study area.

The results of the kiosk-style survey statistically showed that program messages were a success in making people aware of the "Don't Trash Fresno" campaign. Billboards, television, and radio advertisements were seen by 90 percent of Fresno area residents. Seventy-seven percent of Fresno residents reported to be better informed about the negative consequences of littering as a result of the campaign.

Litter is recognized by kiosk-survey respondents as a problem in the greater Fresno area, which confirmed the results of the public opinion survey; over half of the respondents identify litter as a major problem. In fact, 47 percent of respondents claimed to notice a reduction in the amount of overall litter following implementation of the "Don't Trash Fresno" campaign. While it is difficult to determine if there has been a decrease in the amount of litter, this result has shown that highway litter has become a part of the social consciousness in the Fresno area – people have become more aware of highway litter.

In a departure from the public opinion survey, kiosk respondents identified cigarette butts along with fast food remnants as the most littered items. On average, respondents estimated the fine for litter at $700, not $1,000.

As with the follow-up telephone survey, there has been an increase in public awareness on litter-related issues. Kiosk survey results showed no measurable differences between English- and Spanish-speaking respondents. Fresno residents are more aware that litter is a "major problem" for the greater Fresno area, and there has been a 10 percent increase in the number of people who recognize litter has a "major effect" on people's health. Conversely to the follow-up telephone survey, the kiosk survey showed that residents are more informed regarding the main source of litter, where litter on roadsides ends up, and the fine for littering. The $1,000 littering fine has taken a backseat to litter polluting the environment as the factor most influencing Fresno residents' littering behavior, which was not the case with the follow-up telephone survey. As discussed in Section 4.2, the litter fine was the number one reason English respondents to the telephone survey thought would change people's littering behavior.

The McDonald's sponsorship enabled the research study to disseminate campaign messages at a fraction of the cost.

4.3 Partnerships and Collaboration

In addition to the telephone and kiosk surveys demonstrating the successes of the public education campaign, collaborating with local, state, and corporate partners and the media also helped to represent the campaign as a success. As discussed in Section 3,

partnerships aided in achieving several PERS goals and expanding the reach of the public education campaign. Local partnerships established a community responsibility link that engaged the target audiences in the campaign by educating the audience about storm water pollution prevention through spreading campaign messages. These partnerships also allowed the research study to leverage budget dollars and extend program reach with the support of each organization that came on board.

The partnerships formed with the Fresno Grizzlies and Falcons (Fresno area baseball and hockey teams) also provided a strong link to the target audience. Advertisements at the sports events provided an opportunity to have the "Don't Trash Fresno" message reinforced to the portion of the program's target audience who attend events at the stadium, which is an audience that fits the target demographics of the PERS.

Corporate sponsorships were another important part of spreading the program messages and reducing program costs. The car rental agencies, McDonald's, coffee shops, and local television, radio and newspapers helped to promote the campaign by distributing program materials and messages. McDonald's, for example, was able to address some of the most commonly littered items (fast food containers) by distributing two-sided tray liners that educated adults and children about storm water pollution. The McDonald's sponsorship enabled the research study to disseminate campaign messages at a fraction of the cost.

The PERS Team also produced a media plan to target the best mediums for reaching litterers with program messages. Collaborating with the media provided excellent opportunities for the program to consistently reach a large percentage of the target audience. Media collaboration also added monetary value to the program. For example, the sponsorship negotiations with traffic radio and local English and Spanish radio stations resulted in several hundred extra/free radio spots with values of $17,000 - $20,000. The PERS team conducted these negotiations with all of the media sponsorships (billboards, bus advertisements, theater slides, etc.), which resulted in approximately $106,700 in free media/corporate advertising, adding value to the campaign and greatly increasing total message impressions to the target audience.

