



2005 PUBLIC OPINION SURVEY AND MARKET RESEARCH PROJECT

CONDUCTED FOR THE  
SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

DECEMBER 2005

*True North*  
**RESEARCH**

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## INTRODUCTION

The San Joaquin Valley comprises the largest air basin in California—spanning nearly 25,000 square miles from its northern point in San Joaquin County to the foot of the Valley in Kern County. Due to its unique topography and meteorology, the Valley is especially susceptible to air pollution. Bordered by mountains and shaped like a narrow bowl, the Valley’s hot summers, foggy winters and frequent temperature inversions effectively promote both the formation and retention of air pollution. The Valley meets neither the federal standards nor the more protective state standards for two key pollutants—ozone and particulate matter—and was recently designated a severe non-attainment area by the U.S. Environmental Protection Agency.

The San Joaquin Valley Air Pollution Control District (Valley Air District) was formed in 1992 to work collaboratively with the public, business, industry and agriculture to improve the air quality in the region. While it regulates stationary sources of air pollution such as factories, refineries, industrial facilities, manufacturing operations, gasoline stations and farms, the District has no authority to regulate transportation control measures to reduce emissions from mobile sources of air pollution. Because a majority of the Valley’s air pollution is caused by the day-to-day activities of residents—including driving vehicles, burning fires, and using household products that contain smog-forming chemicals—one of the District’s key strategies for improving air quality is to increase public awareness of positive air quality choices. These efforts include the Spare the Air program that alerts residents to poor air quality and encourages them to reduce their driving and use of certain household products on days that are expected to violate the Federal ozone air quality standard.

**MOTIVATION FOR STUDY** This study was designed to develop an objective, statistically reliable understanding of the public’s awareness, knowledge, perceptions and behavior as they relate to air quality, the District, and the District’s public outreach programs. In broad terms, the study was an opportunity to:

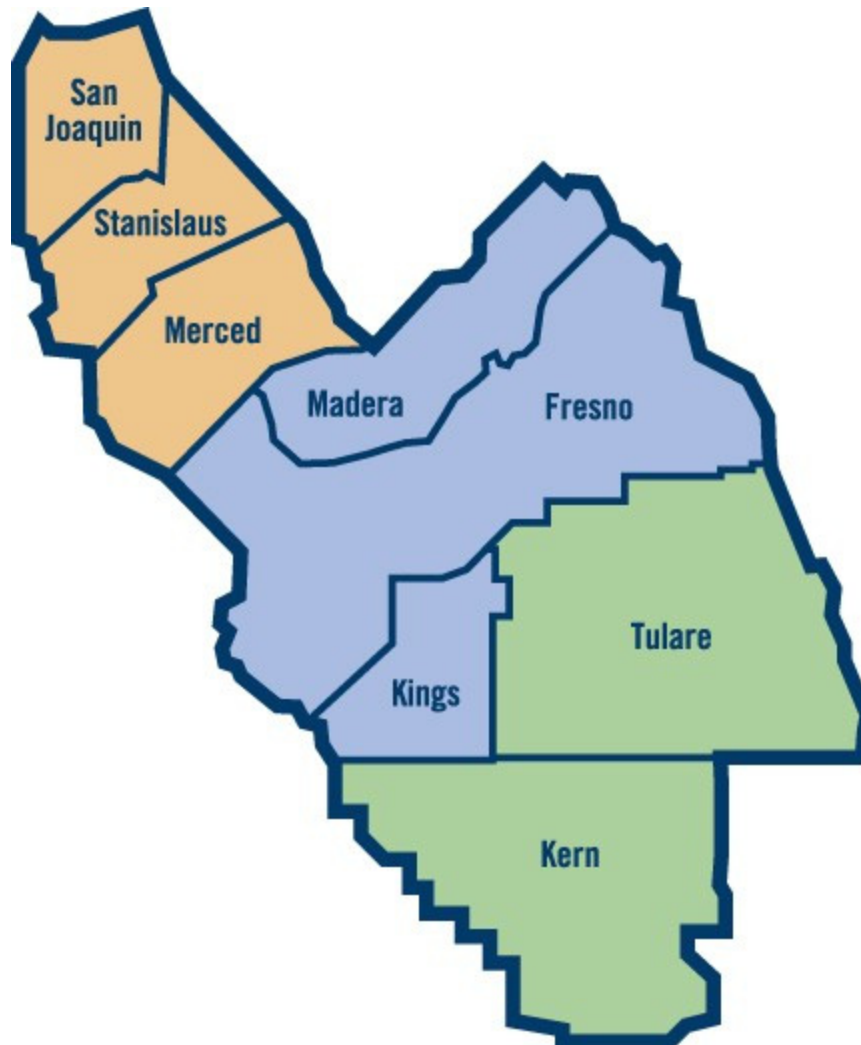
- measure the public’s awareness, opinions and behaviors as they relate to air quality
- better understand how the public views the District, its mission and its strategies
- identify the responsiveness of the public to the District’s education and outreach efforts, as well as
- gather information that can help make the public education programs more effective in the future.

By gathering and analyzing the data and comparing it to the results of related surveys where appropriate, this study provides the District with the information it needs to make sound, strategic decisions in a variety of areas, including program evaluation and development, performance measurement, planning and marketing.

**OVERVIEW OF METHODOLOGY** A full description of the methodology used for this study is included later in this report (see *Methodology* on page 49). A total of 600 randomly selected adults within the District’s boundaries (see Figure 1) participated in the telephone survey. Respondents in Fresno, Kings, Tulare and Kern counties (356 total) were administered the entire survey during the evening of a Spare the Air day. The remaining respondents (244) were sampled from San Joaquin, Stanislaus, Merced and Madera counties. Because these counties did

not have a Spare the Air event during the study period (August 15 to October 5, 2005), respondents from these counties received all questions with the exception of those that pertained to a specific Spare the Air event.<sup>1</sup> Probability-based random digit dialing (RDD) sampling techniques and monitoring of the demographics resulted in a sample that is representative of the adult population within the eight county District for questions received by all respondents. Questions specific to Spare the Air were administered to a sample that is representative of the driver population in Fresno, Kings, Kern and Tulare counties.

FIGURE 1 MAP OF VALLEY AIR DISTRICT



**ORGANIZATION OF REPORT** This report is designed to meet the needs of readers who prefer a summary of the findings as well as those who are interested in the details of the results. For those who seek an overview of the findings, the sections titled *Just the Facts* and *Conclusions* are for you. They provide a summary of the most important factual findings of the survey in bullet-point format and a discussion of their implications. For the interested reader, this section is

1. Questions 1-6 and 29 are only relevant if the interview was conducted on a Spare the Air day.

followed by a more detailed question-by-question discussion of the results from the survey by topic area (see *Table of Contents*). Additionally, a description of the methodology employed for collecting and analyzing the data is contained at the back of this report, as is the questionnaire used for the interviews.

**ACKNOWLEDGEMENTS** True North would like to thank Jaime Holt and Sheri Bohigian at the Valley Air District for their valuable input during the design stage of this study. Their expertise and insight improved the overall quality of the research presented here.

**DISCLAIMER** The statements and conclusions in this report are those of the authors, Dr. Timothy McLarney and Richard Sarles at True North Research, and not necessarily those of the Valley Air District. Any errors or omissions are the responsibility of the authors.





## JUST THE FACTS

The following is an outline of the main factual findings from the study. For the reader's convenience, we have organized the findings according to the section titles used in the body of this report. Thus, to learn more about a particular finding simply turn to the appropriate report section.

### DRIVING BEHAVIOR ON SPARE THE AIR DAYS

- The average number of driving trips taken on a Spare the Air day was 3.62.
- Individuals who reduced at least one trip for air quality reasons in response to the Spare the Air campaign reported taking an average of 6.06 trips on that day.
- Nearly five percent (4.8%) of drivers reduced an average three driving trips on the final Spare the Air event of the season in direct response to the Spare the Air campaign.<sup>2</sup>
- The most common method of reducing ones' driving was linking trips, followed by eliminating a trip.
- Shopping trips and trips to or from work were the most common types of trip reduced for air quality reasons.

### RECALL AND AWARENESS OF SPARE THE AIR MESSAGING

- Forty-three percent (43%) of respondents indicated that they recalled being exposed to news stories or public service announcements related to air quality and/or Spare the Air in the two days prior to the interview.
- By far the most commonly mentioned source for information about air quality in the Valley was television. Radio and a newspaper were mentioned far less often.
- Seventeen percent (17%) of all respondents were aware that the day of the interview was a Spare the Air day.

### AIR QUALITY IN THE DISTRICT

- Nearly half (49%) of all respondents rated the air quality in their county as either poor (29%) or very poor (20%), and an additional 31% indicated that it is fair. Less than one in five respondents stated that the air quality in their county is either good (16%) or excellent (3%).
- When asked to compare their county's air quality to most other areas in California, Valley residents were more likely to rate their air quality as worse (38%) than they were to claim it is about the same (34%) or better (25%).
- When compared to Los Angeles' air quality, however, 62% of Valley residents felt that their county's air quality was better, whereas 20% indicated that it is about the same. Just 13% of respondents shared the opinion that the air quality in their county is worse than that in Los Angeles.
- Seventy percent (70%) of residents think that their county occasionally experiences high levels of air pollution.
- Nearly half (48%) of all households surveyed indicated that at least one member of their household occasionally experiences negative health effects due to air pollution.

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2. This is among drivers in Fresno, Kern, Kings and Tulare counties. The northern counties in the District did not experience a Spare the Air event during the data collection period.

- When asked *where* they think most of the air pollution in their county comes from, 37% indicated that it comes from sources within their county, 39% thought that it comes from other areas and is then blown by the wind into their county, and 24% were unsure.
- When asked what they think are the primary causes of air pollution in their county, 70% of respondents mentioned driving/auto emissions, 41% offered agricultural-related emissions, and 22% mentioned manufacturing or industrial emissions. No other source was mentioned by more than 6% of respondents, respectively.

## GENERAL STRATEGIES FOR REDUCING AIR POLLUTION

- Over two-thirds (69%) of respondents agreed that residents can take actions that will significantly reduce air pollution in their county, whereas 19% felt that residents could not impact air pollution and 13% were unsure.
- Among respondents who felt residents could make a difference, actions that centered on driving behavior (driving less, carpooling, using public transit, using more fuel efficient vehicles) were by far the most commonly mentioned ways that the public can reduce local air pollution.
- When provided with a list of 10 strategies and asked to rate their likely effectiveness in reducing air pollution, residents indicated that placing stricter regulations on industries that create air pollution was likely to be the most effective, followed by reducing the amount that people drive, providing financial incentives to encourage people to ride public transit, car-pool, bike or walk, and concentrating future development in areas that are well-served by transit.

## PERSONAL AIR-QUALITY BEHAVIOR

- Forty-four percent (44%) of residents indicated that they had taken at least one action *specifically* for the purpose of reducing air pollution in the 12 months prior to the interview.
- When asked to describe the actions that they took, 69% of respondents reported that they drove less, while 18% indicated that they reduced their use of barbecues and lighter fluid. A similar percentage reduced the amount of wood that they burn (18%) and/or their use of gas powered equipment (17%).
- Nearly two-thirds (64%) of respondents indicated that they were willing to take actions to reduce air pollution in the upcoming 12 months, whereas 25% were unwilling and 11% were unsure.
- When asked to rate the difficulty of various actions that residents can take to reduce air pollution, using public transit at least one day per week was viewed as the most difficult action to take, followed by carpooling/vanpooling at least one day per week, switching to a more fuel efficient vehicle, and reducing the amount that they drive at least one day per week.
- The actions that residents felt were comparatively easier to take included ensuring that their vehicle is always properly tuned, calling a hotline to determine if it is OK to burn wood, and reducing by 25%—respectively—their use of barbecues and lighter fluid, the amount of wood that they burn, and their use of household products.

## PERCEPTIONS OF DISTRICT

- Just 12% of Valley residents could correctly name the Valley Air District as the agency responsible for monitoring the air quality in their region and for implementing air pollution reduction programs.

- When asked whether they have a favorable or unfavorable opinion of the District, 60% of respondents indicated that they have no opinion. Among those with an opinion about the District, favorable opinions (29%) outnumbered unfavorable opinions (11%) nearly three-to-one.
- The minority of respondents who held an unfavorable opinion of the District generally fell into one of two camps—those who felt the District has not done enough or has not been effective enough in improving air quality, and those who felt the District has been *too* active in regulating air pollution, is using inaccurate information to justify regulations, or is being unfair in its regulations.
- Forty-two percent (42%) of respondents could recall hearing, reading or seeing a news story, advertisement or public service announcement that involved the Valley Air District in the six months prior to the interview.
- Just over half (52%) of respondents indicated that—prior to taking the interview—they were aware that there is a hotline residents should call in the winter to determine if it is OK to burn wood based on the current air quality.

## AIR QUALITY ATTITUDES

- Ninety-seven percent (97%) of residents *agreed* that reducing air pollution is everybody's responsibility—government, business and residents.
- Seventy-five percent (75%) of residents *agreed* that tougher regulations are needed to reduce the air pollution caused by manufacturing facilities, refineries and farms in the region.
- Seventy-five percent (75%) of residents *disagreed* that the actions of one person do not make a difference when it comes to air pollution.
- Seventy-one percent (71%) of residents *disagreed* that economic growth and prosperity are more important than environmental issues.
- Seventy percent (70%) of residents *disagreed* that government standards for pollution are generally too strict.
- Two-thirds (67%) of residents *disagreed* that the Valley Air District has been too aggressive in enforcing air pollution regulations on businesses and residents.



## CONCLUSIONS

As noted in the *Introduction*, this study was designed to develop an objective, statistically reliable understanding of the public's awareness, knowledge, perceptions and behavior as they relate to air quality, the District, and the District's public outreach programs. Whereas subsequent sections of this report are devoted to conveying the detailed results of the study, in this section we attempt to 'see the forest through the trees' and note how the collective results answer some of the key questions that motivated the research.

The following conclusions are based on True North's interpretations of the survey results, as well as the firm's collective experience conducting similar studies for other air districts.

*How aware and informed about air quality issues are residents in the Valley?*

The results of the survey present a mixed picture with respect to resident awareness and knowledge about air quality issues in the Valley. On the positive side, residents clearly recognize that the Valley has an air pollution problem and that auto, industrial and agricultural emissions are prime sources of air pollution. More than two-thirds (70%) of residents shared the opinion that the Valley occasionally experiences high levels of air pollution, and nearly half (49%) assessed the Valley's air quality in general as poor or very poor. Many residents also recognize that air pollution affects them personally—with 48% reporting that one or more members of their household occasionally experience negative health impacts due to air pollution.

Although residents are aware of the air pollution problem in the Valley, they collectively display less knowledge regarding *why* the problem occurs and some of the positive actions that they can take to reduce air pollution. According to the San Joaquin Valley Regional Air Quality Study, 91% of the total air pollution inventory in the Valley is produced within the Valley. Yet, when asked *where* they think most of the air pollution comes from, just 37% correctly identified that it is produced by sources within their county. The vast majority of respondents indicated that it is produced in other counties and blown by the wind into their county, or were unsure. Residents also displayed limited knowledge about the actions they can take to reduce air pollution. Driving-related actions were commonly cited, but reductions in wood burning, use of gas powered equipment, barbecues and lighter fluid, and certain household products were rarely mentioned.

*Are residents generally supportive of the District's mission?*

Although the public's awareness of the Valley Air District is quite low, residents nevertheless hold attitudes that are supportive of the District's mission to improve air quality, as well as the strategies needed to accomplish the mission.

The vast majority of residents believe that economic growth and prosperity do not trump environmental issues, and that government standards for pollution are appropriately strict. Two-thirds of residents also

shared the opinion that the Valley Air District has *not* been too aggressive in enforcing air pollution regulations on businesses and residents. In fact, 3 out of 4 residents agreed that even tougher regulations are needed to reduce the air pollution caused by manufacturing facilities, refineries and farms in the region.

However, residents also recognized that reducing air pollution is not just the responsibility of government and business—it is the responsibility of residents too. And, for the most part, residents believe that they can make a difference in the air quality and are willing to engage in (or forego) activities in the interest of cleaner air. Nearly half (44%) of residents reported that they had taken action in the past 12 months specifically for the purpose of reducing air pollution, and nearly two-thirds (64%) stated that they were willing to take positive action in the upcoming year.

*How effective was the Spare the Air campaign for the summer ozone season in 2005?*

As noted in the *Introduction*, one of the primary goals of this study was to quantify the impacts of the District's 2005 Spare the Air program, which included a multilingual, general awareness media campaign that utilized TV and radio public service announcements and billboard advertising throughout the season, as well as news and email alerts on Spare the Air days. Did the Spare the Air Program have any effects on residents? If yes, in what ways did residents respond to the campaign, and how large were the effects? In this respect, the present study is quite similar to past research efforts in other air districts that employed the rigorous, statistically reliable CARB/EPA method for quantifying the impacts of ozone public education programs—including ongoing studies in the Bay Area and Sacramento.<sup>3</sup>

The 2005 Spare the Air program in the Valley was surprisingly successful in eliciting trip reductions when one considers the limited penetration of the Spare the Air notification on the final event of the season. Although 43% of residents recalled being exposed to stories or public service announcements about poor air quality in the two days prior to the Spare the Air day, just 17% indicated that they were aware that the day of the interview was a Spare the Air day. Despite this comparatively low level of awareness, nearly five percent (4.8%) of drivers indicated that they reduced at least one trip<sup>4</sup> in response to the campaign. Using an estimated driving population of 1,161,081 for Fresno, Kern, Kings and

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3. The District is strongly encouraged to continue using the adjusted CARB/EPA method on an annual basis. The research will not only allow the District to track its performance in promoting positive air quality choices among residents, it will also enable the District to refine its public education program and make it more effective in future years. Furthermore, the District should also consider adding a feature to the research that will allow the team to reliably translate the survey research results into quantifiable reductions in nitrogen oxides (NOx), reactive organic gases (ROG), and particulate matter (PM10).
  4. The average Spare the Air 'reducer' reported reducing 3 trips on the day of the event (see *Measuring Trip Reduction* on page 12) .

Tulare counties, this translates into 55,500 drivers who took positive action during the season's final event.

*What opportunities does the District have to improve its public education efforts?*

Measuring the *impacts* of the District's existing public education programs was one goal of the study. Helping the programs to be *more* effective in the future was a second. Based on the findings of this survey as well as True North's experience in other air districts, the Valley Air District appears to have several significant opportunities to improve its public education efforts.

Perhaps the most obvious opportunity exists with notifying residents of Spare the Air events. As noted above, just 17% of drivers were aware that the day of the interview was a Spare the Air day—this despite 43% recalling having been exposed to news stories and public service announcements about poor air quality in the two days prior to the interview. Clearly, there seems to be a disconnect between hearing about poor air quality and knowing that it is a Spare the Air day. Perhaps the message is getting diluted along the way, or local news and weather announcers are noting the poor air quality in the Valley without taking the next step to inform viewers that it is a Spare the Air day and what they can do.

The bottom line is that the District has a great opportunity to increase the effectiveness of the Spare the Air campaign by increasing the penetration of Spare the Air notification. A substantial percentage of residents appear ready and willing to take positive action on a Spare the Air day, but naturally they will only do so if they are first notified of the event. Toward this end, improving the linkage between Spare the Air campaign advertising and clear instructions that it is a Spare the Air day is one obvious strategy to pursue. Using radio advertising to communicate that it is a Spare the Air day is another strategy that has proven very effective in other air districts.<sup>5</sup>

The survey results also indicate that the District has an opportunity to better educate the public about the sources of air pollution and what residents can do (other than reduce their driving) to improve the air quality in the Valley. Although most residents perceive that the Valley has an air pollution problem, just 37% recognized that the causes of this problem are *local*. Moreover, aside from auto emissions, most residents appeared to be unaware of the other ways that the public contributes to air pollution in the Valley through activities such as burning wood and using gas powered equipment, barbecues, lighter fluid, and certain household products.

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5. The BAAQMD relies heavily on radio advertising to notify drivers of Spare the Air events. In 2005, 58% of drivers in the Bay Area were aware of the season's only Spare the Air event.

The importance of educating the public on these matters—especially the alternative ways they contribute to air pollution—is underscored by the logic that the public will be more likely to take positive actions that are comparatively *easy* to take, all other things being equal. Although the public is very aware of the link between auto emissions and air pollution, they also reported that changing their driving behavior is among the more difficult actions to take. On the other hand, substantially reducing their wood burning and their use of gas powered equipment, barbecues, lighter fluid, and certain household products was perceived as being among the easier actions to take in the interest of reducing air pollution.

## DRIVING BEHAVIOR ON STA DAYS

One of the primary goals of this study was to estimate the percentage of drivers who reduced their driving because of Spare the Air messaging. Using the established CARB/EPA methodology as a framework for addressing this issue, True North developed an improved question series to limit measurement error and thereby improve the reliability of trip reduction estimates.