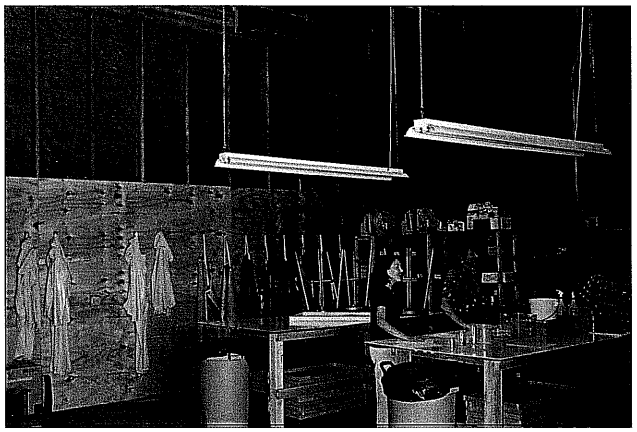
The numerous partnerships and media alliances pursued by the PERS Team resulted in a positive portrayal of the "Don't Trash Fresno/California" campaign. The Team targeted the most appropriate partners and media outlets possible, and in the process was able to successfully promote the campaign within budget restraints and beyond expectations.

4.4 Monitoring

Along with traditional methods, Caltrans also implemented a storm water litter monitoring program to evaluate public education program effectiveness. By quantifying litter loads at the inception of the research study period, Caltrans could then compare these loads with litter loads collected at the end of the research study period and evaluate the extent to which litter has been reduced.

Storm water litter monitoring was conducted at 14 highway locations in Fresno during two rain seasons, October 2000 through April 2001 and October 2001 through April 2002. Runoff was monitored from both fill and at-grade sections of freeways as well as from surface highways within Caltrans jurisdiction. Drainage areas monitored ranged in size from 0.1 to 1.1 hectares (ha) (~0.25 to 2.7 acres). Locations were selected

A typical freeway and surface highway drainage area located in Fresno



Caltrans litter laboratory in Fresno where storm water samples were analyzed

based on feasibility of conducting litter monitoring and to provide a spatially diverse monitoring network within the FMA.

Litter monitoring was conducted by attaching 5-mm (¼-inch) mesh collection bags to study outfalls or curb-inlet monitoring devices. Litter collection nets were in-place at all times once a monitoring site was installed. This allowed for the collection of samples resulting from incidental rain or nuisance flow for periods in between larger storm events. A subcontracted litter laboratory was used to analyze litter samples in accordance with the Caltrans Standard Litter Laboratory Analysis Method (CTSW-RT-00-025). This method generally involves separating litter from vegetation in the storm water samples and measuring wet weight and volume of each part; allowing the litter component to air-dry for a minimum of 24 hours on a screened rack and measuring dry weight and volume of the litter component.

The monitoring program was designed to generate data that could be used to detect a 35 percent change in storm water litter load with 80 percent confidence between samples collected during the baseline period with no public education and those collected from periods with public education. Additional monitoring was conducted at two freeway locations in Stockton to assess seasonal variability of storm water litter data without the influence of a public education program. The monitoring program design and collection methods were generally consistent with methods used by Caltrans on previous storm water studies, particularly the Caltrans Litter Management Pilot Study (Caltrans 2000).

Another non-traditional evaluation method considered was to evaluate the amount of roadside litter collected prior to and during the public education program implementation. Caltrans maintains a database of maintenance activities for cost tracking purposes, the Maintenance Management System (MMS), which includes quantities of litter collected by AAH programs, prison workers, and maintenance personnel. This database provided five years of monthly baseline data, and was anticipated to allow the comparison of monthly litter collection totals reported in the MMS system prior to and after implementation of the public education program. The data also provided regional totals rather than relying on data from individual monitoring locations.