**TABLE 1 MEAN TRIPS TAKEN ON A SPARE THE AIR DAY**

	N	2005
<b>OVERALL</b>	269	3.62
<b>STA Driving Reducer</b>		
Yes	17	6.06
No	252	3.46
<b>Ethnicity</b>		
Caucasian	163	3.50
Latino	60	4.05
African American	10	3.70
Asian American	8	2.62
Mixed or other	16	4.38
<b>Age</b>		
18 to 24	26	5.12
25 to 34	49	3.67
35 to 44	56	3.98
45 to 54	53	4.45
55 to 64	39	2.54
65 and over	40	2.13
<b>County</b>		
Fresno	113	3.55
Kern	88	3.66
Kings	23	4.26
Tulare	45	3.40
<b>Child in Home</b>		
Yes	129	4.50
No	138	2.79
<b>Household Income</b>		
Under \$30K	60	3.92
\$30K to \$50K	47	3.74
\$50K to \$75K	53	4.06
\$75K to \$100K	33	3.39
\$100K+	39	3.56
<b>Gender</b>		
Male	145	3.80
Female	124	3.41
<b>Employment Status</b>		
Employed full-time	142	3.96
Employed part-time	20	3.20
Self-employed	19	3.95
Student	13	4.31
Homemaker	12	5.08
Retired	50	2.22
Not employed	11	3.64

The first question in this series presented respondents who drive at least four days per week with a definition of a driving trip and asked them how many trips they had made on the day of the interview (which was a Spare the Air day). A trip was defined for respondents as: *traveling from one place to another and then stopping. For example, if you left your house and went to the store, that is one trip. Leaving the store and going to work or coming back home is another trip.*

Table 1 presents the average number of trips taken overall and across a variety of demographic subgroups for the 2005 study. The first column (N) identifies the number of respondents in each subgroup, whereas the second column displays the average number of driving trips taken by the subgroup on the day of the interview.

Overall, the average respondent drove 3.62 trips on the day of a Spare the Air event. When compared to their respective counterparts, the number of total driving trips reported was highest among Latinos and those of mixed heritage, drivers under the age of 25, Kings County residents, drivers with at least one child in their household, individuals with annual family incomes between \$50,000 and \$75,000, males, and homemakers. It is worth noting, moreover, that individuals who responded to the Spare the Air campaign by reducing at least one driving trip (STA Driving Reducer) reported having taken the largest number of total driving trips on the day of the interview (6.06 trips). One explanation for this pattern—which has been found in similar studies in other air districts—is that individuals who take a large number of driving trips per day also take more discretionary trips and are thus in a better position to reduce at least one trip in response to the campaign.



**MEASURING TRIP REDUCTION** Measuring the number of trips a respondent reduced due to the Spare the Air campaign is a delicate task—one that, if not done properly, can easily lead to an overestimate or underestimate of trip reduction behavior. For example, directly asking respondents if they drove less because of the Spare the Air campaign is likely to prompt the *socially desirable* response that they had driven less even if they had not.

To overcome this potential problem, the method previously developed by members of the True North Research team for the California Air Resources Board and the U.S. Environmental Protection Agency (CARB/EPA Method)<sup>6</sup> employs an indirect approach to measuring trip reduction behavior. To avoid alerting the respondent to the ultimate purpose of the study, respondents are first asked if they purposely *increased* their driving trips by deciding to drive anywhere that day in a car when they would have normally walked, bicycled, or taken a bus. Following this question, the survey asks if the respondent had purposely decreased the amount of driving they did that day.

It is with respect to measuring trip reduction that True North and ESTC<sup>7</sup> first adjusted the CARB/EPA Method in 2004 for application to a similar study for the Bay Area Air Quality Management District (BAAQMD). In the original CARB/EPA Method, trip reduction is measured by first providing a definition of *decreased* driving (with limited examples),<sup>8</sup> then asking if the respondent purposely decreased their driving in the last 24 hours and, if so, how. Although a definition and some examples of decreased driving are provided, the list of examples is not comprehensive and the burden of correctly identifying trips such as linked trips and vanpooling as ‘purposely reduced trips’ is left to the respondent. True North suspected that the structure of these questions could lead the Method to systematically underestimate trip reduction behavior.

Accordingly, True North—in consultation with ESTC and BAAQMD staff—adjusted the CARB/EPA Method with the goal of reducing this potential source of measurement error and obtaining more reliable estimates of trip reduction. As detailed in the *Questionnaire & Toplines* section of this report (see page 52), the adjusted method involves providing respondents with each possible way they can reduce their driving behavior and then asking them, for each way, whether they decreased their driving in this manner.

The results of the prior studies, as well as the present survey for the Valley Air District, clearly support the use of the adjusted method as it appears to more reliably capture all possible ways that a respondent can reduce a trip. For example, whereas linking trips was mentioned infre-

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6. The CARB/EPA Method is summarized in the Transportation Research Board’s (TRB) journal --*Transportation Research Record*—for 2004 in an article entitled *Development of a Quantification Method for Measuring the Travel and Emissions Impacts of Episodic Ozone Alert Programs* (pages 153-159). It is described in detail in the following air resources guidance report: CARB, “Quantification Method Reference Manual: A Method to Measure Travel and Emissions Impacts of Ozone Action Public Education Programs,” April 2003. In addition to Eric Schreffler, Dr. Timothy McLarney and Richard Sarles, the TRB paper and guidance report were co-authored by Joann Lu and Jeff Weir of CARB, as well as Thomas Higgins and Dr. Will Johnson of K.T. Analytics.

7. ESTC is headed by Eric Schreffler, who consults on transportation demand management.

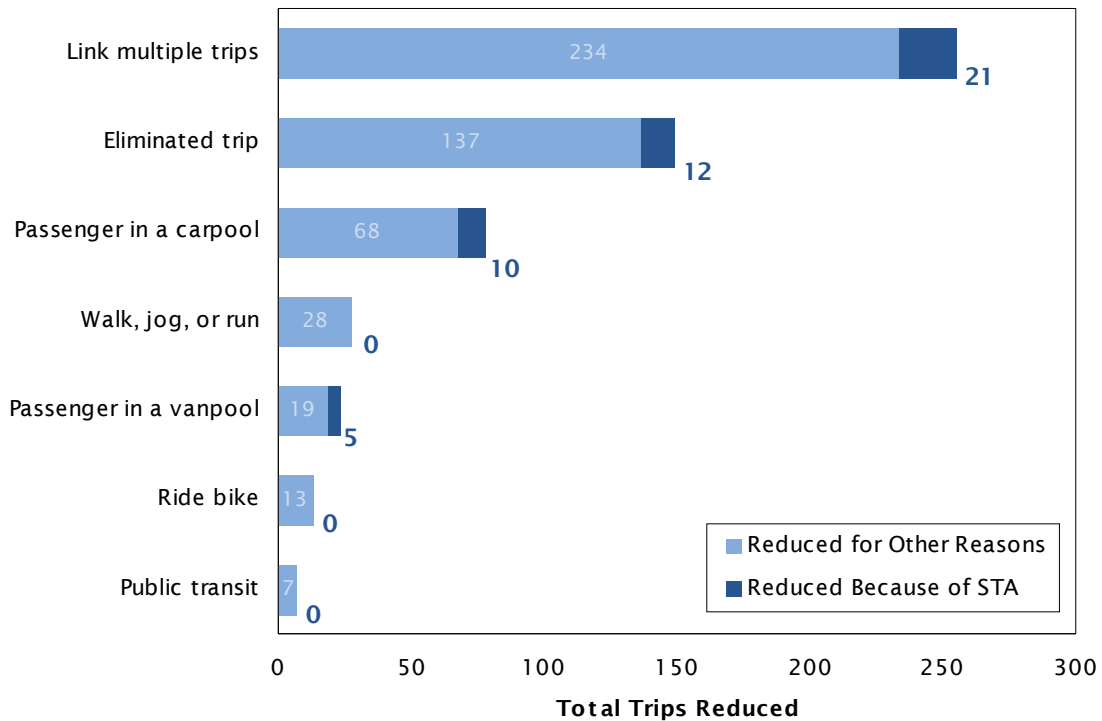
8. The specific wording is as follows: “Sometimes people will purposely decrease the amount of driving they do in a day. An example of purposely decreasing driving would be if a person decided to take a bus, walk, bike or ride with someone else to work when they normally would have driven, or if someone decided to simply not take a trip they would have normally taken in a car. Did you purposely decrease the amount of your driving today?”

quently by respondents under the original CARB/EPA Method because it was not explicitly offered as an example during the interview, using the adjusted method it was found that linking trips was in fact the most common way respondents reported that they reduced their driving (see Figure 2).

Because there are dozens of reasons why an individual can choose to reduce their driving that have nothing to do with the Spare the Air campaign—such as car problems, schedule changes, or agreeable weather—a follow-up question was also asked to determine the reason why a respondent reduced each trip.

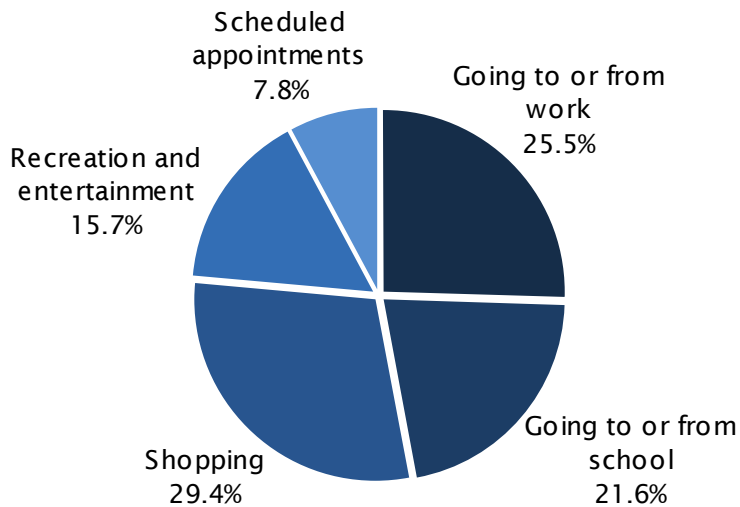
The results for the 2005 summer ozone season in the San Joaquin Valley are shown in Figure 2. The figure shows the total number of trips reduced for each method of reduction, and highlights trips reduced because of Spare the Air messaging in dark blue. In sum, the 269 drivers who answered this question reduced a total of 48 trips because of Spare the Air messaging. The most common method of trip reduction was ‘linking several driving trips together that you normally would make separately’, accounting for 44% of trips (21 of 48) reduced because of the campaign. The average individual who reduced their trips due to Spare the Air advertising reported reducing 3 trips on the day of the event.

**FIGURE 2 TOTAL TRIPS REDUCED**



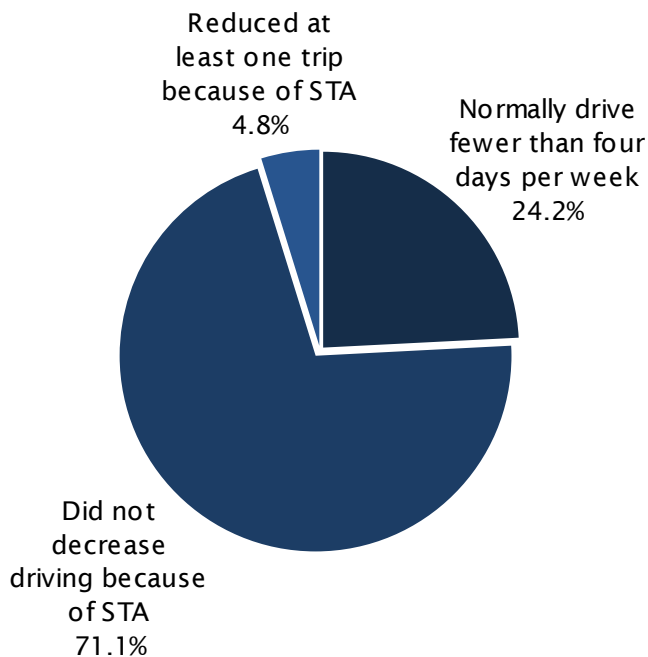
Respondents who reduced their driving due to the Spare the Air campaign were also asked to indicate the purpose of the trips that they reduced. Figure 3 illustrates the distribution of trips reduced by Spare the Air driving reducers according to trip purpose. The most common types of trips reduced were shopping trips (29%) and trips to or from work (26%)—results which are, incidentally, quite similar to those found in prior studies in a neighboring air district (BAAQMD).

**FIGURE 3 ORIGINAL PURPOSE OF TRIP REDUCED BECAUSE OF SPARE THE AIR**



In terms of individual drivers, Figure 4 shows how they are distributed among the three mutually exclusive categories of interest to this study. Overall, 4.8% of drivers interviewed indicated they reduced at least one trip because of the Spare the Air campaign. Approximately 24% of respondents indicated they normally drive fewer than four days per week (the first substantive question of the survey) and were not asked the detailed trip questions. The remaining 71% reported that either they did not decrease their driving or they did so but for reasons unrelated to the campaign.

**FIGURE 4 OVERALL DRIVING BEHAVIOR**



The percentage of drivers who responded to the Spare the Air campaign by reducing at least one driving trip (4.78%) is an estimate based on the 356 interviews completed in Fresno, Kern, Kings and Tulare counties the evening of a Spare the Air day. As mentioned in the *Introduction*, because the remaining counties in the District did not have a Spare the Air event during the study period, respondents from these counties were not asked the relevant questions and are thus not included in these analyses.

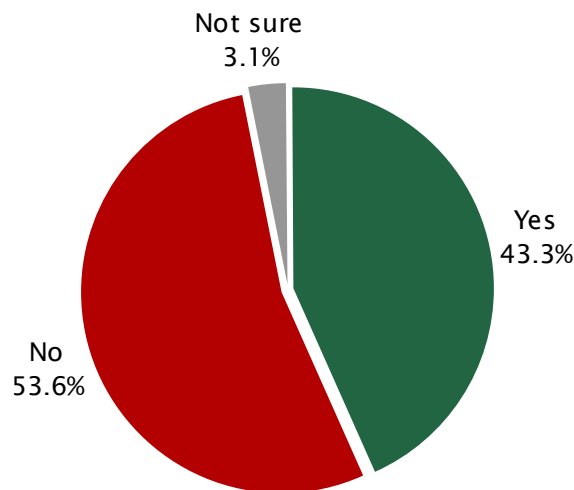
## RECALL AND AWARENESS OF STA MESSAGING

Although the ultimate goal of the Spare the Air campaign is to persuade individuals to reduce their driving and use of products that are harmful to air quality, there are a series of related objectives which must be met in order for this to occur. For example, regardless of how compelling the message may be, if the message does not reach the target audience then the campaign can not succeed in its primary goal. Thus, an important secondary objective of the campaign is to simply increase awareness of the Spare the Air program and Spare the Air days.

**RECALL EXPOSURE TO SPARE THE AIR MESSAGING** Accordingly, a series of questions was asked of respondents about their recall of Spare the Air messaging—including the medium and content of the information—as well as whether they were aware that the day of the interview was a Spare the Air day. The first of these questions asked: *In the past two days, have you heard, read, or seen any new stories or public service announcements about Spare the Air, poor air quality, or requests to drive less in this area, or to not use certain products that affect air quality?*

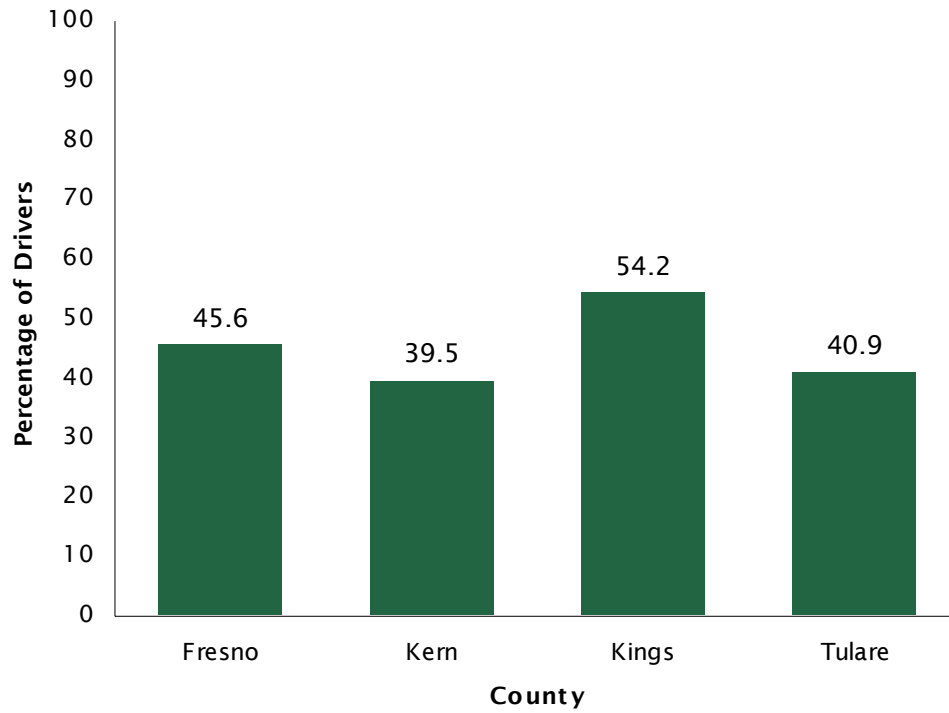
As shown in Figure 5, 43% of respondents in Fresno, Kings, Kern and Tulare counties who were interviewed the evening of a Spare the Air day indicated that they had encountered air quality news stories or public service announcements during the prior two day period.

**FIGURE 5 HEARD, READ, OR SAW AIR-RELATED INFO IN PAST TWO DAYS**

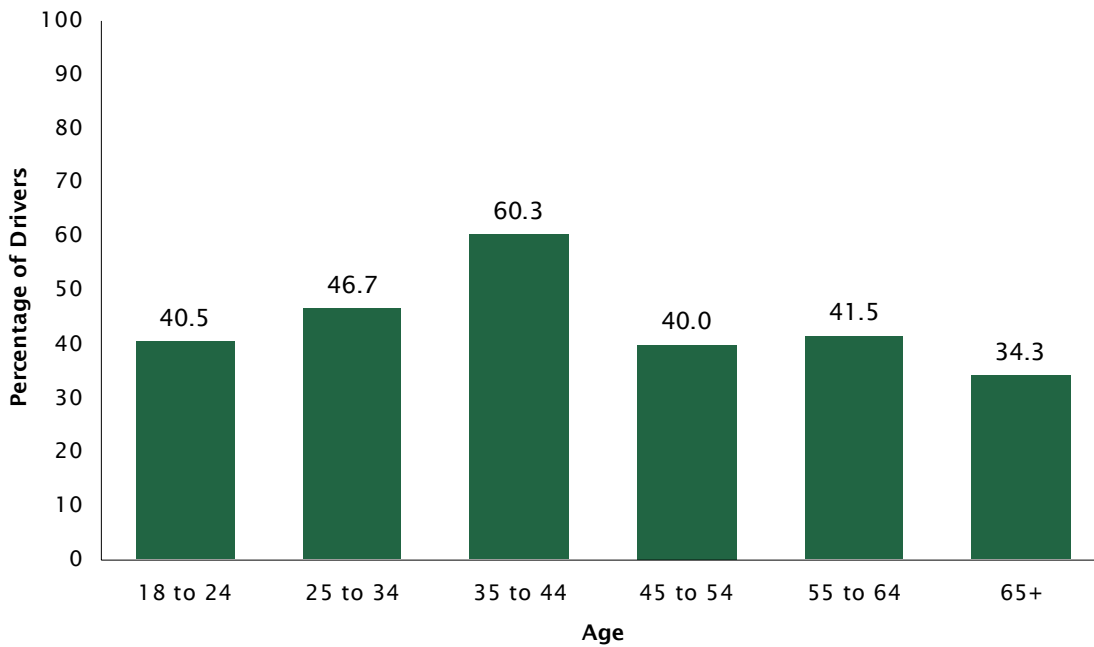


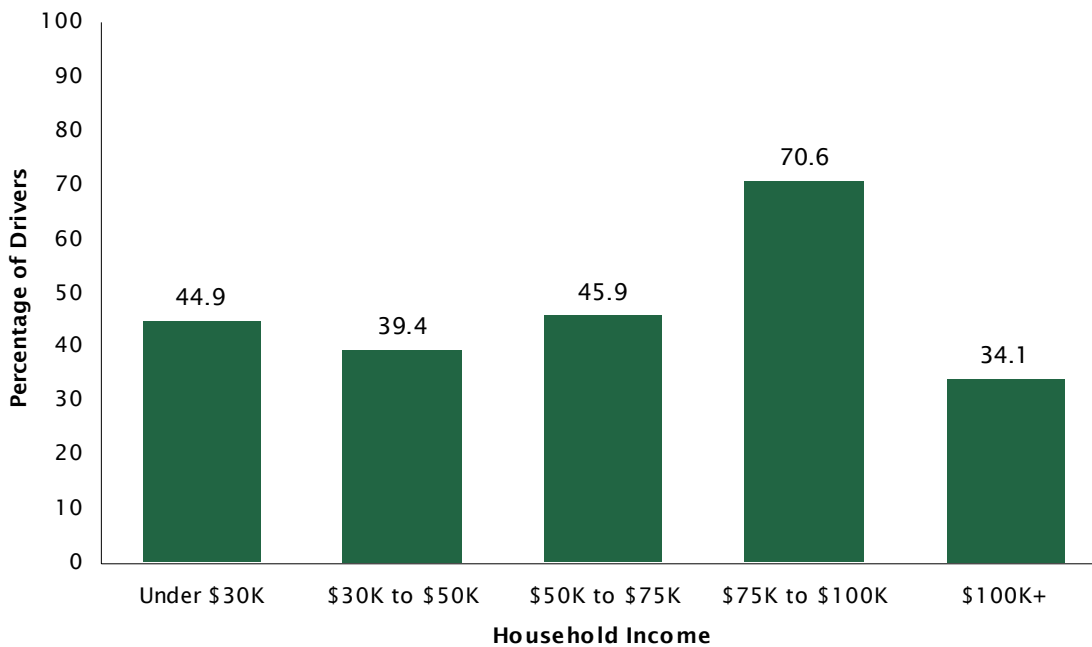
For the interested reader, the next three figures illustrate how recall of air quality messaging varied by county, age and household income. Overall, recalled exposure to this type of information during the two days prior to the interview was highest among residents of Kings County (Figure 6), individuals between the ages of 35 and 44 (Figure 7), and respondents who reported annual family incomes between \$75,000 and \$100,000 (Figure 8).

**FIGURE 6 HEARD, READ, OR SAW AIR-RELATED INFO IN PAST TWO DAYS BY COUNTY**



**FIGURE 7 HEARD, READ, OR SAW AIR-RELATED INFO IN PAST TWO DAYS BY AGE**

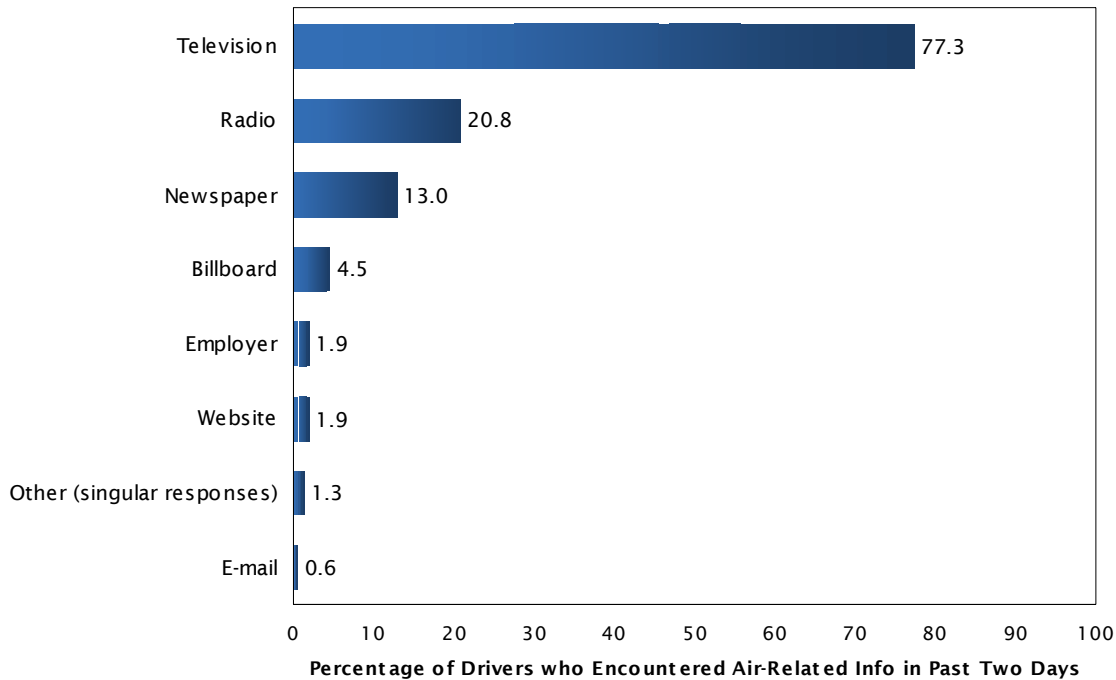


**FIGURE 8 HEARD, READ, OR SAW AIR-RELATED INFO IN PAST TWO DAYS BY HOUSEHOLD INCOME**

Those who indicated that they recalled hearing, reading, or seeing air quality-related information in the two days prior to the interview were next asked where they obtained the information. Multiple responses to the question were allowed, so the percentages shown in Figure 9 represent the percentage of drivers who mentioned a particular source and thus add to more than 100%.

Television was by far the most commonly mentioned source (77%), followed by radio (21%) and newspaper (13%). When compared to recent studies for the BAAQMD, drivers in the Valley appear to be more dependent on television and rely less on radio, which is likely a reflection of the districts' different approaches to notifying residents of Spare the Air events.<sup>9</sup>

9. The BAAQMD relies heavily on radio advertising to notify drivers of Spare the Air events.

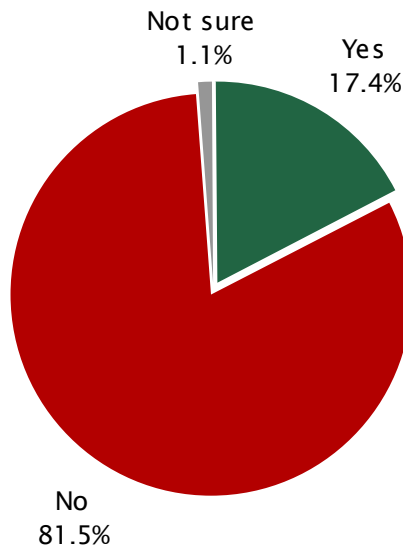
**FIGURE 9 INFORMATION SOURCE FOR AIR-RELATED INFO**

**AWARE OF SPARE THE AIR DAY** The survey next asked all respondents in Fresno, Kings, Kern and Tulare counties if, prior to taking the survey, they were aware that a Spare the Air day had been called that day. As shown in Figure 10 on the next page, just 17% of respondents indicated that they were aware it was a Spare the Air day—this despite 43% indicating that they had been exposed to information about poor air quality in the two day period prior to the interview (as shown previously in Figure 5).

It is worth noting that the level of awareness in the Valley of specific Spare the Air events appears to be much lower than that found in the Bay Area, which averaged 58% awareness during the 2005 summer ozone season. Once again, this pattern is likely a reflection of the greater resources that the BAAQMD devotes to notifying residents of specific Spare the Air events through radio advertising alerts on Spare the Air days. The Valley's lower levels of awareness may also be a reflection of message content. Although a sizeable percentage of Valley residents were made aware through television programs that air quality was poor in the two days prior to the interview (see Figure 5), in many cases this information appears not to have been accompanied with specific Spare the Air notification or instructions—which may explain why many of these residents who had been exposed to air quality-related information were nevertheless unaware that it was a Spare the Air day.

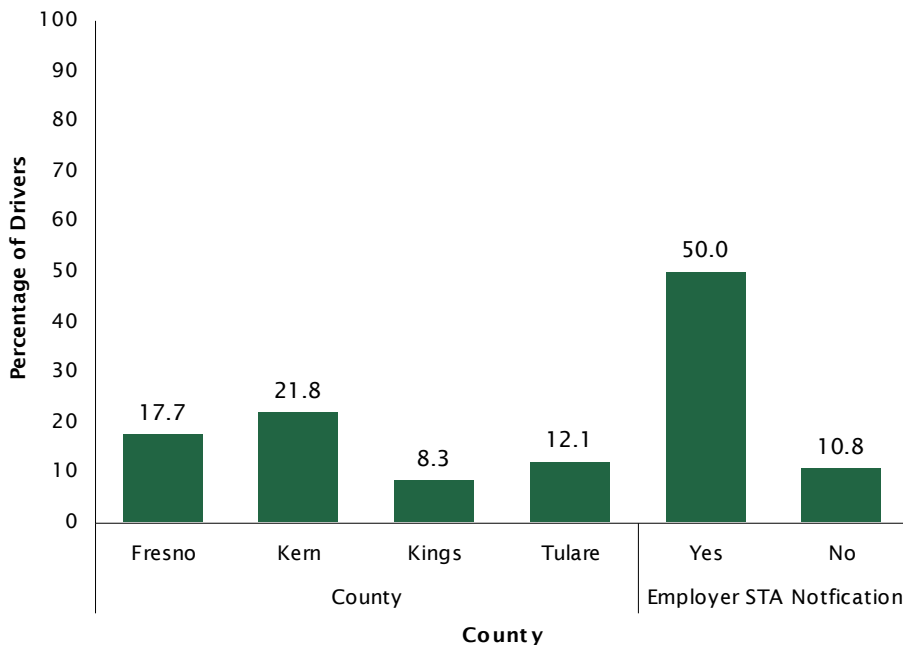


**FIGURE 10 AWARE OF SPARE THE AIR DAY**

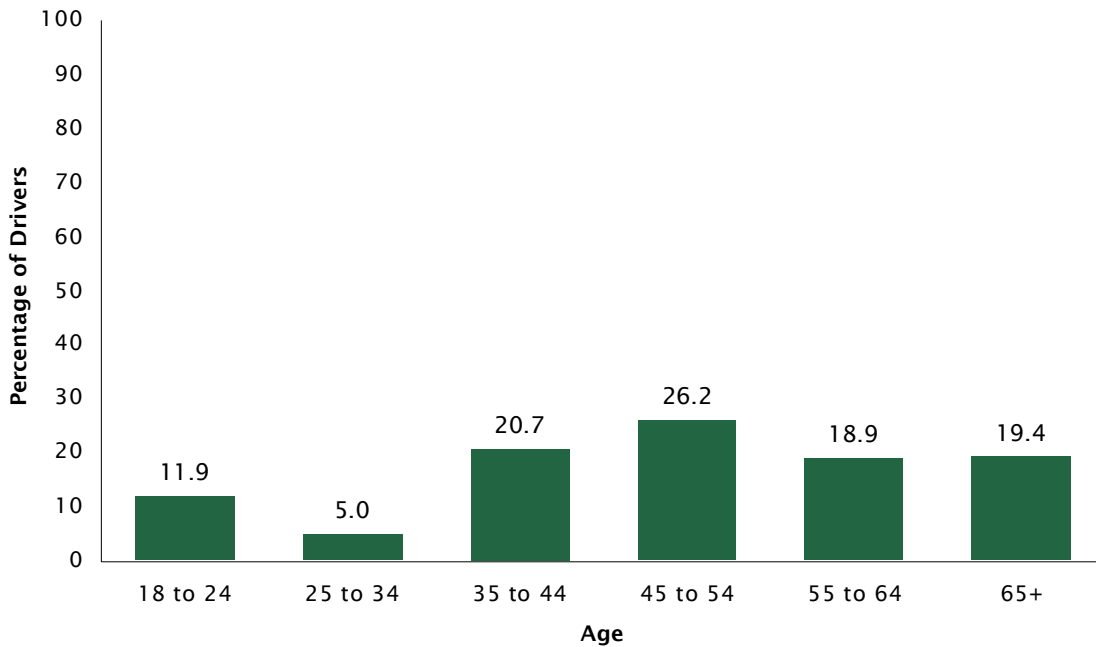


For the interested reader, the next three figures show how awareness of it being a Spare the Air day varied by county, whether a respondent’s employer notifies them of Spare the Air days, age and household income. Consistent with prior studies in other air districts, employer notification makes the largest difference in respondent awareness of Spare the Air events (see Figure 11). Half (50%) of all drivers who are notified by their employers indicated that they were aware it was a Spare the Air day on the day of the interview, compared to just 11% among drivers who are not notified by their employer. When compared to their respective counterparts, awareness was also highest among Kern County residents, those between the ages of 45 and 54, and individuals whose annual family income is between \$75,000 and \$100,000.

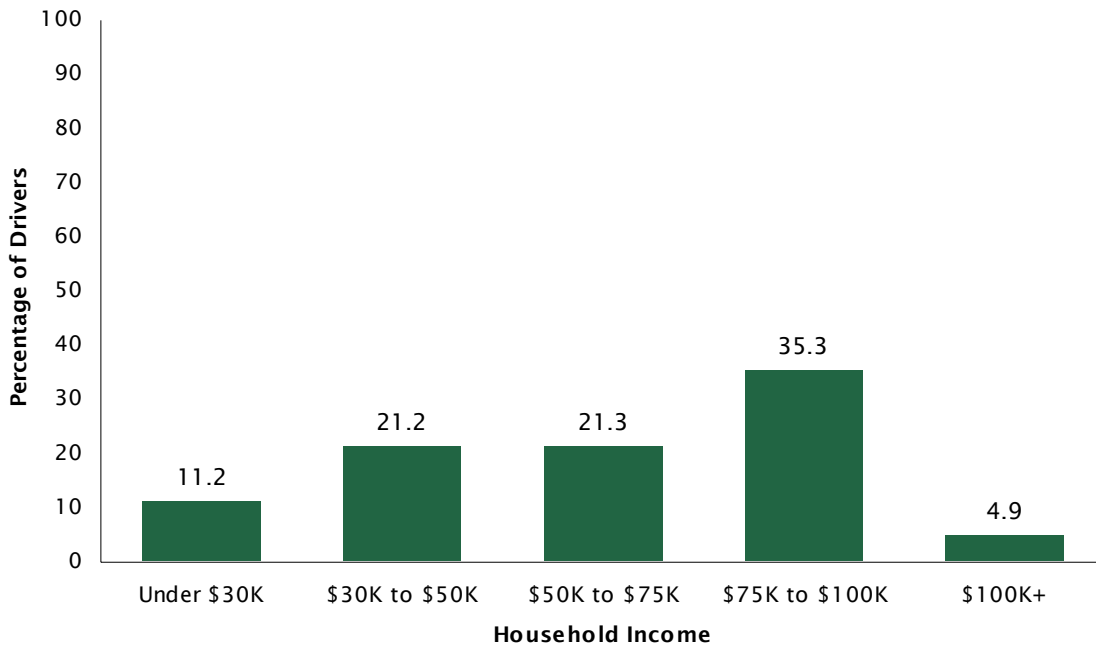
**FIGURE 11 AWARE OF SPARE THE AIR DAY BY COUNTY & EMPLOYER NOTIFICATION OF STA DAYS**



**FIGURE 12 AWARE OF SPARE THE AIR DAY BY AGE**



**FIGURE 13 AWARE OF SPARE THE AIR BY HOUSEHOLD INCOME**

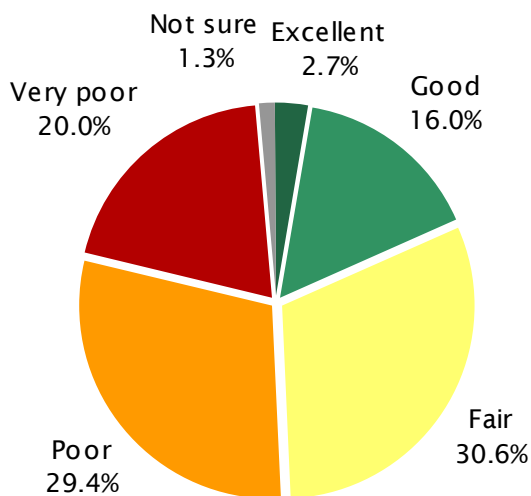


## AIR QUALITY IN THE DISTRICT

The most basic challenge for any public education effort is to raise public awareness and knowledge of an issue. Put simply, residents won't take the desired actions to help solve a problem if they are not first aware that the problem exists and/or if they are not properly informed about the nature of the problem. With respect to the Valley Air District's mission, it is thus critical to understand whether the public understands that the Valley has an air pollution problem, as well as identify whether the public understands the causes of the problem and its potential impact on them personally. To this end, the survey asked a series of questions designed to measure the public's perception of air quality in the region, their knowledge of the sources of air pollution, as well as the perceived impact of air pollution on their households.

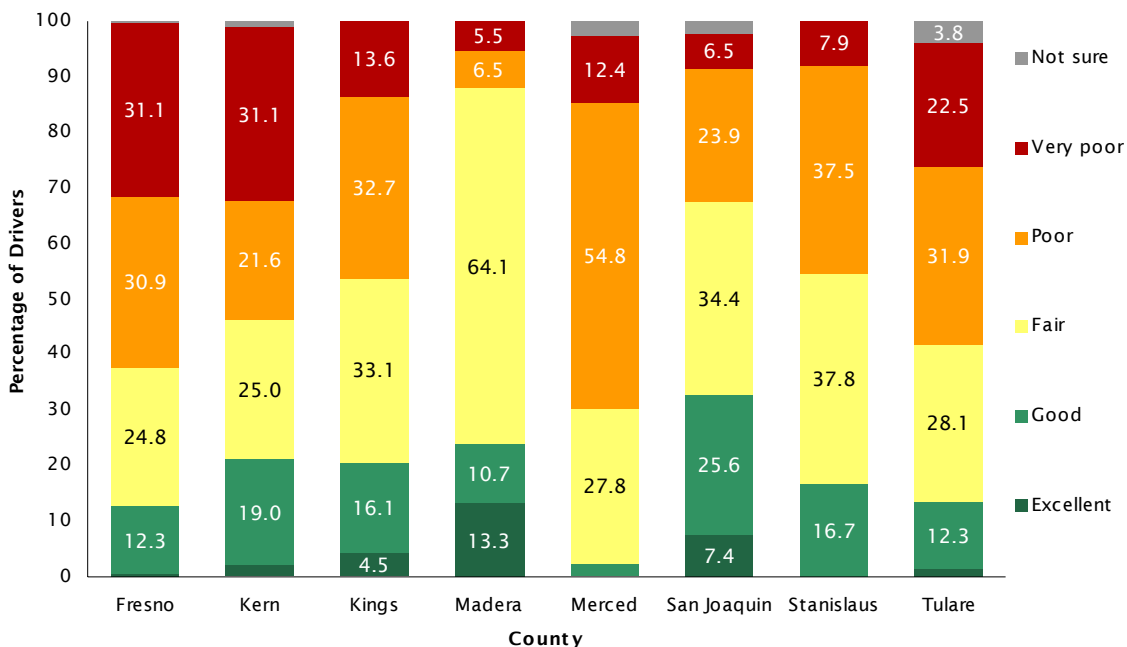
**RATING OF AIR QUALITY** The first question in this series simply asked respondents to rate the air quality in their county, using a scale of excellent, good, fair, poor, or very poor. As shown in Figure 14, most residents in the Valley are aware that the region has an air pollution problem. Nearly half (49%) of all respondents rated the air quality as either poor (29%) or very poor (20%), whereas an additional 31% offered that it is fair. Less than one in five respondents indicated that the air quality is either good (16%) or excellent (3%).

FIGURE 14 RATING OF AIR QUALITY



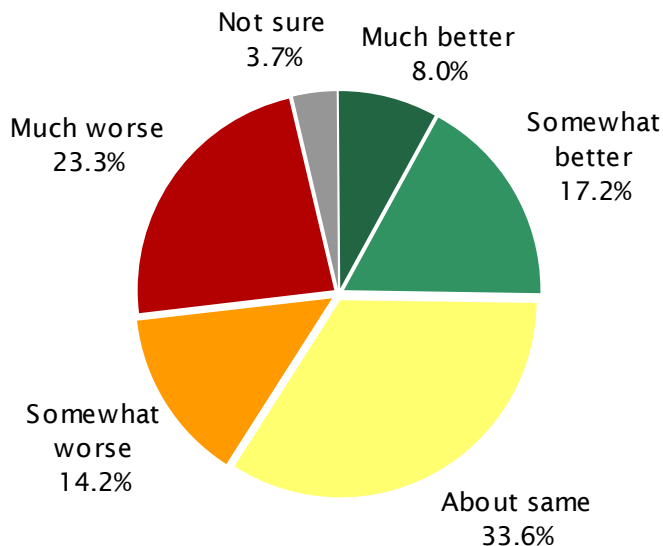
Whereas Figure 14 presents the rating of air quality in the region among all respondents in the District, Figure 15 shows how these ratings varied by the county in which a respondent lives. Among all respondents, those in Fresno, Kern and Tulare counties were the most likely to rate the air quality as very poor (which is consistent with objective measures of air quality in the District based on the number of Spare the Air events per county). It is also striking that even in the northern counties residents harbored a generally unfavorable opinion of the air quality, with the vast majority rating it either fair, poor, or very poor.