Results Of Non-Traditional Evaluation Methods – Storm Water Litter

Seasonal air-dried litter loads and gross pollutant loads for two rain seasons are shown in Table 4.4-1. Seasonal rainfall for 2000-2001 in Fresno was approximately 224 mm (8.8 inches) compared to seasonal rainfall of 190 mm (7.5 inches) for 2001-2002 measured at on-site gauges. Average annual litter loads measured during the Caltrans Litter Management Pilot Study in Los Angeles are also listed for

Table 4.4-1
Range of Seasonal Storm Water Litter
And Gross Pollutant Loads by Monitoring Site

Constituent	Fresno 2000-2001 Season	Fresno 2001-2002 Season	Caltrans LMPS Average 1999-2000 and 2000-2001 Seasons
Total Air-Dried Seasonal Litter Load by Weight (kilograms/hectare)	0.7 - 8.8	0.9 - 13.6	7.6 - 18.5
Total Air-Dried Seasonal Litter Load by Volume (liters/hectare)	12 - 162	12 - 282	44 - 144
Total Wet Gross Pollutants by Weight (kilograms/hectare)	13 - 658	21 - 494	Not reported
Total Wet Gross Pollutants by Volume (liters/hectare)	86 - 762	90 - 1527	Not reported

comparison. It should be noted that seasonal loads measured in Fresno were generally lower than seasonal totals measured for similar drainage areas in Los Angeles.

Storm water litter data, both individual event loads and seasonal totals, were analyzed using formal statistical methods to evaluate seasonal and spatial trends and to assess the statistical effectiveness of the monitoring data to detect differences in the pre- and post-BMP litter loads. Analysis indicated that event-to-event variability was very large; therefore a mean event load (MEL) analysis was conducted. MEL was defined as the sum of the weight of litter loads over all storm events in a given season divided by the number of events. All sample data were normalized by dividing the litter quantity by the watershed area.

Results of the MEL analysis indicate that the MEL was higher for most sites for the 2001 season than for 2000. Variability of individual event litter loads was also higher in 2001. The average MEL for all sites for 2001 (242 grams/hectare) was significantly higher than that for 2000 (133 grams/hectare). The coefficient of variation in the MEL for all sites was about 89 percent for 2001 and 104 percent for 2000. The change in MEL from 2000 to 2001 was found to be substantial with an average increase of 109 grams/hectare and a coefficient of variation of 123 percent. The seasonal increase may be a result of seasonal variability and site-specific changes such as increases in traffic.

Attempts were made to separate the effects of these factors on the data set, and a multiple regression model was developed to predict the change in the MEL at each site due to seasonal variability and traffic growth (using Average Annual Daily Traffic increases). The model was developed in an attempt to explain existing variability and allow the effect of the BMP to be predicted. Model results predicted that approximately 48 percent of the variability in the MEL between seasons could be explained by changes in traffic loading and differences in storm event characteristics. The remaining 52 percent appears to be random and cannot be attributed to known factors. The statistical analysis also predicted that a minimum of two seasons and possibly up to four to five seasons of post public education program monitoring would be required to meet the original project objectives of achieving 80 percent confidence of predicting a 35 percent change. The duration of post public education program monitoring is dependent on the variability introduced by the program itself.

Results Of Non-Traditional Evaluation Methods – Roadside Litter Evaluation

Exploratory Data Analysis (EDA) was performed on the baseline MMS data set. There were no significant trends in seasonal variation of roadside litter, and the average monthly litter volumes did not show any systematic pattern by month or season. There was substantial variability in the monthly litter volumes for a given month, quarter, semi-annual period, or year over the reporting years. A preliminary power analysis showed that four to five years of post-BMP monitoring would provide 80 percent confidence in being able to detect a reduction in the mean monthly litter volume of 50 percent from the baseline data. Thus, a relatively long-term monitoring program would be necessary before sufficient power could be achieved in detecting even relatively small changes (50 percent reduction or increase) in the litter volumes as a result of the BMP.

Monitoring Program Conclusions

Storm water litter monitoring for the PERS generated litter loads that were highly variable with more seasonal and site specific variability than anticipated. It was predicted that it would take several additional years of monitoring to potentially see a detectable change in storm water litter quantities. Additionally, it was not probable that a change could be detected within the study timeframe.

Similarly the MMS data was highly variable and could not be used to reasonably support an evaluation of the public education program. While the MMS data provided several years of baseline data, the data set represented uncontrolled methods of quantifying and reporting litter collected by Caltrans Maintenance personnel. This system was adequate for the purposes that it has been designed for (tracking maintenance costs) but was not sufficient for scientific analysis.

Based on several factors, Caltrans elected to discontinue the monitoring program after the 2001/

2002 rain season as a method to evaluate the effectiveness of the public education program. These factors included:

- The uncertainty of data requirements to see a statistically significant difference between pre- and post-public education litter loads
- The monitoring program would not be able to generate data that can be used to evaluate the effectiveness of the public education program within the study time frame (i.e., approximately one year of public education program messaging through spring 2003)
- The public education program was already successful from a public relations standpoint
- The general perception that public education is an effective BMP regardless of monitoring results

4.5 Summary of Program Effectiveness

While the research study is unable to determine if the amount of storm water or roadside litter within the study area was reduced as a result of the public education campaign, the study was able to prove that people's awareness about litter as a problem did change. Research showed that a relatively long-term monitoring program would be necessary to detect even small changes in the litter volumes as a result of the public education BMP. The lag time that exists between a change in behavior and quantifiable proof is due to the numerous variables within the research study environment that take time to be omitted, and therefore cloud the positive end result. For example, the existing litter on the roadways may not appear to be reduced because the litter is there before people begin to change their behavior, and it will continue to be there until it is entirely cleaned up. Even if the amounts of litter being added to the roadways decreases, it is still added to existing litter. Furthermore, a changed behavior that is learned takes time to be incorporated into someone's everyday behavior. Someone may litter less and less as time goes on, and therefore the end result of less or no litter takes time to be exemplified.

Therefore, because the actual reduction in the quantity of storm water or roadside litter could not be used because of time constraints and high data variability, other quantitative and qualitative measurement tools were used to measure program effectiveness. The public opinion survey and the kiosk survey were both quantitative methods that scientifically demonstrated that the research study had a number of positive effects from 2001 to 2003. Among English-speaking residents, there were two statistically significant increases in desirable attitudes and awareness: (1) believing that litter looks bad and (2) recognizing that cigarette butts are the number one littered item. Among Spanish-speaking residents, there was one statistically significant increase: believing litter is a major problem.

Qualitatively, the PERS program had great collaboration success with partners and sponsorships. These program tools successfully spread the campaign messages to the appropriate target audience and significantly reduced overall program costs. Several positive acknowledgments and awards were received throughout the course of the program. These awards are yet another qualitative measurement of the success of the program. (Acknowledgments and awards are discussed in detail in Section 5).

In addition to the results of formal surveys and monitoring, the PERS researchers were able to assess the effectiveness of the program by the number of people who acknowledged seeing program messages and the likelihood to change their own behavior or encourage others they know to refrain from littering. Raising awareness about the issue, and changing attitudes to general agreement that litter is a problem, is the important first step in changing personal behavior that contributes to highway litter.

From the positive partnerships established with both community organizations and corporate partnerships that will continue to support the campaign, we've learned several lessons on how to better focus the campaign, and we've seen the beginning of positive results. In order to capitalize on this progress and not let new habits slip back, the campaign should be further developed and continued without a prolonged delay.

5.0 ACKNOWLEDGMENTS AND PROGRAM AWARDS

Another method of highlighting an environmental public education campaign's success is by demonstrating that the program is viewed as a success among other professionals in the public relations and environmental professions. Many professional organizations highlight programs or program components through the presentation of awards. Each professional organization has different criteria for determining which program should receive awards or acknowledgments. Over the three-year period, the PERS program received a number of prestigious awards, including the following:

- **International Association of Business Communicators (IABC) 2003 Crystal Awards:** Crystal Award for Smith & Jones I and II audio segments; Merit Award for Cell Phone Directions audio segment. IABC is the premier international knowledge network for professionals engaged in strategic business communication management. Crystal Awards are given for achievement in communications.

- **Sacramento Advertising Club's 2002 Addy Awards: Gold:** Don't Trash California Public Service Announcement and Gold: Don't Trash California Pubic Service Campaign. The purpose of the Sacramento Addy Awards is to honor creativity in advertising and communications throughout the greater Sacramento area, and to recognize the contributions of individuals and companies who create the work.