**FIGURE 15 RATING OF AIR QUALITY BY COUNTY**



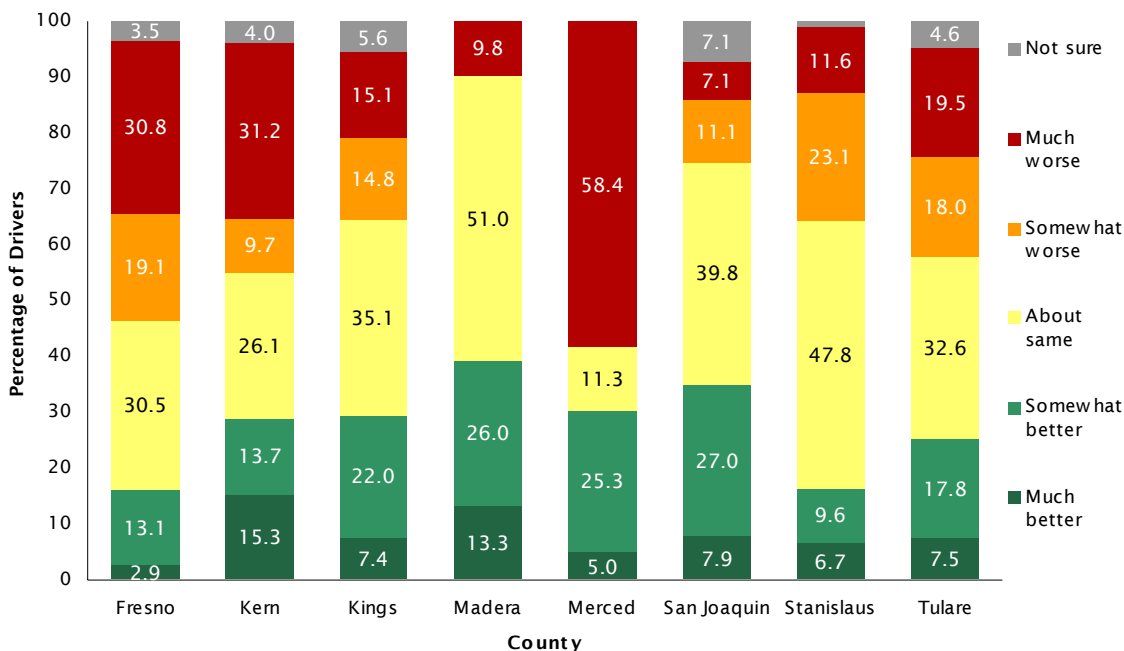
The survey next inquired about how residents perceive their county’s air quality in relation to most other areas in California. In general, Valley residents were more likely to rate their air quality as worse (38%) than they were to claim it is about the same (34%) or better (25%) than most other areas in the State. As expected given the rankings of air quality by county shown in Figure 15, residents in Fresno, Kern and Tulare counties were more likely than their northern counterparts to perceive their counties’ air quality as worse than other areas of the State (see Figure 17).<sup>10</sup>

**FIGURE 16 AIR QUALITY COMPARED WITH OTHER AREAS IN CALIFORNIA**



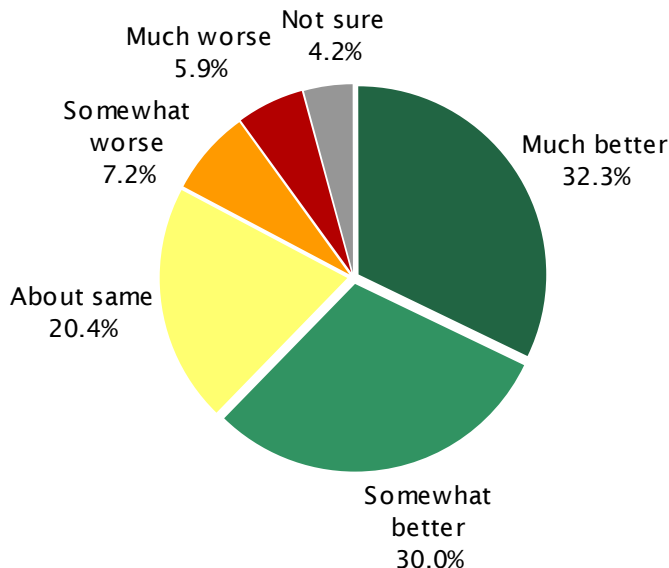
<sup>10</sup>The reader is cautioned against generalizing the results for Merced and Madera counties given the small sample sizes in both counties.

**FIGURE 17 AIR QUALITY COMPARED WITH OTHER AREAS IN CALIFORNIA BY COUNTY**

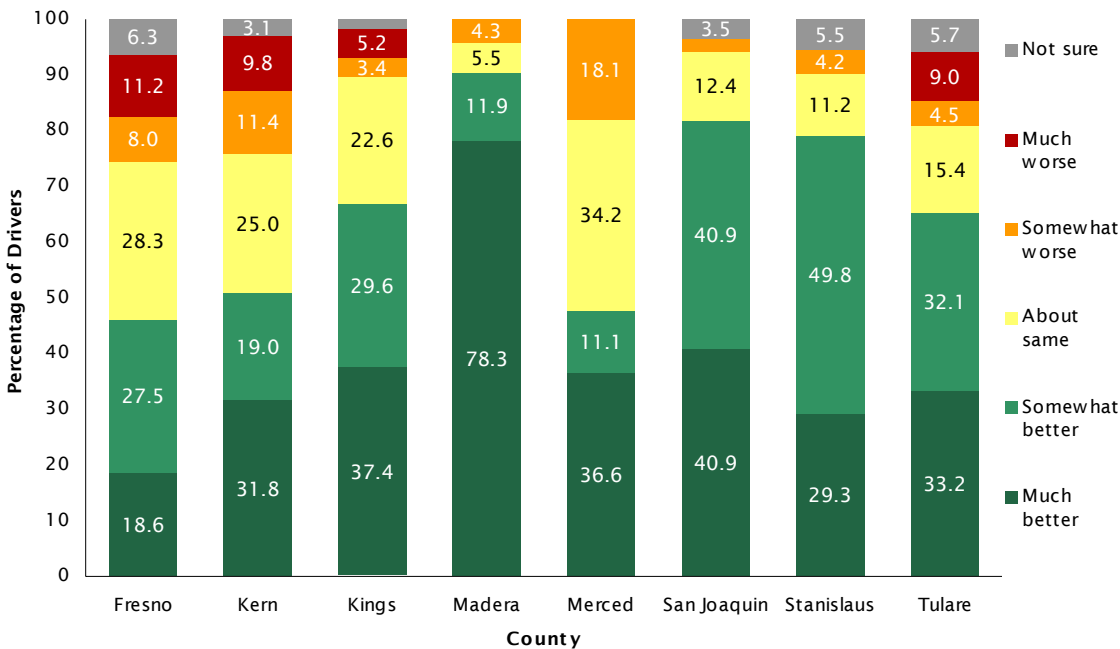


All participants were next provided with a specific comparison—Los Angeles—and asked whether the air quality in their county was better, worse or about the same. Despite Los Angeles’ popular reputation for smog, in fact the Valley often exceeds Los Angeles in the number of days that exceed federal air quality standards. Most respondents, however, perceived that the air quality in their county was generally better (62%) than that in Los Angeles, with an additional 20% indicating that it was about the same. Just 13% of respondents shared the opinion that the air quality in their county is generally worse than the air quality in Los Angeles (see Figure 18). Among counties with a sufficient enough sample size, Fresno, Kern and Tulare residents were the least likely to favorably compare their air quality to Los Angeles’ (see Figure 19).

**FIGURE 18 AIR QUALITY COMPARED WITH LOS ANGELES**

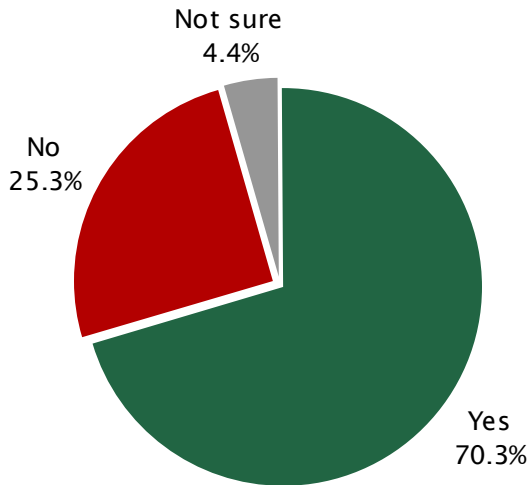


**FIGURE 19 AIR QUALITY COMPARED WITH LOS ANGELES BY COUNTY**

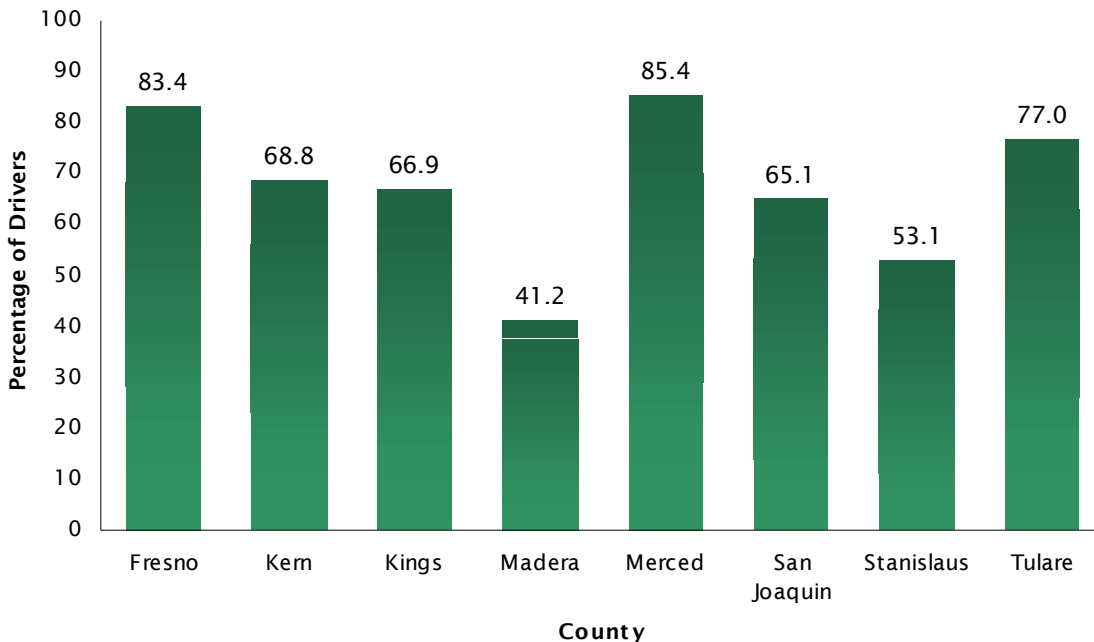


All respondents were next asked whether, in their opinion, the county in which they live occasionally experiences high levels of air pollution. As shown in Figure 20, nearly 3 out of 4 Valley residents (70%) perceive that their county does indeed experience high levels of air pollution. Moreover, this pattern is widespread throughout the Valley (see Figure 21). Although residents in the southern part of the District (Fresno, Kings, Kern and Tulare counties) were generally the most likely to acknowledge high levels of air pollution, even in the northern counties 41% or more of participants felt that their county occasionally experiences high levels of air pollution.

**FIGURE 20 COUNTY OCCASIONALLY EXPERIENCES HIGH LEVELS OF AIR POLLUTION**

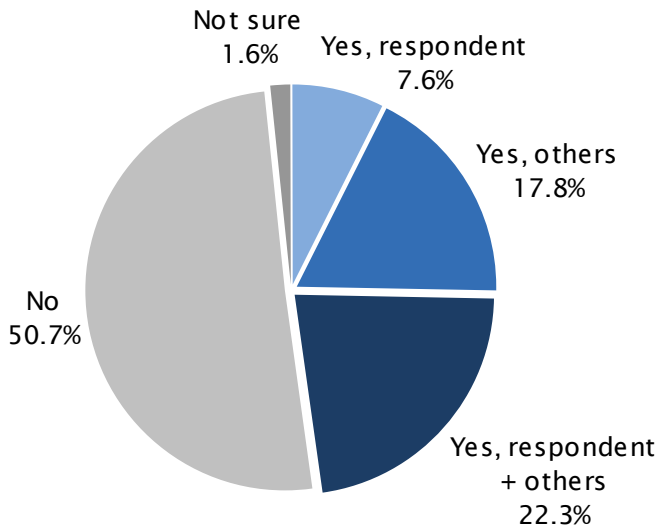


**FIGURE 21 COUNTY OCCASIONALLY EXPERIENCES HIGH LEVELS OF AIR POLLUTION BY COUNTY**



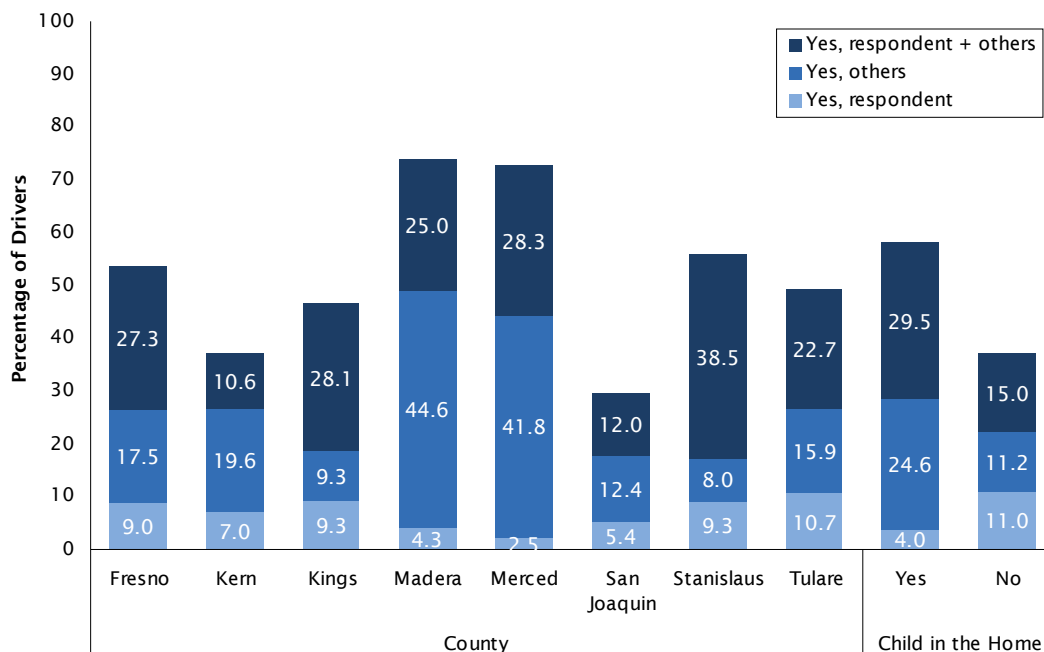
**HEALTH IMPACTS** All respondents were next asked whether they and/or other members of their household occasionally experience negative health effects due to air pollution. Overall, 48% of respondents indicated that at least one member of their household experiences negative health effects due to air pollution, with 22% reporting that these effects are experienced by the respondent *and* other members of the household (see Figure 22).

**FIGURE 22 EXPERIENCE NEGATIVE HEALTH EFFECTS DUE TO AIR POLLUTION**

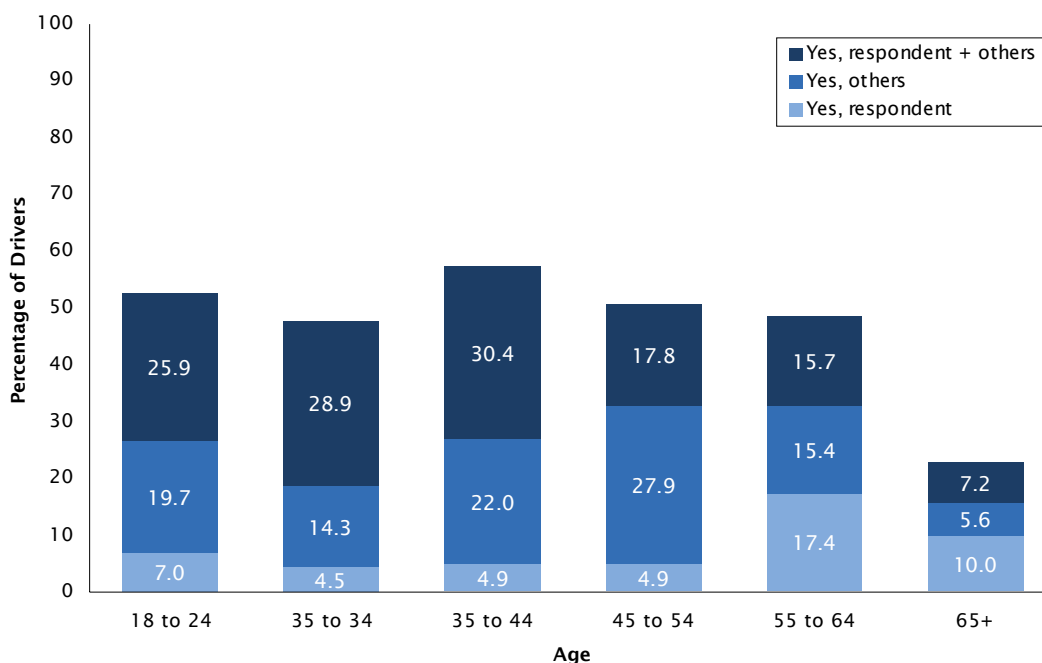


The next two figures show how self-reported health impacts of air pollution varied by county of residence, whether there is a child in the household, and the age of the respondent. The most striking pattern in the figures is that the negative health impacts of air pollution are more commonly reported in households with children, and appear to affect older residents (55+) substantially more often than their younger adult counterparts.

**FIGURE 23 NEGATIVE HEALTH EFFECTS DUE TO AIR POLLUTION BY COUNTY AND CHILD IN HOME**



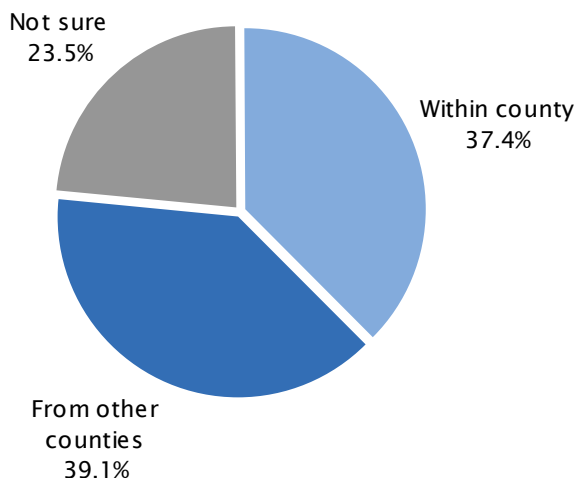
**FIGURE 24 NEGATIVE HEALTH EFFECTS DUE TO AIR POLLUTION BY AGE**



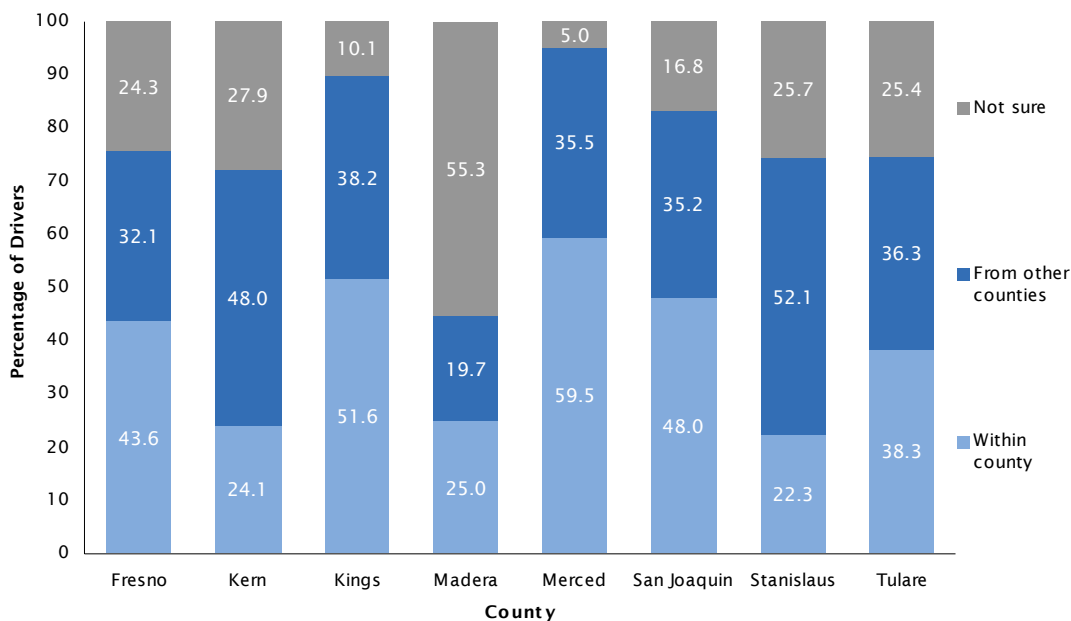


**SOURCES OF POLLUTION** The final two questions in this series asked respondents about sources of air pollution. Respondents were first asked *where* they think most of the air pollution in their county comes from—is it produced locally, or is it produced in other areas and then blown by the wind into their county? As shown in Figure 25, residents were rather evenly split between those who felt pollution primarily comes from sources within their county (37%), those who think it comes from other areas and is then blown by the wind into their county (39%), and those who were not sure (24%).<sup>11</sup> This overall pattern of opinion was also repeated within most of the eight counties in the District (see Figure 26).

**FIGURE 25 SOURCE OF POLLUTION**



**FIGURE 26 SOURCE OF POLLUTION BY COUNTY**

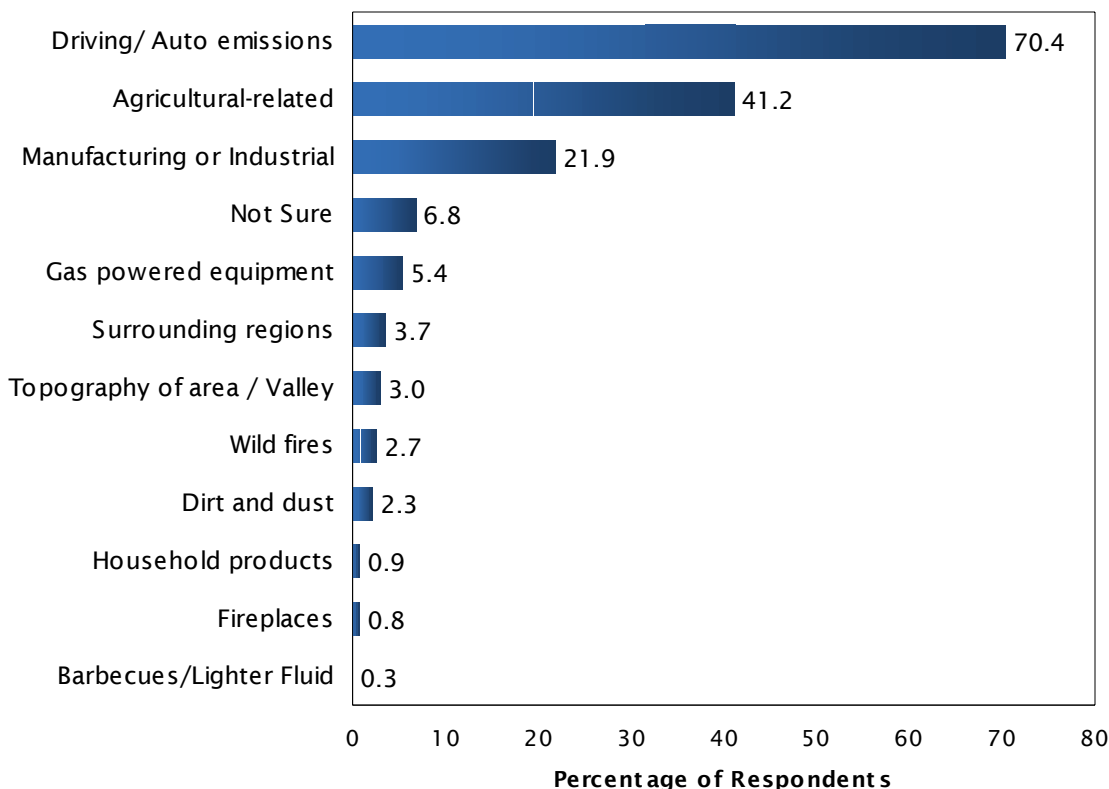


11. According to the San Joaquin Valley Regional Air Quality Study, 91% of the total air pollution inventory in the Valley is produced within the Valley by sources such as motor and recreational vehicles, indoor and outdoor burning, and industrial emissions.