- **2003 Telly Awards:** Don't Trash California Public Service Announcement. The Telly Awards was founded in 1980 to showcase and give recognition to outstanding non-network and cable commercials. The Telly has become one of the most sought-after awards in the television, commercial, and video industry. Judges are top production professionals. Entries scoring 7.0 to 8.9 on a 10-point scale will be finalists. Entries scoring 9.0 or higher are winners. Entries do not compete against each other; rather, they are judged against a high standard of excellence.

- **Association of Environmental Professionals:** Outstanding Public Involvement/Education Program – Large Jurisdiction. This award is given to the agency, which is responsible for conducting an outstanding public involvement or educational program. Awards are presented to programs that increase the public's awareness of environmental issues; provide a clear message consistent with AEP's objectives; emphasize creative use of media; and include measures to demonstrate its effectiveness.

- **State Information Officers Council (SIOC) 2002 SIOC Awards:** Gold Award – Reducing Litter in Storm Water brochure; Gold Award - Public Service Announcement video; Silver Award – Public Service Announcement radio, Driving Directions; Honorable Mention – Public Service Announcement radio, Smith & Jones I. SIOC is a not-for-profit organization dedicated to providing support, education, information, networking, and other opportunities to the public information, communication, editorial, and publication professionals in California state service. SIOC Awards are given to highlight the "best of the best" in state public information.

- **Sacramento Public Relations Association CAPPIE Awards:** Silver Award – Smith and Jones radio Public Service Announcement; Honorable Mention – Smith and Jones television Public Service Announcement. Entries were evaluated by a panel of judges selected for their expertise in the public relations field. Entries were judged based on meeting the objective of their campaign, method, results, and creativity.

In addition to receiving the awards noted above, the Caltrans PERS Program was the proud recipient of several prestigious acknowledgments from all levels of the California government. These awards included:

- **Assembly Resolution:** Recognized that Caltrans deserved public recognition for the dedicated commitment to promoting an anti-litter, storm water public education campaign in the Fresno area.

- **Letter of Commendation – Mayor Alan Autry, Fresno:** Recognized how litter distracts from the natural beauty of the environment, has a direct effect on the health and welfare of the community, and how education and awareness are essential to decreasing litter pollution.

- **Governor Gray Davis Letter of Commendation:** The letter documented the Governor's support to Caltrans for PERS Program and how it was important to keep California's highways clean.

These awards and acknowledgments demonstrate the level of success the program has enjoyed and how it is regarded within the public relations and environmental fields, along with the support it has received throughout the state from all levels of government.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The Caltrans Storm Water Program undertook the research study or PERS to determine the effectiveness of public education as a BMP for reducing the volume of pollutants entering the California highway storm drain system. This report has provided background information on the reasons for undertaking this study; summarized program research conducted prior to developing and implementing the public education campaign; summarized campaign components and activities; assessed the success of the program; and summarized the endorsements earned by the program. This section summarizes the conclusions that can be drawn from the research study: "Was the research study a success?" In addition recommendations are made on how to implement a statewide storm water public education program.

"Research demonstrates that the public can be motivated to 'do the right thing' regarding environmental stewardship if they understand the problem, they know what, specifically they should do about it, and it is relatively convenient for them to take the desired action."

Reference: CIWMB Used Oil Recycling 1994

6.1 Conclusions

The program research quantified the amount of litter within the highway storm drain system within the FMA prior to conducting any public education, and identified the target audience for the study. The target audience for the research study was single 18- to 24-year-old men and women, with an overlap for people aged 25 to 34. In addition, public education materials were produced in both English and Spanish to meet the target audience.

At the onset of the research study, both traditional and non-traditional measurement tools were developed to assess the effectiveness of public education as a BMP for reducing highway litter. Traditional methods in this study included both quantitative (public opinion polls) and qualitative (amount of media coverage). Non-traditional methods included storm water litter monitoring.