All respondents were next asked to indicate what they think are the primary causes of air pollution in their county. This question was asked in an open-ended manner, which allowed participants to mention any source that came to their mind without being prompted by a specific list of options. Respondents were also allowed to mention up to three different pollution sources. The list of verbatim responses was later reviewed by True North and grouped into the categories shown in Figure 27. Because respondents were allowed to mention more than one pollution source, the percentages shown in the figure represent the percentage of all respondents that mentioned each pollution source (and thus add to more than 100%).

By far the most commonly mentioned source of air pollution was driving/auto emissions—mentioned by more than two-thirds (70%) of all respondents. Agricultural-related sources and manufacturing or industrial emissions were also mentioned by 41% and 22% of respondents, respectively. Among the remaining categories, only gas powered equipment was mentioned by at least 5% of respondents. It is worth noting, moreover, that very few respondents mentioned the use of household products (1%), fireplaces (1%) and other residential activities such as using barbecues or lighter fluid (0.3%) as contributing to local air pollution.

**FIGURE 27 SPECIFIC SOURCES OF POLLUTION**

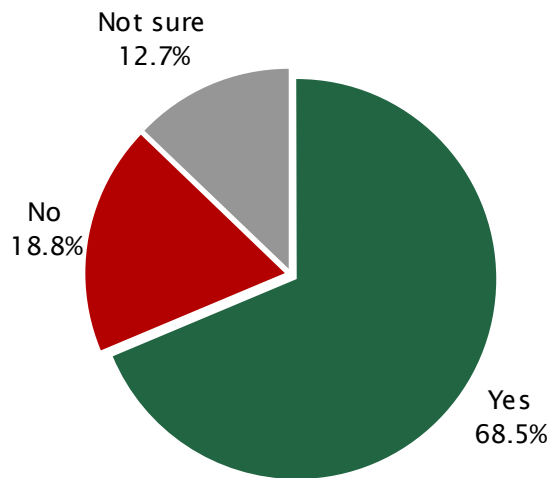


## GENERAL STRATEGIES FOR REDUCING AIR POLLUTION

Having measured respondents' opinions about the severity and causes of the air pollution problem in their county, as well as their experiences with the negative health impacts of air pollution, the survey next turned to gauging residents' opinions about the role that the public can play in reducing air pollution.

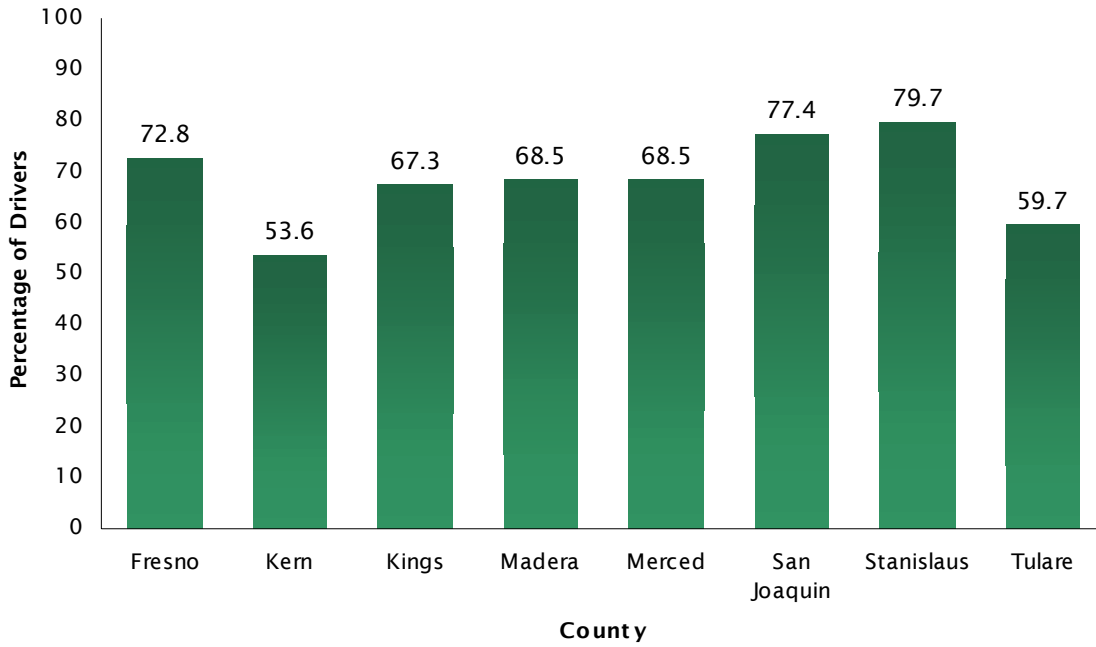
**CAN RESIDENTS MAKE A DIFFERENCE?** The first question in this series was designed to gauge residents' sense of efficacy in solving the air pollution problem. In other words, do residents think there are actions that the public can take in their county to significantly reduce air pollution? As shown in Figure 28, 69% of respondents agreed that residents can take actions that will significantly reduce air pollution, whereas 19% felt that residents could not impact air pollution and 13% were unsure.

**FIGURE 28 CAN RESIDENTS SIGNIFICANTLY REDUCE AIR POLLUTION?**

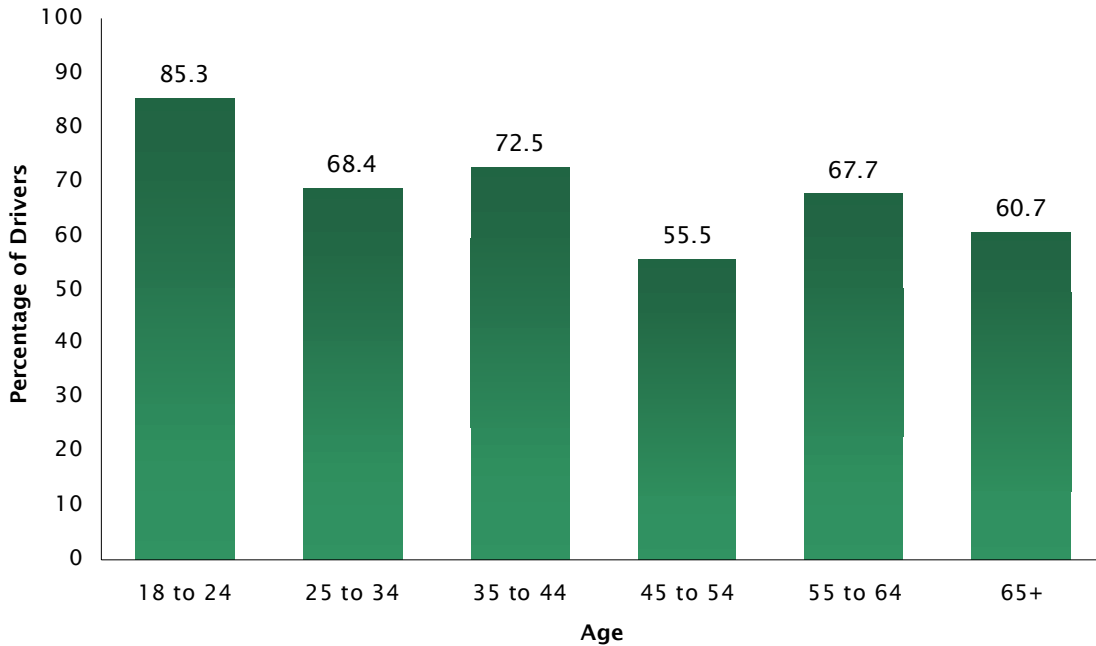


Respondents varied somewhat in their sense of efficacy. In general, residents from Fresno, San Joaquin and Stanislaus counties were the most likely to believe that the public can take actions to significantly reduce air pollution, whereas respondents in Kern and Tulare counties were the most pessimistic in this respect (see Figure 29). From an age perspective, residents under 45 (especially those under 25) were generally more likely than their older counterparts to believe that residents can make a difference in reducing local air pollution levels (see Figure 30).

**FIGURE 29 DO RESIDENTS HAVE ROLE IN REDUCING AIR POLLUTION BY COUNTY**



**FIGURE 30 DO RESIDENTS HAVE ROLE IN REDUCING AIR POLLUTION BY AGE**

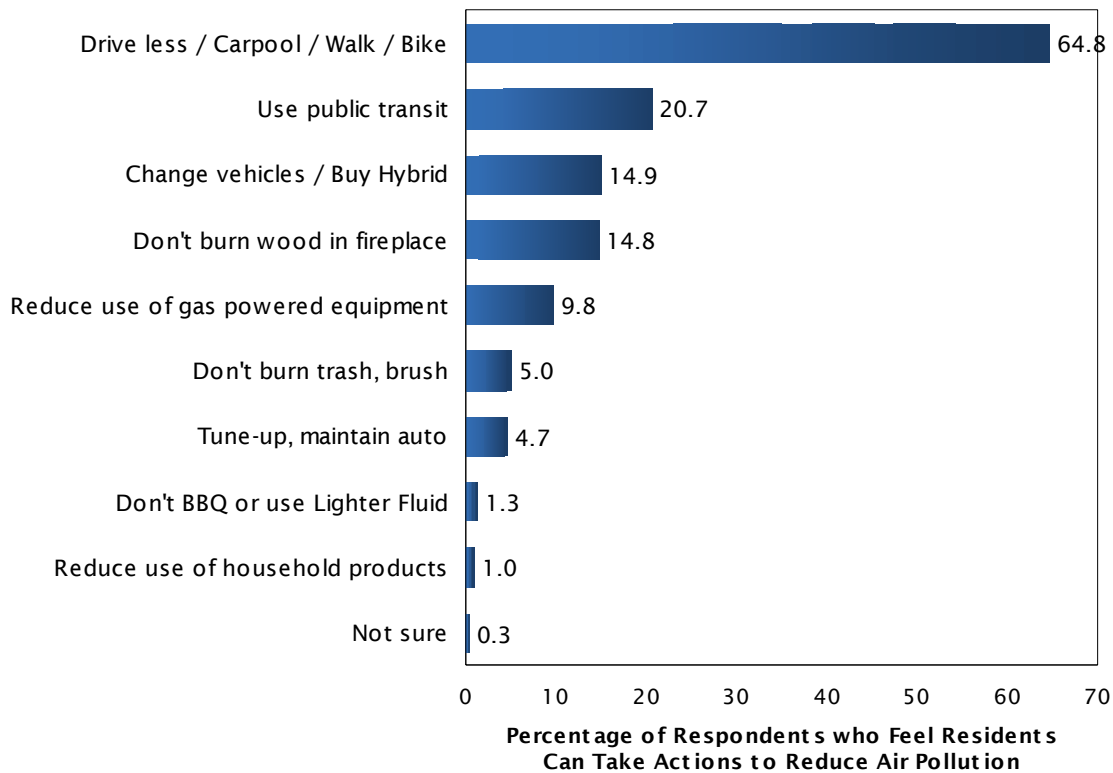


**WHAT ACTIONS CAN RESIDENTS TAKE?** For those residents who felt that the public *can* take actions to effectively reduce local levels of air pollution, the survey next inquired as to the types of actions that they can take. The question was asked in an open-ended manner, which allowed respondents to mention any actions that came to mind without being prompted or restricted by a specific list of options. For this reason, the question is a good measure of resident *awareness* of the actions that they can take to reduce air pollution. Because there are multiple actions that a resident can take, multiple responses were allowed for this question. The percentages in the following figure correspond to the percentage of those respondents who were administered the question that mentioned a particular action.

Actions that centered on driving behavior were by far the most commonly mentioned ways that the public can reduce local air pollution (see Figure 31). Nearly two-thirds (65%) of respondents focused on driving less by reducing trips, carpooling, walking or biking. Specific references to using public transit (21%) were also common, and changing to a more fuel-efficient form of personal vehicle was mentioned by 15% of respondents.

Other actions that were mentioned by 15% or less of respondents, respectively, included reductions in wood burning (15%), use of gas powered equipment (10%), trash burning (5%), barbecues and lighter fluid (1%), and certain household products (1%).

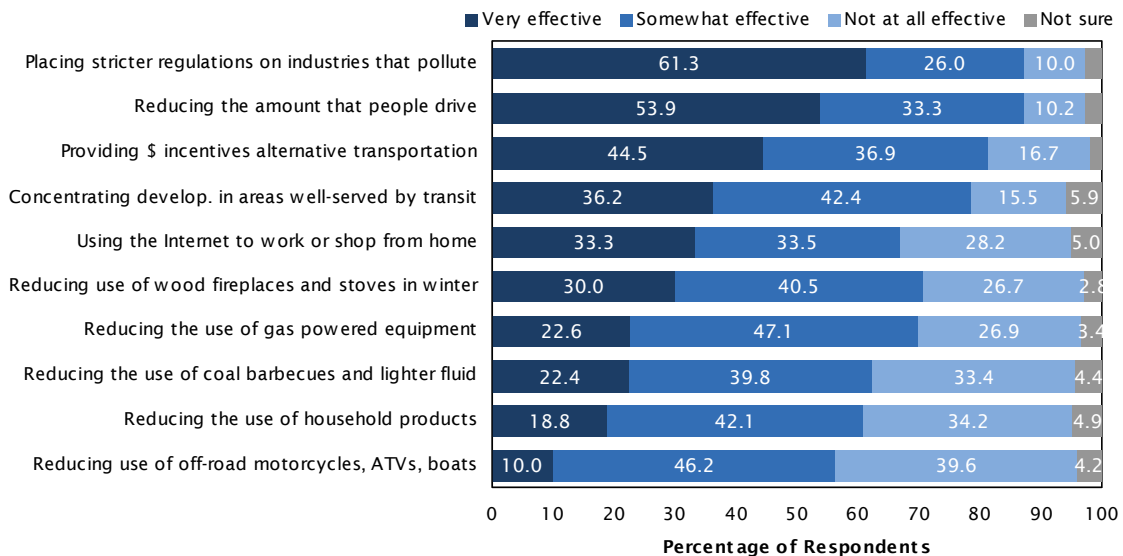
**FIGURE 31 ACTIONS RESIDENTS CAN TAKE TO REDUCE AIR POLLUTION**



Having measured in an open-ended manner respondent awareness of the types of actions that can be taken by the public to reduce air pollution, the survey next presented all participants with the list of 10 specific strategies shown in Figure 32. For each strategy, respondents were simply asked to rate how effective it would be in reducing the overall amount of air pollution. To avoid a systematic position bias, the strategies were presented in a random order to each respondent.

As shown in Figure 32, residents definitely distinguish between types of strategies and their perceived impact on local air quality. Placing greater restrictions on industries that create air pollution was perceived as the most effective strategy (61% very effective), followed by reducing the amount that people drive (54%), providing financial incentives to encourage people to ride public transit, carpool, bike or walk (45%), and concentrating new development in areas that are well-served by public transit (36%). Strategies that were generally perceived as being far less effective approaches to reducing local air pollution were reducing the use of off-road motorcycles, ATVs and boats (10%), reducing the use of household products such as aerosol spray cans, hair spray, cleaning products and paint (19%), and reducing the use of coal barbecues and lighter fluid (22%).

**FIGURE 32 SUGGESTED STRATEGIES FOR REDUCING AIR POLLUTION**



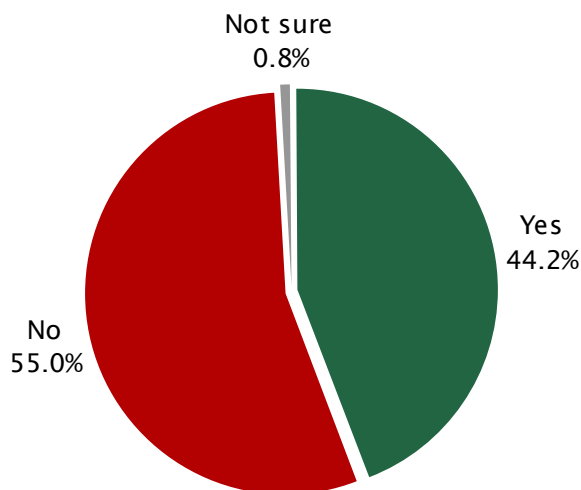
## PERSONAL AIR-QUALITY BEHAVIOR

The prior two sections of the survey focused on respondents' awareness of the air pollution problem in their county, their knowledge of the types of actions that can be taken to reduce air pollution, as well as the perceived effectiveness of different strategies for reducing air pollution. At this point, the survey shifted from measuring awareness and attitudes about air quality to measuring behavior. Specifically, what actions have respondents taken to reduce air pollution, and what actions would they be likely to take in the future?

Past research has shown that measuring behavior is a difficult task—especially when respondents understand that certain behaviors are *socially desirable*, whereas others are not. In this case, the concern was that some respondents would indicate that they have and/or are willing to take actions to reduce air pollution because they know “they should”, when in fact they did not take the action and/or are unwilling to do so in the future. In an effort to avoid this potential source of measurement error, respondents were first instructed that we recognize that people have very demanding schedules and lifestyles, and that making changes to reduce air pollution can be difficult for many people, and impossible for others. Having thus made it acceptable for a respondent to indicate that they have not taken action, participants were then asked to provide their honest opinions.

**PAST BEHAVIOR** The first question in this series asked respondents whether, in the past 12 months, they have taken any actions *specifically* for the purpose of reducing air pollution. As shown in Figure 33, 44% of adult residents indicated that they had taken at least one action during this period with the intent of reducing air pollution, whereas 55% indicated that they had not taken such action and 1% were unsure.

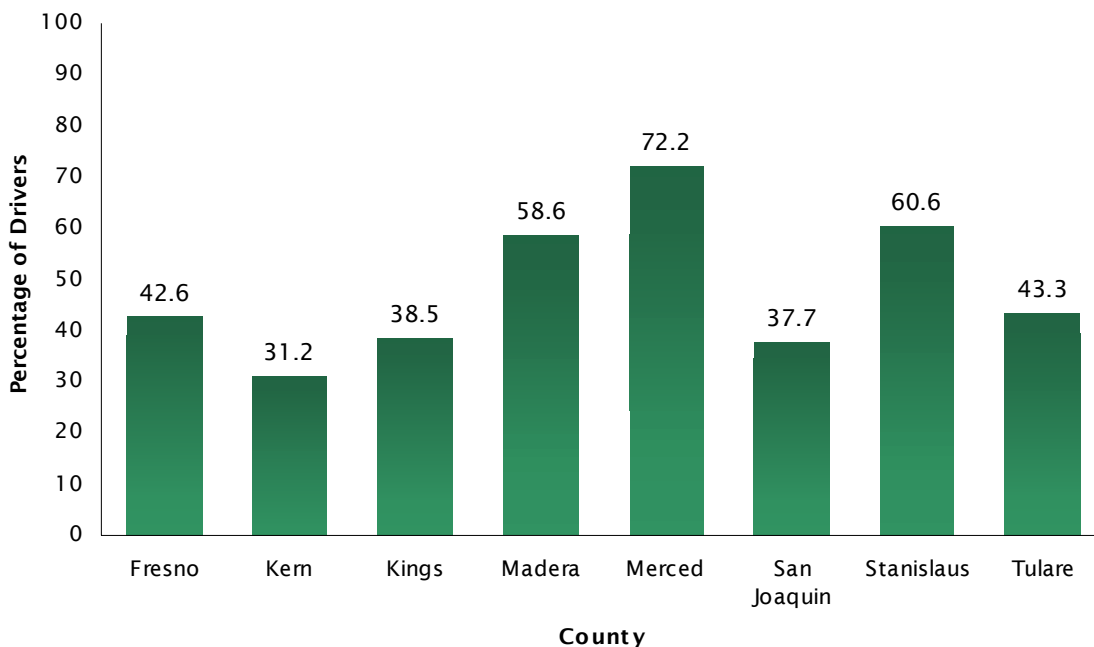
**FIGURE 33 TAKEN ACTIONS TO REDUCE AIR POLLUTION IN PAST 12 MONTHS**



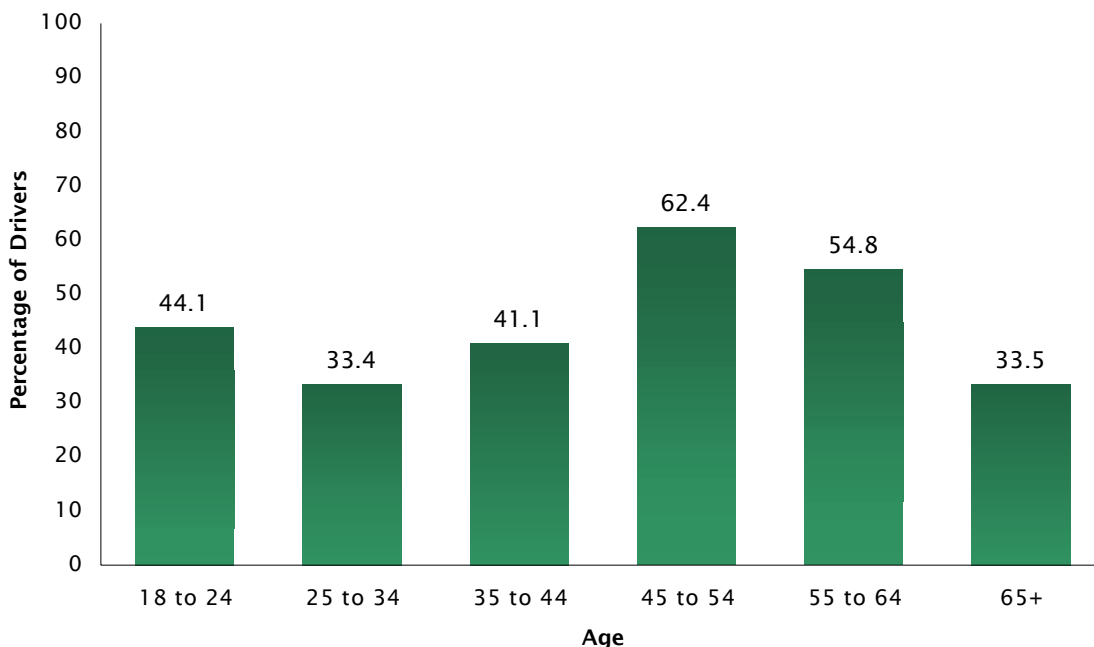
For the interested reader, Figures 34 and 35 show how the percentage of respondents who reported taking actions to reduce air pollution varied by county and respondent age. Interestingly, residents in counties which were perceived to have the poorest air quality (Fresno, Kern,

Kings and Tulare) were no more likely—and in some cases were less likely—than residents in other counties to have taken action to reduce air pollution. Consistent with past research in other Districts, residents between the ages of 45 and 64 were more likely than their respective counterparts to take action to reduce air pollution. At the extremes, 62% of residents between the ages of 45 and 54 reported that they had taken action to reduce air pollution in the past 12 months, whereas the corresponding figure for respondents between 25 and 34 was just 33%.