Based on the results of the public opinion poll and I-Count survey, it is abundantly clear that the PERS has raised the level of awareness of litter as a problem. It would be unfortunate to discontinue the efforts that are necessary to keep the litter issue at the forefront of public concern. The PERS evaluative research data (traditional methods) demonstrated that:

- The public gained an increase in knowledge of the issue and awareness of the problem through the media campaign.
- The public's concern about the issue and interest in doing something about it increased as a result of the media campaign.
- Motivating additional increases in specific behavior change as a result of this change in awareness and attitudes requires:
    - Implementation of rewards and recognition for "doing the right thing"
    - Implementation of community-based intercept / programmatic options
    - Sustained visibility of campaign messages and specific call to action
- Collaboration among government agencies and community based organizations is a successful strategy for implementing community outreach activities.
- Program and media materials must be delivered in the primary language of the target audience in order to be successful.

- Media partnerships and strategic advertising placements deliver maximum impact (impressions, recognition, and recall of messages) for available budget, expanding the reach and value of the investment in public outreach.

- Corporate partnerships, such as those with McDonald's Restaurants, the Grizzlies AAA baseball team, and high-volume rental car agencies, deliver significant level of credibility and impressions for the investment value.

- High quality campaign materials (advertising and public service spots, collateral materials, promotional materials, and news inserts) are well received by the news media and corporate partners, delivering up to 100 percent additional coverage in the form of "value added" or pro-bono placements and local dissemination.

Changing individual behavior is the most difficult, albeit the most important, goal of any public education campaign. Behavior change is the result of sustained exposure to information, and a resulting change in level of concern about an issue and perception about one's ability to do something about it. The traditional research indicated a small level of self-reported personal behavior change, with an interest in "doing the right thing" or encouraging someone else to do the right thing some time in the future.

The focus of the non-traditional research was to evaluate the effectiveness of the research study in reducing storm water litter. As discussed previously, storm water litter monitoring was removed as one of the evaluation tools after two years of litter data had been assessed. Storm water litter monitoring for the PERS generated litter loads that were highly variable with more seasonal and site-specific variability than anticipated at the onset of the study. It was predicted that it would take several additional years of monitoring to potentially see a detectable change in storm water litter quantities. Additionally, it was not probable that a change could be detected within the study timeframe.

6.2 Recommendations

One of the requirements of the Caltrans Statewide NPDES permit is to conduct a research-based statewide public education campaign as one of a host of BMPs to reduce storm water pollution from California highways. The PERS project was a pilot study to determine not only if the public education BMP was a successful tool at reducing storm water pollution, but also to assess how to implement a storm water pollution prevention public education BMP statewide. The following are recommendations for implementing a statewide BMP.

As a result of the conclusions and successes of the PERS project, the PERS Team recommends the following:

1) Maintain visibility of the public information campaign messages by:

a. Implementing a quarterly outreach schedule of paid media, public service, corporate partnerships, and community outreach

b. Rotating each media and community relations strategy to keep the messages fresh and to reach the target audiences using a comprehensive approach

c. Increasing partnerships with community-based organizations, regional governments, and other storm water pollution prevention programs for maximum impact

d. Increasing partnership program by developing arrangements with additional pro and semi-pro sports teams, colleges and universities, fast food retailers, and specialized media to impact the hard-to-reach target audience of young men and their influencers

e. Partnering with non-profit organizations, more corporate partners, and established environmental organizations. Caltrans does not presently have a well-established statewide

public education program; therefore, partnering with different levels of partners will be imperative.

f. Pursuing the placement of the TV PSA in key markets statewide that coincide with additional outreach activities

g. Pursuing partnerships that provide in-kind contributions to support outreach activities

h. Pursuing partnerships with local agencies with similar public education NPDES requirements.