**FIGURE 34 TAKEN ACTIONS TO REDUCE AIR POLLUTION IN PAST 12 MONTHS BY COUNTY**



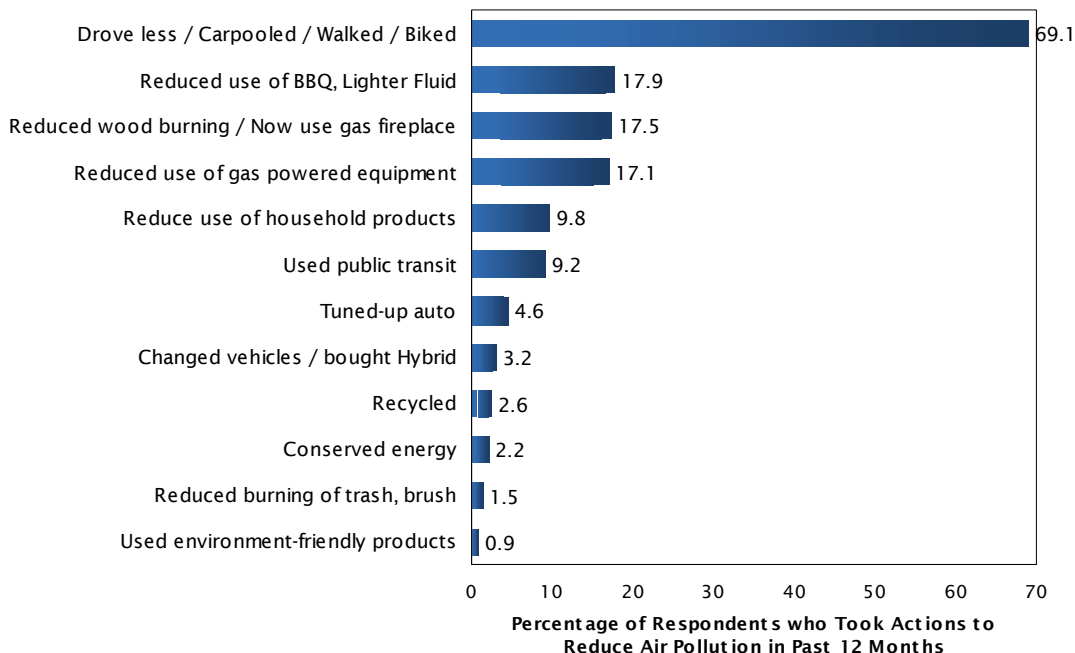
**FIGURE 35 TAKEN ACTIONS TO REDUCE AIR POLLUTION IN PAST 12 MONTHS BY AGE**





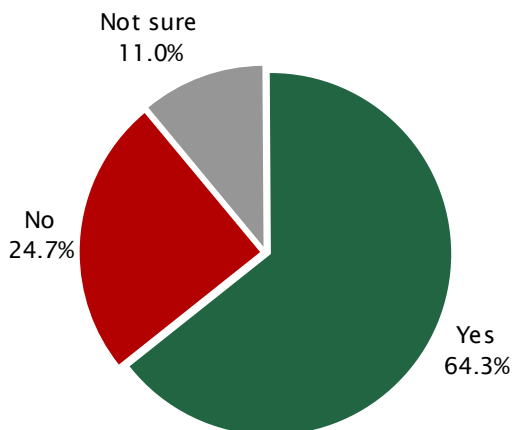
When asked in an open-ended manner to describe the actions that they took, 69% of respondents reported that they drove less, whereas 18% indicated that they reduced their use of barbecues and lighter fluid. A similar percentage reduced the amount of wood that they burn (18%) and their use of gas powered equipment (17%). No other actions were mentioned by at least 10% of respondents.

**FIGURE 36 SPECIFIC ACTIONS TAKEN TO REDUCE AIR POLLUTION**

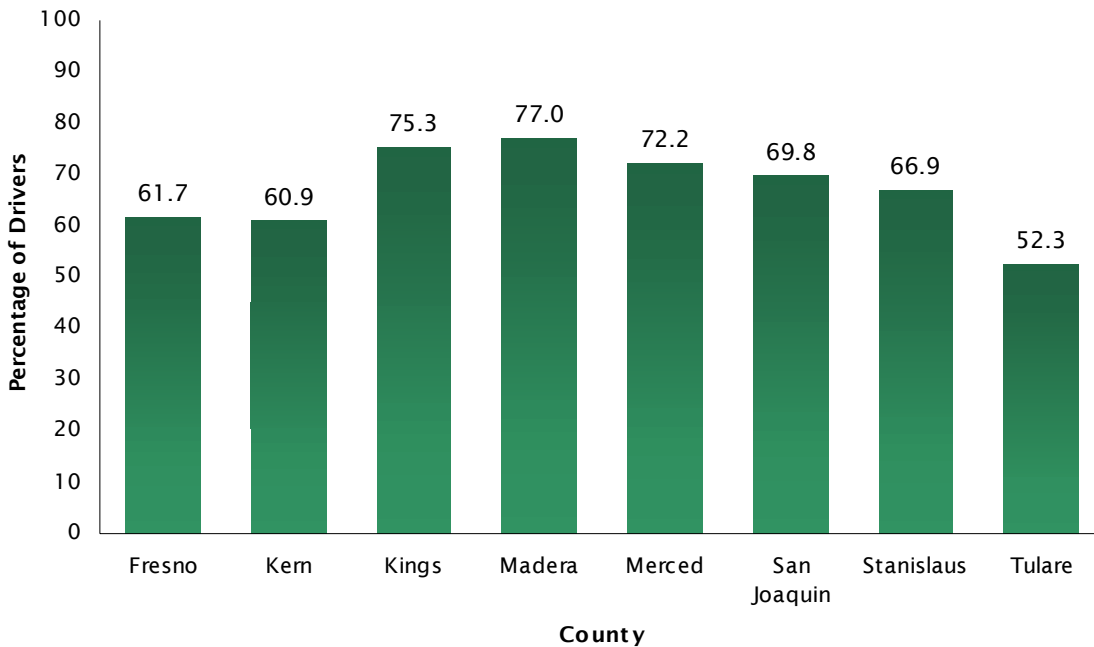


**FUTURE ACTIONS** The survey next turned to future actions—that is, whether respondents are willing to take actions in the future to reduce air pollution, and which actions they are most likely to engage in, all other things being equal. Overall, nearly two-thirds (64%) of respondents indicated that they were willing to take actions to reduce air pollution in the upcoming 12 months, whereas 25% were unwilling and 11% were unsure. For the interested reader, Figures 38 and 39 display the responses to this question by county of residence and respondent age, respectively.

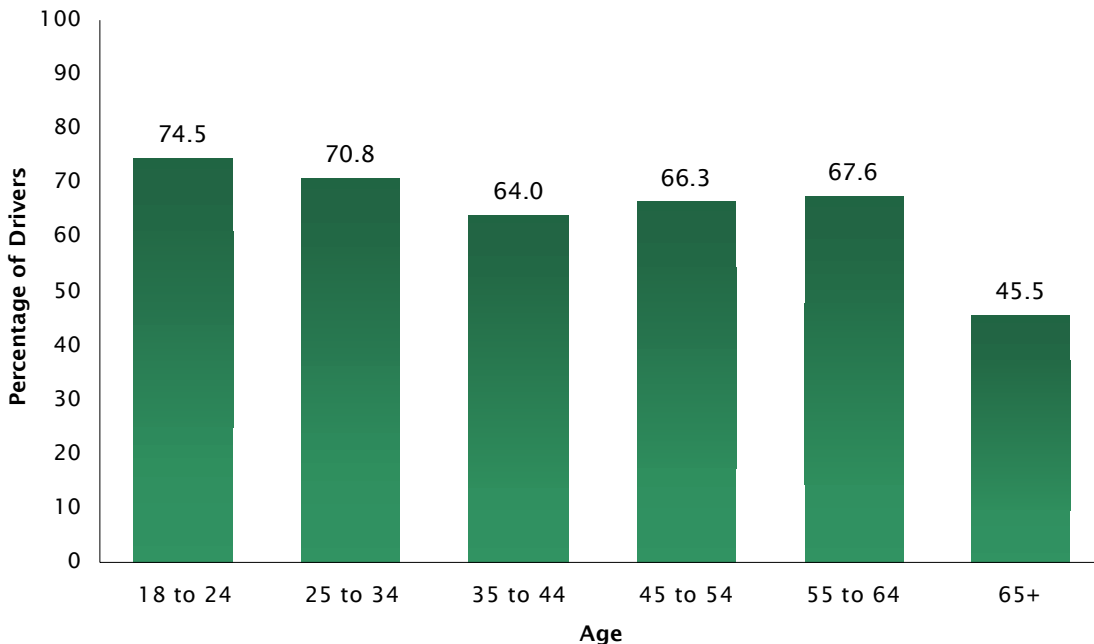
**FIGURE 37 WILLING TO TAKE ACTIONS TO REDUCE POLLUTION IN NEXT 12 MONTHS**



**FIGURE 38 WILLING TO TAKE ACTIONS TO REDUCE POLLUTION IN NEXT 12 MONTHS BY COUNTY**



**FIGURE 39 WILLING TO TAKE ACTIONS TO REDUCE POLLUTION IN NEXT 12 MONTHS BY AGE**

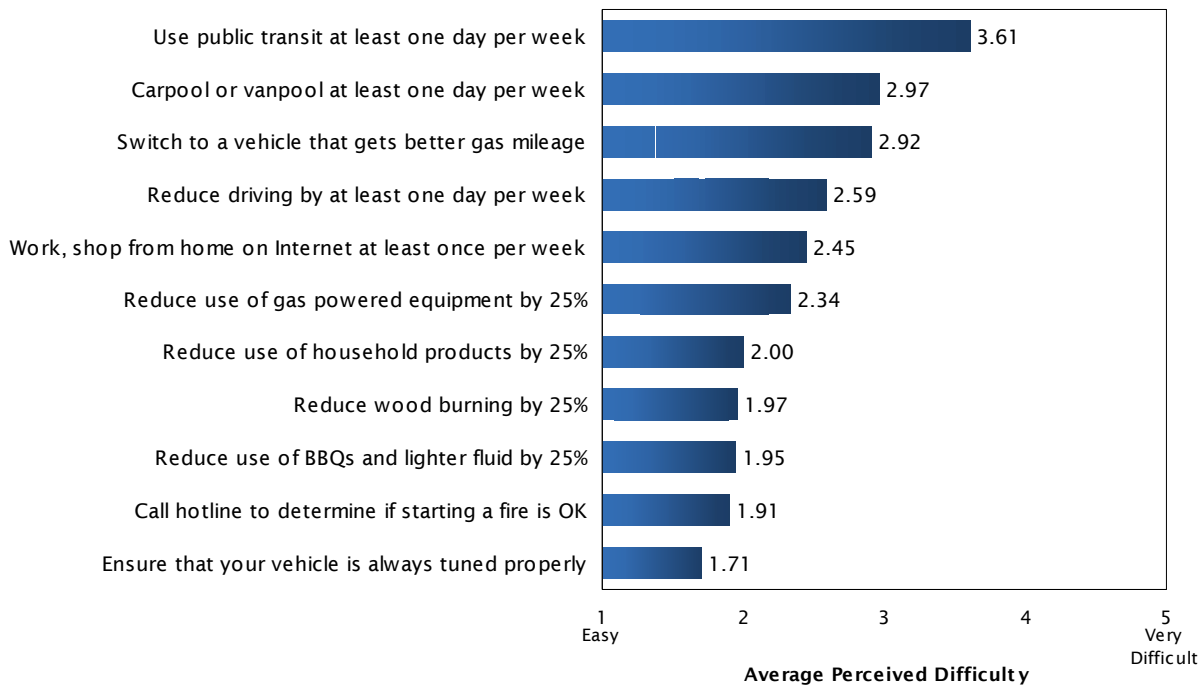


The ultimate goal of the District’s public education programs is to elicit positive behavior change on the part of residents that will reduce air pollution. Toward this end, it makes sense for the program to focus on behavior changes that are comparatively easy to make—all other things being equal—rather than on changes which residents have difficulty making even if they are predisposed to take positive action.

So what actions do residents think are comparatively easy to take? After prefacing this question with the respondent by noting that some actions are easier for people to take than others, respondents were asked to indicate how difficult it would be for them to take each of the actions shown in Figure 40 using the scale shown at the bottom of the figure. If a respondent felt that an action did not apply to them, they were asked to indicate so.<sup>12</sup> The mean scores shown in the figure represent the average responses among all participants for which the action applied.

Among all respondents, using public transit at least one day per week was viewed as the most difficult action to take (3.61), followed by carpooling or vanpooling at least one day per week (2.97), switching to a vehicle that gets better gas mileage (2.92), and reducing the amount that they drive at least one day per week (2.59). At the other end of the spectrum, ensuring that their vehicle is always tuned properly (1.71), calling a hotline to determine if it is OK to burn wood in the winter (1.91), reducing by 25% their use of coal barbecues and lighter fluid (1.95) and reducing by 25% the amount of wood they burn in the winter (1.97) were viewed as the least difficult actions to take among those tested.

**FIGURE 40 PERCEIVED DIFFICULTY OF SUGGESTED ACTIONS TO REDUCE POLLUTION**



<sup>12</sup>For example, a person who does not have a barbecue would not be able to reduce by 25% their use of coal barbecues and lighter fluid—so they could answer that this action does not apply to them.

Table 2 presents the mean difficulty scores assigned to each of the actions by county. Although the mean scores varied substantially across counties, the relative ranking of action difficulty *within* a county was generally similar to the overall ranking.

**TABLE 2 PERCEIVED DIFFICULTY OF SUGGESTED ACTIONS TO REDUCE POLLUTION BY COUNTY**

	Overall	Fresno	Kern	Kings	Madera	Merced	San Joaquin	Stanislaus	Tulare
Use public transit at least one day per week	3.61	3.78	3.63	3.60	2.12	4.51	3.18	4.00	3.35
Carpool or vanpool at least one day per week	2.97	3.03	2.99	2.10	1.58	3.36	2.84	3.23	3.37
Switch to a vehicle that gets better gas mileage	2.92	2.94	2.90	2.49	1.66	3.19	2.86	3.16	3.21
Reduce driving by at least one day per week	2.59	2.60	2.53	2.60	1.34	2.88	2.49	2.73	2.96
Work, shop via Internet at least once per week	2.45	2.45	2.65	1.76	1.34	3.01	2.18	2.68	2.62
Reduce use of gas powered equipment by 25%	2.34	2.10	2.30	2.61	2.39	2.09	2.02	2.73	2.85
Reduce use of household products by 25%	2.00	1.97	2.10	2.10	2.08	1.91	1.73	2.21	2.05
Reduce wood burning by 25%	1.97	1.88	2.33	1.34	2.17	1.48	1.58	2.18	2.02
Reduce use of BBQs and lighter fluid by 25%	1.95	1.92	2.08	1.63	1.42	1.90	1.69	2.10	2.31
Call hotline to determine if starting a fire is OK	1.91	1.90	2.12	1.53	1.84	1.41	1.81	2.17	1.74
Ensure that your vehicle is always tuned properly	1.71	1.71	1.67	1.43	1.17	1.27	1.58	2.17	1.98

## PERCEPTIONS OF DISTRICT

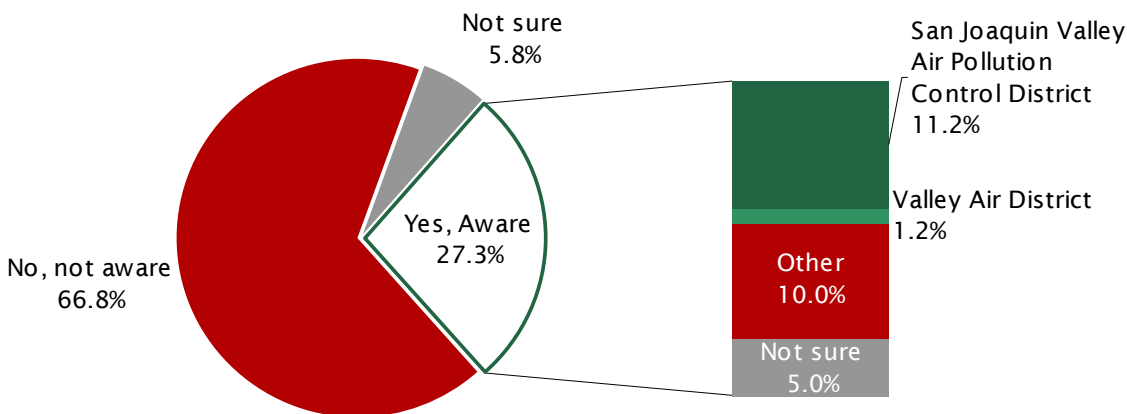
In addition to measuring opinions and behaviors as they relate to air quality in the Valley, one of the goals of the study was to assess respondents' awareness of—and opinions about—the Valley Air District, its role in promoting clean air, and government regulation of air quality in general.

**OPINIONS OF DISTRICT** Unlike cities and counties which enjoy widespread public recognition, special districts in California often fly beneath the public's radar. In other words, most residents aren't aware of the myriad of special districts that provide services to their community.

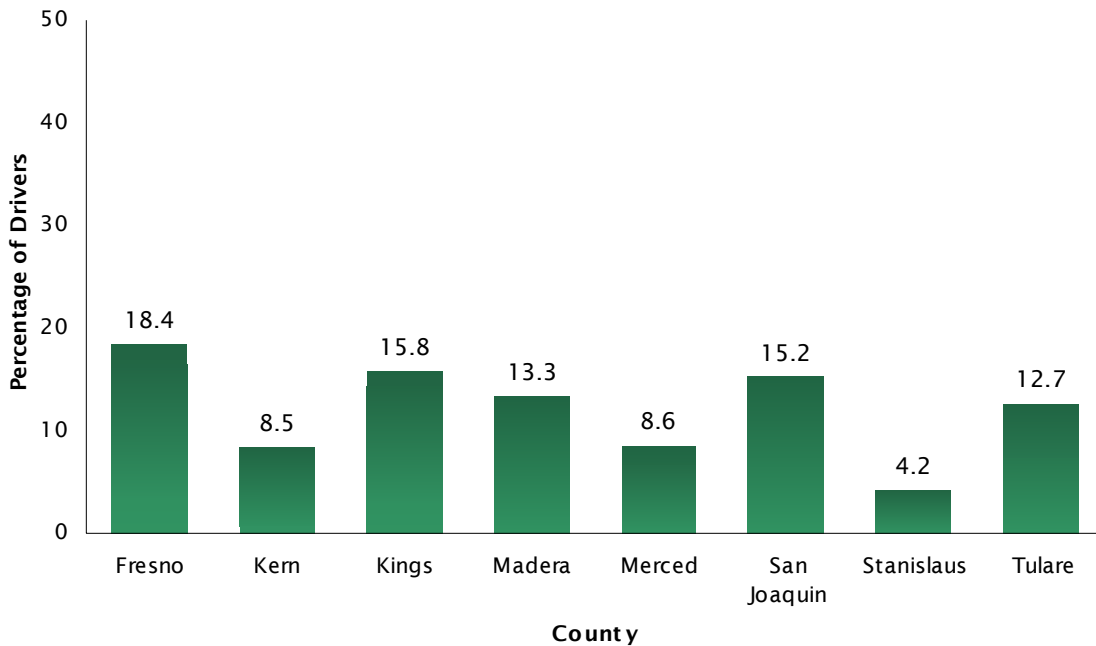
To measure public awareness of the Valley Air District, respondents were first asked whether—prior to taking this survey—they were aware of the name of the agency that is responsible for monitoring the air quality in their region and for implementing air pollution reduction programs. Among respondents who indicated that they were aware, the survey next asked the respondent to name the agency.

Figure 41 combines the responses to both of these questions. Overall, 27% of respondents indicated that they were aware of the agency's name, although when asked to name the agency just 12% of all respondents correctly identified the Valley Air District. As shown in Figure 42 on the next page, the percentage of respondents who could correctly identify the Valley Air District ranged from a low of 4% in Stanislaus County to a high of 18% in Fresno County.

**FIGURE 41 AWARENESS OF AGENCY RESPONSIBLE FOR MONITORING REGIONAL AIR QUALITY**

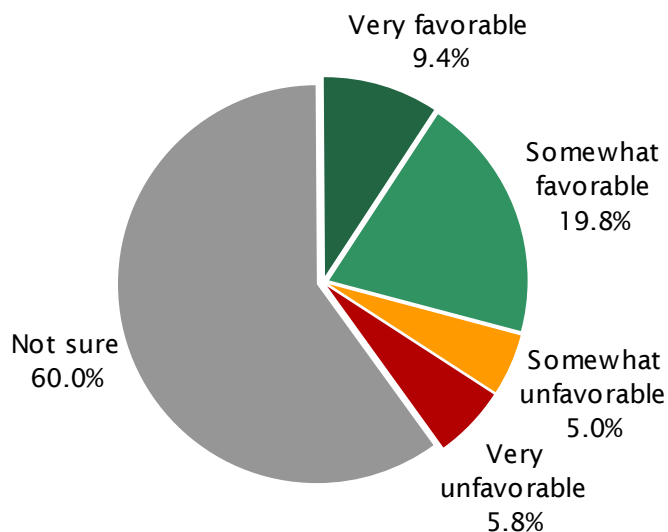


**FIGURE 42 AWARENESS OF AGENCY RESPONSIBLE FOR MONITORING REGIONAL AIR QUALITY BY COUNTY**

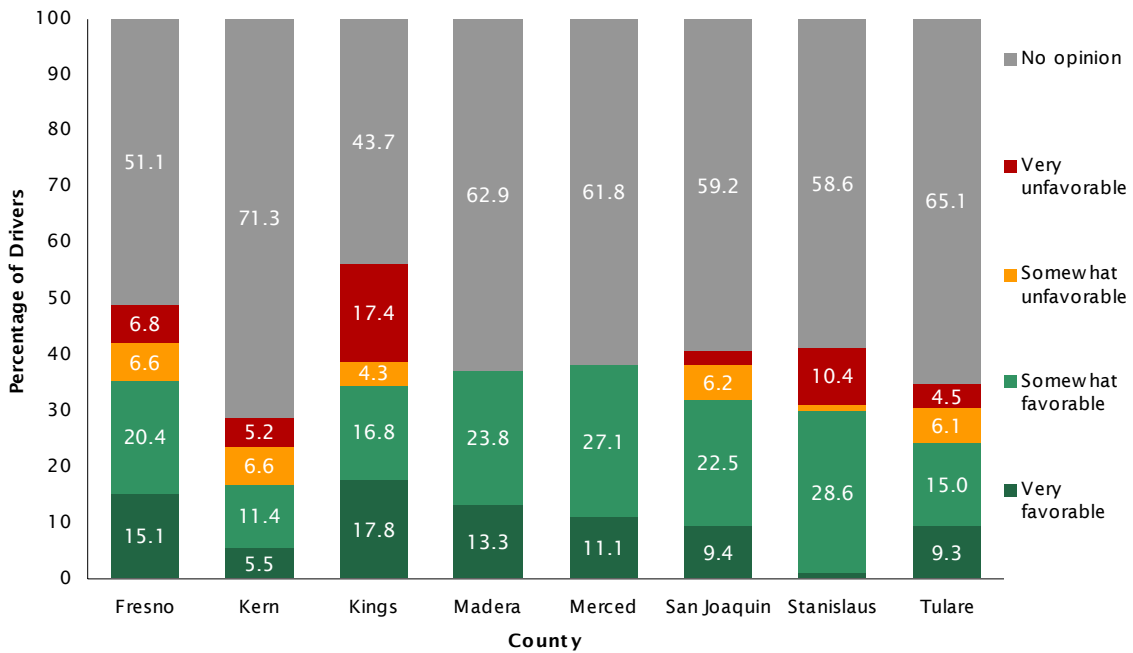


All respondents were then informed that the agency responsible for monitoring the air quality in their region and for implementing air pollution reduction programs is the San Joaquin Valley Air Pollution Control District—also known as the Valley Air District. When asked if they have a favorable or unfavorable opinion of the District—or no opinion—most (60%) respondents indicated that they do not have an opinion about the District. Among those with an opinion, favorable opinions (29%) outnumbered unfavorable opinions (11%) nearly three-to-one (see Figure 43). For the interested reader, Figure 44 shows how opinions of the Valley Air District varied by county of residence.

**FIGURE 43 OPINION OF VALLEY AIR DISTRICT**

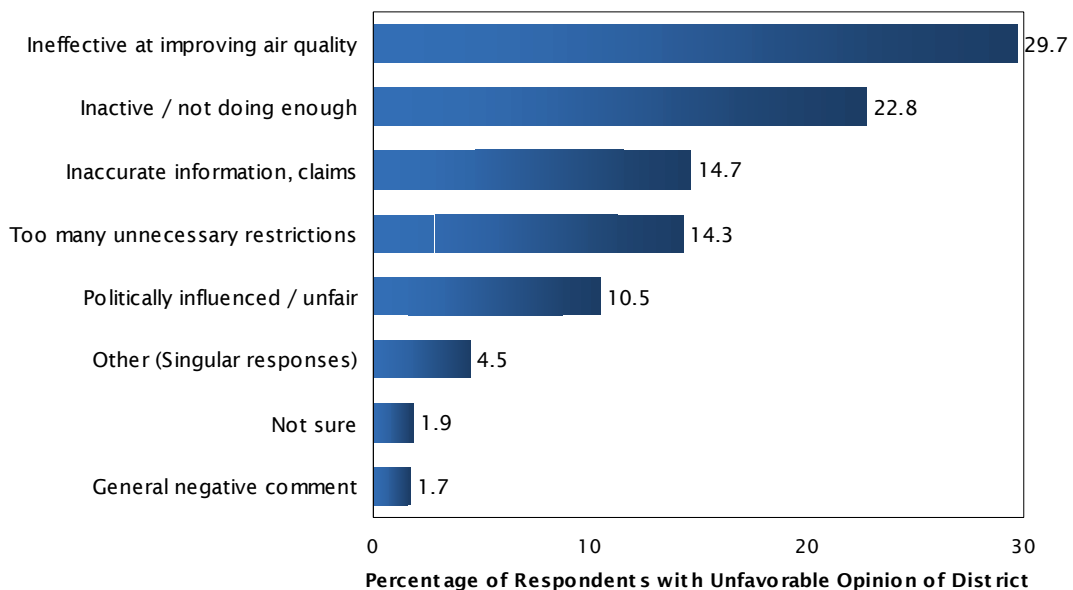


**FIGURE 44 OPINION OF VALLEY AIR DISTRICT BY COUNTY**



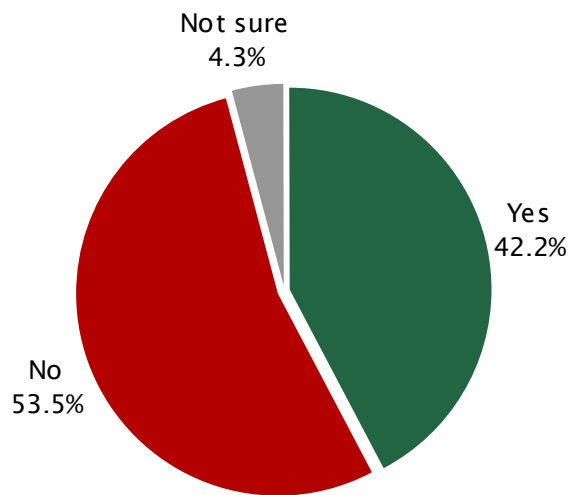
The minority of respondents who had an unfavorable opinion about the Valley Air District were provided an open-ended opportunity to explain why they hold this opinion. The verbatim responses were later reviewed by True North and grouped into the categories shown below. Interestingly, respondents who had unfavorable opinions of the District generally fell into one of two camps—those who felt the District is not doing enough or has been ineffective at improving air quality, and those who felt that the District is *too* active in regulating air pollution, is using inaccurate information to justify regulations, and/or is unfair in its regulations.

**FIGURE 45 REASON FOR UNFAVORABLE OPINION OF DISTRICT**

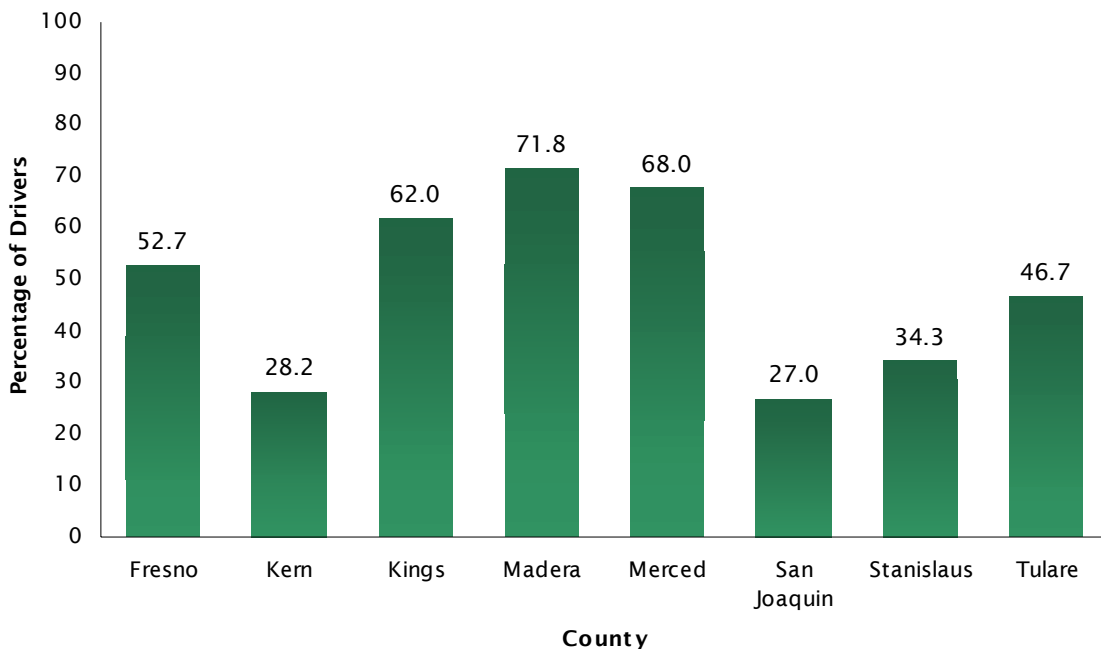


**RECALL OF AIR DISTRICT NEWS** Although the vast majority of respondents could not name the Valley Air District as the agency responsible for monitoring and regulating air quality in the Valley prior to taking the survey (see Figure 41), once informed about the agency’s name 42% could recall hearing, reading or seeing a news story, advertisement or public service announcement in the past six months that involved the Air District (see Figure 46). As shown in Figures 47 through 49, recall was highest in Kings, Madera and Merced counties, among respondents under the age of 25 and between 45 and 54, and among respondents with annual family incomes of \$75,000 to \$100,000.

**FIGURE 46 HEARD, READ, OR SAW VALLEY AIR DISTRICT INFO IN PAST SIX MONTHS**

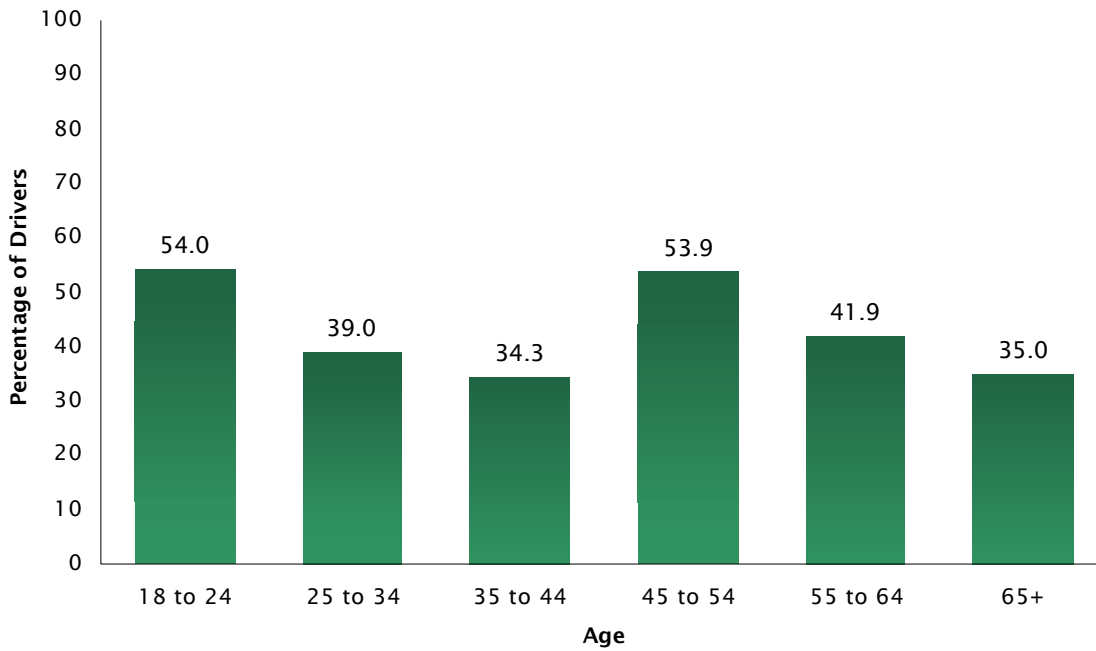


**FIGURE 47 HEARD, READ, OR SAW VALLEY AIR DISTRICT INFO IN PAST SIX MONTHS BY COUNTY**

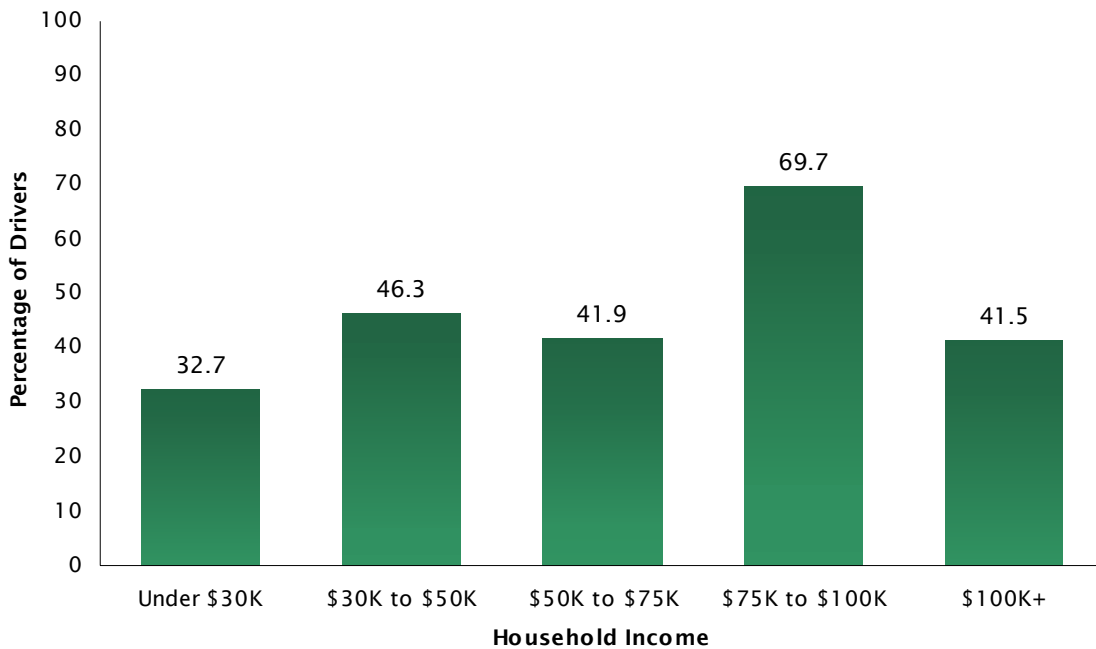




**FIGURE 48 HEARD, READ, OR SAW VALLEY AIR DISTRICT INFO IN PAST SIX MONTHS BY AGE**

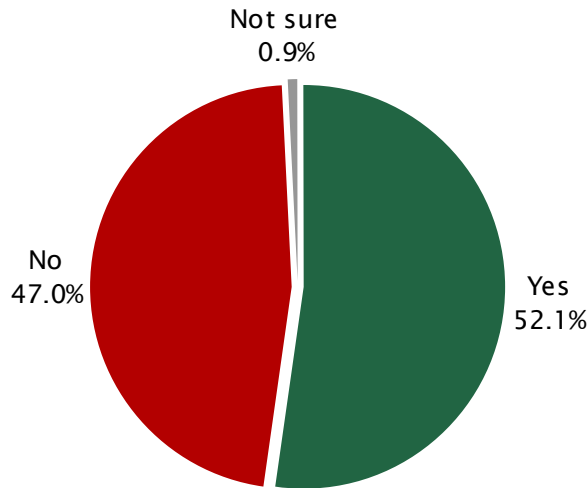


**FIGURE 49 HEARD, READ, OR SAW VALLEY AIR DISTRICT INFO IN PAST SIX MONTHS BY HOUSEHOLD INCOME**

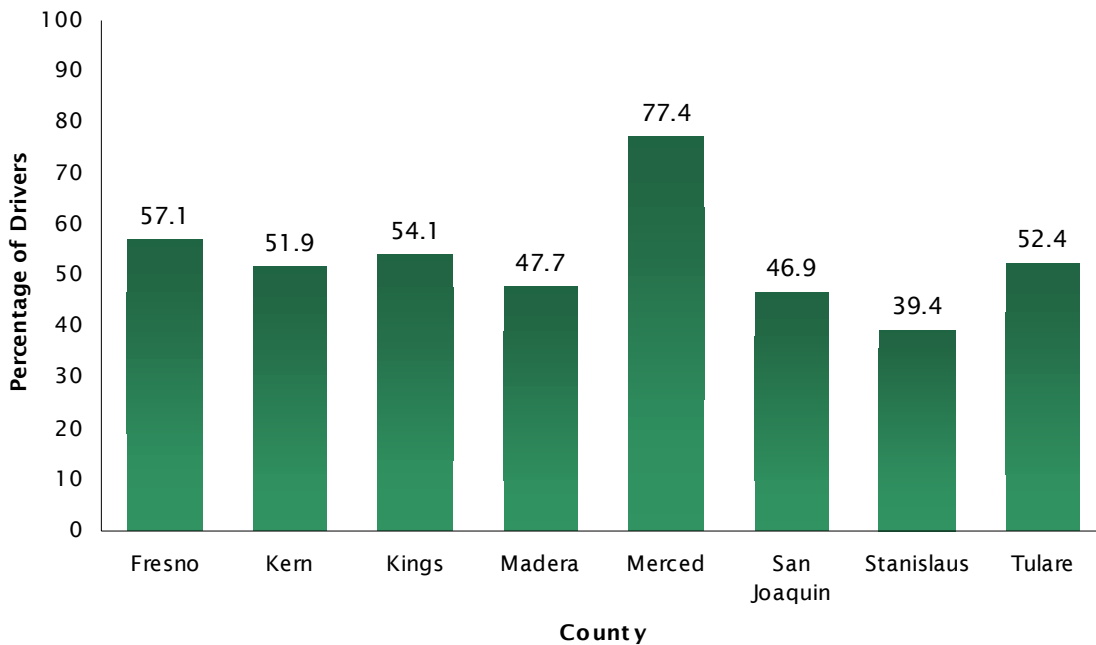


A majority (52%) of respondents also indicated that—prior to taking the survey—they were aware that there is a hotline residents should call in the winter to determine if it is OK to burn wood based on the current air quality (Figure 50). For the interested reader, Figures 51 and 52 display how awareness of the hotline varied by county of residence and respondent age.<sup>13</sup>

**FIGURE 50 AWARENESS OF WOOD-BURNING HOTLINE**

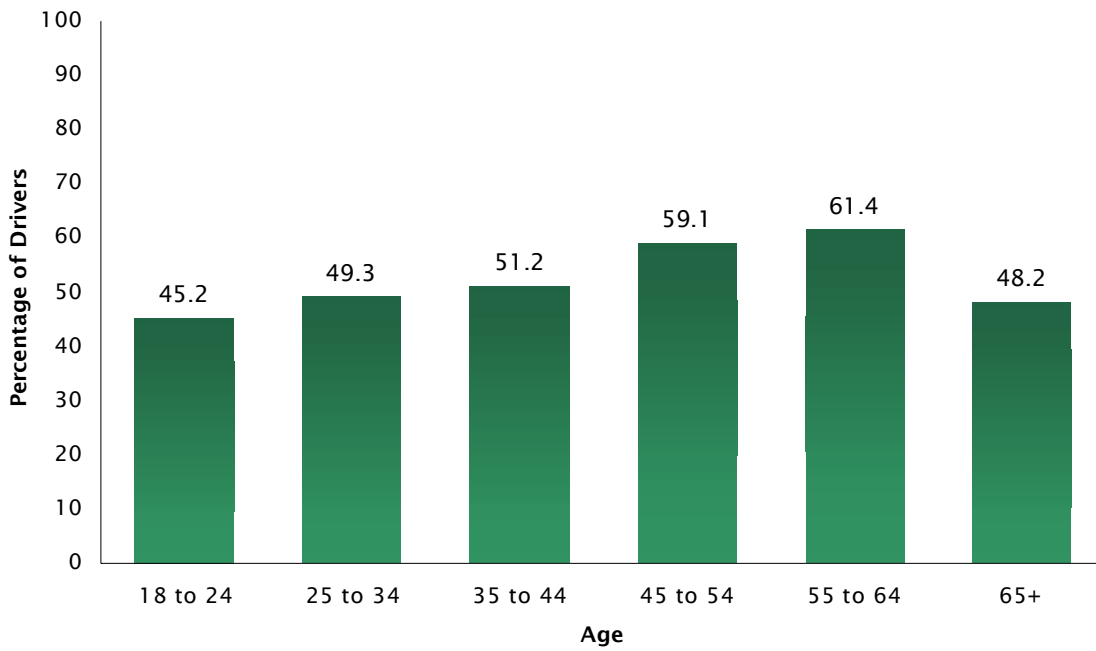


**FIGURE 51 AWARENESS OF WOOD-BURNING HOTLINE BY COUNTY**



<sup>13</sup>As mentioned previously, the small sample sizes in Madera and Merced counties caution against generalizing results—such as those shown in Figure 51—where residents in these counties display notably different opinions or behaviors when compared to residents from other counties.