2) Expand the program to reach multi-cultural and other target audiences:

a. There is a need for Caltrans to have a greater concentration of its public education program in certain areas of the state given the current regulatory climate. One such example is litter TMDLs in the Los Angeles area. In addition, Caltrans District 7 (Los Angeles) and District 11 (San Diego) have specific public education requirements that legally need to be met.

b. A campaign theme and messages need to be developed to be culturally relevant and influential with residents who identify as Asian Pacific Islander or Middle Eastern. This may require several specialized themes and messages to be successful in reaching identified target audiences. We do not recommend simply translating English information, as that strategy often backfires. Program information must be developed with the target audiences in mind.

c. Partnerships and collaborative working relationships need to be developed with the community leaders and "gate keepers" that provide links to first and second-generation ethnic populations in the region.

d. Periodically reassess whom the specific target audience is depending on changing marketing, partnering and media endeavors.

3) Develop programmatic and local intercept options to assist in specific litter reduction:

a. We recommend that the Caltrans Storm Water Pollution Prevention Program include a component for partnerships with refuse collection companies, municipalities, California Conservation Corp and local retailers to install and promote trash receptacles at convenient locations such as freeway onramps near metering systems, park and ride facilities, street corners, and other high visibility locations.

b. We recommend a similar program to distribute litter bags for use in vehicles, which can be developed with major employers and retailers in each community.

4) Implement a comprehensive commercial outreach program targeting unintentional littering and blatant disregard for highway littering and pollution prevention:

a. Include incentives and rewards for public agency and private sector employers that have fleets, transport vehicles, and/or contracted drivers

b. Develop specific outreach materials targeted to business and industry professionals in the workforces' preferred languages. For example:

- "Tie down your load" program targeting landscapers
- "Check your truck" program targeting construction vehicles

c. Create a comprehensive pamphlet or brochure that highlights the program's commercial partnerships and successes in local media to date for distribution to future potential partners to encourage the expansion of the program and reinforce the decision to participate.

d. Create a documentary video, which describes what storm water is, Caltrans responsibility and what Caltrans is doing. This documentary could be used in schools, at public events and by community partners.

5) Expand the public education campaign messages as well as management:

a. Program messages to target audiences should include other common pollution in Caltrans right-of-way, such as sediments, leaking oil, yard waste, etc.

b. Bring program messages into the schools by incorporating educational materials into school curriculums and teacher training.

c. Incorporate consultant expertise into program management for guidance and assistance due to the fact that Caltrans district staff is more technically oriented than public education oriented. The skill set to create and deliver program messages should come from the Caltrans consultant for the first three to five years of the statewide program. The consultant should also assist in training Caltrans staff on public education tools.

d. Promote the expanded statewide program themes out of the Caltrans Head Quarters (HQ), but deliver the messages from each District level. Districts should provide feedback to HQ.

e. Caltrans HQ should initially assist the Districts in forming partnerships by working with the Caltrans Public Affairs Office.

6) Caltrans should develop a statewide program for program assessment:

a. Conduct periodic public opinion polls to assess behavioral change statewide. A baseline survey should be conducted first, which determines baseline knowledge about storm water pollution. Caltrans should partner with local agencies, since the results of the survey can be used to support other storm water public education programs.

b. An element of storm water monitoring should also be included in a statewide program to help assess public education. Monitoring for public education should be a component of the overall Caltrans monitoring program.

While implementing the program statewide, certain considerations must be used as guiding principles. The state of California is a unique and complex state with respect to politics, culture, policy, and demographics, and any successful public outreach campaign is tailored to the various communities and audiences it is trying to reach and influence.

It should be the goal of the marketing campaign to support other community-based organization efforts by providing a consistent message that can help drive a change in negative social norms.

A successful program is based on the following guiding principles:

- A strategically planned and professionally implemented communication plan
- Communication with all of the people who have a stake in the project
- Factual, accurate and consistent information that is easily understood by the general public and targeted to a specific audience
- Meticulous attention to detail, including political climate, media disposition, and creative opportunity

The PERS Team has gathered extensive information, received much feedback, and tested numerous public education tools in order to tailor a successful statewide program that will achieve the ultimate goal of eliminating litter from California highways. The above-mentioned recommendations and guiding principles should lead Caltrans and the target audience to that goal.