**FIGURE 52 AWARENESS OF WOOD-BURNING HOTLINE BY AGE**



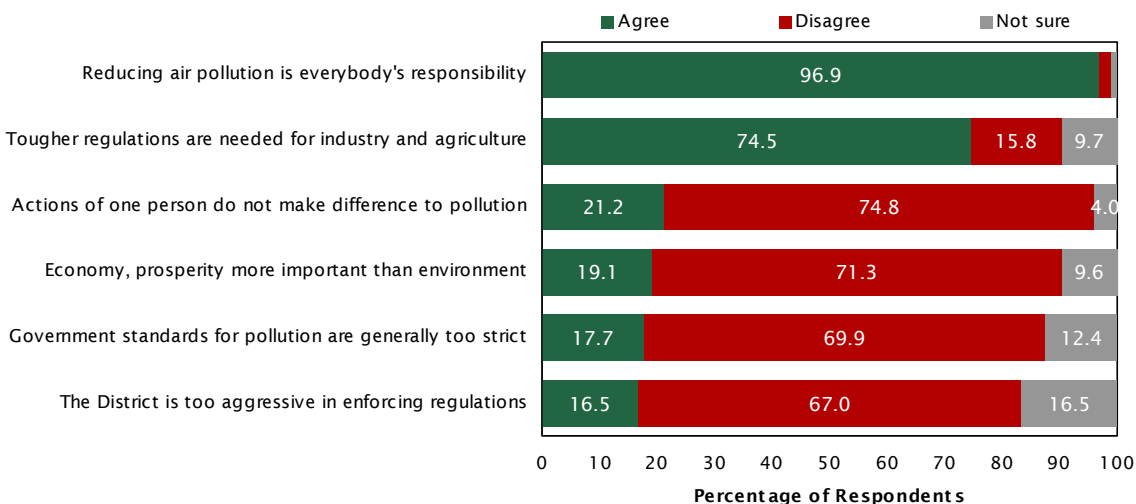
## AIR - Q U A L I T Y   A T T I T U D E S

In this final section, respondents were presented with several statements about air quality, pollution regulation, and its relationship to local industries and the economy. For each statement, participants were simply asked whether they agree or disagree with the statement.

As shown in Figure 53, nearly every respondent (97%) agreed that reducing air pollution is everybody’s responsibility—government, business and residents. Three out of four residents (75%) also agreed that tougher regulations are needed to reduce the air pollution caused by manufacturing facilities, refineries and farms in the region.

Respondents overwhelmingly disagreed with the remaining statements tested, including that the actions of one person do not make a difference in the big picture when it comes to air pollution (75% disagree), that economic growth and prosperity are more important than environmental issues (71%), that government standards for pollution are generally too strict (70%), and that the Valley Air District has been too aggressive in enforcing air pollution regulations on businesses and residents (67%).

**FIGURE 53 AGREEMENT WITH STATEMENTS ABOUT DISTRICT AND AIR QUALITY ISSUES**





## DEMOGRAPHICS

Table 3 displays the demographic information collected during the survey from all 600 respondents. Because of the sampling methodology used in the study, the results shown below are representative of the adult population within the eight-county District.

**TABLE 3 DEMOGRAPHICS OF SAMPLE**

<b>Total Respondents</b>	<b>600</b>
<b>QD1 Employment status (<i>mult</i>)</b>	<b>%</b>
Employed full-time	45.2
Employed part-time	8.3
Self-employed	8.6
Student	12.2
Homemaker	6.4
Retired	19.5
Not employed	7.0
Refused	1.5
<b>QD2 Employer notifies of STA</b>	
Yes	19.3
No	79.4
Not sure	1.3
<b>QD3 Employer encourages less driving on STA</b>	
Yes	17.9
No	80.9
Not sure	1.2
<b>QD4 Age</b>	
18 to 24	16.1
25 to 34	17.7
35 to 44	21.7
45 to 54	18.0
55 to 64	10.1
65+	13.6
Refused	2.8
<b>QD5 Children in home</b>	
None	48.0
One	15.7
Two	20.5
Three or more	14.4
Refused	1.4
<b>QD6 Ethnicity</b>	
Caucasian / White	51.0
Latino / Hispanic	34.2
Af. American / Black	2.9
Asian-American	1.9
Mixed / Other	7.2
Refused	2.7
<b>QD7 Household income</b>	
Under \$30K	25.4
\$30K to \$50K	19.1
\$50K to \$75K	21.2
\$75K to \$100K	9.0
\$100K+	11.9
Refused	13.4
<b>QD8 Gender</b>	
Male	55.6
Female	44.4



## M E T H O D O L O G Y

This section of the report outlines the methodology and procedures used when conducting this study, as well as the motivation for employing certain techniques.

**QUESTIONNAIRE** Dr. McLarney of True North Research worked closely with Jaime Holt, Sheri Bohigian and other Valley Air District staff to develop and refine the questionnaire used in this study. To quantify the impacts of the Spare the Air program on trip behavior, True North employed the adjusted CARB/EPA Method previously developed by Dr. McLarney and Eric Schrefler of ESTC (see “Measuring Trip Reduction” on page 12). The questionnaire was designed to cover the topics of interest to the Valley Air District and avoid the many possible sources of systematic measurement error including position-order effects, wording effects, response-category effects, scaling effects, and priming. For questions that included multiple individual items, the items were presented in a random order for each respondent to avoid a systematic position bias.

The final survey instrument (see *Questionnaire & Toplines* on page 52) was professionally translated into Spanish and interviews were conducted in English and Spanish, depending on the preference of the respondent.

**CATI & PRE-TEST** Before fielding the survey, the questionnaire was CATI (Computer Assisted Telephone Interviewing) programmed to assist the live interviewers when conducting the interviews. The CATI program automatically navigates the skip patterns, randomizes the appropriate question items, and alerts the interviewer to certain types of keypunching mistakes should they happen during the interview. The integrity of the questionnaire was pre-tested internally by True North and by dialing into random homes within the District prior to formally beginning the survey. Two training sessions were conducted to familiarize interviewers with the study and to answer questions and clarify details of the study.

**SAMPLE** Because the primary focus of the study was to gather information from adults who reside within the District, households were chosen for this study using a random digit dial (RDD) sampling method. An RDD sample is drawn by first selecting all of the active phone exchanges (first three digits in a seven-digit phone number) and working blocks that service the area. After estimating the number of listed households within each phone exchange that are located within the area, a sample of randomly selected phone numbers is generated with the number of phone numbers per exchange being proportional to the estimated number of households within each exchange in the area. This method ensures that both listed and unlisted households are included in the sample. It also ensures that new residents and new developments have an opportunity to participate in the study, which is not true if the sample were based on a telephone directory.

Although the RDD method is widely used for local and regional surveys, the method also has several known limitations that must be adjusted for to ensure representative data. Research has shown, for example, that individuals with certain demographic profiles (e.g., older women) are more likely to be at home and are more likely to answer the phone even when other members of the household are available. If this tendency is not adjusted for, the RDD sampling method will produce a survey that is biased in favor of women—particularly older women. To adjust for this behavioral tendency, the survey included a screening question which initially asked to speak to the youngest adult male available in the home. If a male adult was not available, then the inter-

viewer was instructed to speak to the youngest female adult currently available. This protocol was followed—to the extent needed—to ensure a representative sample of adults. In addition to following this protocol, the sample demographics were monitored as the interviewing proceeded to make sure they were within certain tolerances.

**MARGIN OF ERROR** By using an RDD probability-based sample and monitoring the sample characteristics as data collection proceeded, True North ensured that the sample was representative of adults in the District. The results of the sample can thus be used to estimate the opinions of *all* adults in the District. Because not every adult in the District participated in the survey, however, the results have what is known as a statistical margin of error due to sampling. The margin of error refers to the difference between what was found in the survey of adults for a particular question and what would have been found if all adults in the counties of interest<sup>14</sup> had been interviewed.

For example, in estimating the percentage of adult residents who drive a vehicle four or more days per week (SC3), the margin of error can be calculated if one knows the size of the population, the size of the sample, a chosen confidence level, and the distribution of responses to the question. The appropriate equation for estimating the margin of error, in this case, is shown below.

$$\hat{p} \pm t \sqrt{\left(\frac{N-n}{N}\right) \frac{\hat{p}(1-\hat{p})}{n-1}}$$

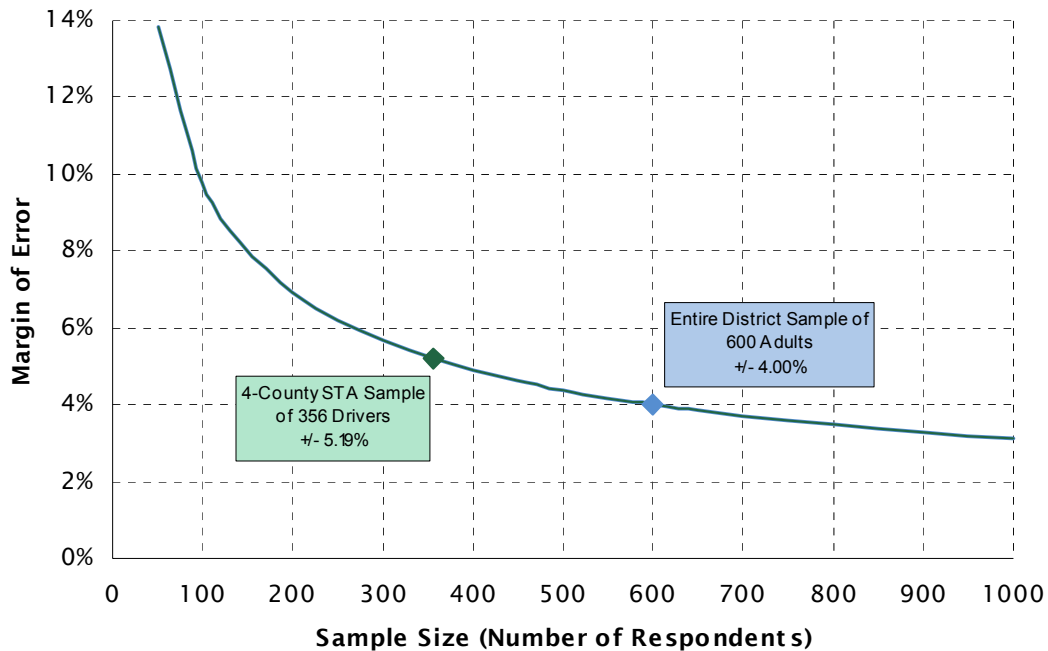
where  $\hat{p}$  is the proportion of adults who say ‘yes’ they do drive a vehicle four or more days per week (0.79 for 79%, for example),  $N$  is the population size of adults in the District (2,250,266),  $n$  is the sample size that received the question (600), and  $t$  is the upper  $\alpha/2$  point for the t-distribution with  $n - 1$  degrees of freedom (1.96 for a 95% confidence interval). Solving this equation using these values reveals a margin of error of +/- 3.3 percent. This means that, with 79% of respondents indicating they drive a vehicle four or more days per week, one can be 95 percent confident that the actual percentage of adults in the District who drive this often is between 76% and 82%.

Figure 54 provides a graphic plot of the *maximum* margin of error in this study. The maximum margin of error for a dichotomous percentage result occurs when the answers are evenly split such that 50% provide one response and 50% provide the alternative response (i.e.,  $\hat{p} = 0.5$ ). For questions asked only in Fresno, Kern, Kings, and Tulare county on a Spare the Air Day, the maximum margin of error is 5.2%. For all other questions asked of the entire District, the maximum margin of error is 4.0%.

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14.2004 DMV and 2000 Census estimates cite 2,250,266 adults in the eight-county District and 1,161,081 adult drivers in the four-county area (Fresno, Kern, Kings, Tulare) within the District where STA Day interviews were conducted as part of this study.

FIGURE 54 MAXIMUM MARGIN OF ERROR PLOT



Because the margin of error grows exponentially as the sample size decreases (see the left side of Figure 54), the reader should use caution when generalizing and interpreting the results of questions received by only a small percentage of the sample or when comparing results within subgroups of respondents (e.g., across counties).

**DATA COLLECTION** Interviews were conducted via telephone between 5:30pm and 9:30pm. On the evening of a Spare the Air Day, September 2, 2005, 356 interviews were completed and averaged 18 minutes in length. From September 29 to October 4, 2005, an additional 244 interviews were completed and—without questions pertaining specifically to a Spare the Air Day—averaged 13 minutes in length.

**DATA PROCESSING** Data processing consisted of checking the data for errors or inconsistencies, coding and recoding responses, categorizing open-end responses, and preparing frequency analyses and cross-tabulations. Statistical weighting was also applied to adjust for a slight overrepresentation of select age and ethnic groups in the sample, thereby producing representative results on these dimensions as well.

**ROUNDING** Numbers that end in 0.5 or higher are rounded up to the nearest whole number, whereas numbers that end in 0.4 or lower are rounded down to the nearest whole number. These same rounding rules are also applied, when needed, to arrive at numbers that include a decimal place in constructing figures and charts. Occasionally, these rounding rules lead to small discrepancies in the first decimal place when comparing tables and pie charts for a given question.



# QUESTIONNAIRE & TOPLINES



San Joaquin Valley Air District  
Air Quality Survey  
Final Toplines  
October 2005

### Section 1: Introduction to Study

Hi, my name is \_\_\_\_\_ and I'm calling on behalf of TNR, a public opinion research company. We're conducting a survey about issues in your community and we would like to get your opinions.

*If needed:* This is a survey about important issues in your community - I'm NOT trying to sell anything.

*If needed:* The survey should take less than 15 minutes to complete.

*If needed:* If now is not a convenient time, can you let me know a better time so I can call back?

*If the person says they are somehow associated with the survey, politely explain that this survey is designed to measure the opinions of those not closely associated with the study, thank them for their time, and terminate the interview.*

### Section 2: Screener for Inclusion in the Study

For statistical reasons, I would like to speak to the youngest adult male currently at home who is at least 18 years of age. *(If there is no male currently at home that is at least 18 years of age, then ask):* Ok, then I'd like to speak to the youngest female currently at home who is at least 18 years of age. *(If there is no adult currently available, then ask for a callback time.)*

*NOTE: Adjust this screener as needed to match sample quotas on gender & age*

SC1 What is the zip code at your residence? *Read zip code back to them to confirm correct.*

Data on file

Record 5 digit zip code

SC2 Record county of residence

1	Fresno County	24%
2	Kern County	21%
3	Kings County	4%
4	Madera County	4%
5	Merced County	6%
6	San Joaquin County	17%
7	Stanislaus County	14%
8	Tulare County	11%

SC3 Do you regularly drive a vehicle four or more days per week?

1	Yes	79%	Skip to Q1
2	No	21%	Continue

SC4	What is your primary reason for not driving four or more days per week?		
1	Don't have a car / driver's license	41%	Skip to Q7
2	Economic / convenience reasons	9%	Skip to Q7
3	Air quality / health reasons	3%	Skip to Q7
4	Other	47%	Skip to Q7
5	Not sure ( <i>Don't read</i> )	0%	Terminate

### Section 3: Driving on Spare the Air Days

We're interested in the travel behavior of people in your area - specifically the number and types of trips that they make in a day. A 'trip' is defined as traveling from one place to another and then stopping. For example, if you left your house and went to the store, that is one trip. Leaving the store and going to work or coming back home is another trip.

(Make sure respondent understands what a 'trip' is.)

Q1 Please take a moment to think back over your day. Excluding any trips that were made 'on-the-job', such as driving a delivery truck, as well as any trips made on an airplane, how many trips did you make today? (*if respondent says not sure, ask them to estimate to the best of their ability. If still unsure, record below.*)

Mean number of trips = 3.62

0	6%
1	13%
2	29%
3	11%
4	19%
5 to 9	17%
10 or more	6%
Not sure ( <i>Don't read</i> )	0%
Refused ( <i>Don't read</i> )	0%

*If Q1 = 0 or 98 then skip to Q3*

<p><b>Q2</b> Sometimes people will purposely <u>increase</u> the amount of driving they do in a day. An example of purposely <u>increasing</u> driving would be if a person decided to drive to the store when they normally would have walked, bicycled, or taken a bus. Did you purposely <u>increase</u> the amount of your driving today?</p> <p><i>If respondent asks to clarify what purposely increasing driving is, say: It means deciding to drive somewhere in a car that you would normally go without driving.</i></p>							
	1	Yes	11%				
	2	No	89%				
	3	Not sure ( <i>Don't read</i> )	0%				
<p><b>Q3</b> Sometimes people will purposely <u>decrease</u> the amount of driving they do in a day. There are several ways that people can <u>decrease</u> their driving, so let me ask you about each.</p> <p>Today, did you: -----? <i>If yes, ask: How many driving trips did you reduce this way?</i></p>							
	<i>Ask in order</i>		Q3.1: Decrease trips this way?			Q3.2: How Many Reduced?	
			Yes	No	Not Sure	Total # Trips reduced	# Trips reduced b/c of STA
A	Ride as a passenger in someone else's car or as a passenger in a carpool for a trip that you <u>normally</u> would make by driving yourself		15%	85%	0%	78	10
B	Ride in a vanpool for a trip that you <u>normally</u> would make by driving yourself		4%	96%	0%	24	5
C	Ride public transit for a trip that you <u>normally</u> would make by driving yourself		1%	99%	0%	7	0
D	Ride a bike for a trip that you would <u>normally</u> make by driving yourself		2%	98%	0%	13	0
E	Walk, jog or run for a trip that you <u>normally</u> would make by driving yourself		6%	94%	0%	28	0
F	For the purpose of reducing your driving trips, decide to link several driving trips together that you <u>normally</u> would make separately		43%	56%	2%	255	21
G	For the purpose of reducing your driving trips, decide <u>not</u> to take a trip that you <u>normally</u> would have taken		30%	70%	0%	149	12

Section 4: Reduced Trip Details			
<i>Question Loop</i> Ask Q4 through Q6 for each trip decreased in Q3.			
Ok, I'd like you to think about the (first/second/third...) trip in which you: _____ (insert item from Q3 - change tense of verbs).			
Q4	Why did you decrease this driving trip? Do <u>not</u> prompt for specific answer.		
	17 of 356 (4.78%) indicated they reduced at least one trip because of Spare the Air.	STA Driving Reducers reduced an average 3.00 of trips b/c of Spare the Air	
		# Trips reduced	
	1 Spare the Air ads asking people to drive less	21	Continue with Q5
	2 Air quality reason	30	Continue with Q5
	3 Other	23	Skip Q5 & Q6
Q5	If eliminated trip, ask: What was the purpose of this trip going to be? Otherwise, ask: What was the purpose of this trip?		
		# Trips reduced by STA driving reducers	
	1 Going to or from work	13	
	2 Going to or from school	11	
	3 Shopping (mall, groceries)	15	
	4 Recreation and entertainment (out for dinner, movies, beach, gym)	8	
	5 Scheduled appointments, lessons, or practices (doctor's, music, little league, soccer)	4	
	98 Other (Specify)	0	
	99 Not sure (Don't read)	0	
Only ask Q6 if asking about carpool (Q3A), vanpool (Q3B), or public transit trip (Q3C)			
Q6	Did you have to drive or be driven somewhere to catch your ride, such as to a transit stop or a Park and Ride lot? (Responses shown for STA reducers only.)		
	1 Yes	19%	
	2 No	81%	
	3 Not sure (Don't read)	0%	

Section 5: General Air Quality Questions			
Ok – let me change gears a bit.			
Q7	Overall, how would you rate the <b>air quality</b> in your County? Would you say it is excellent, good, fair, poor or very poor?		
	1	Excellent	3%
	2	Good	16%
	3	Fair	31%
	4	Poor	29%
	5	Very poor	20%
	98	Not sure ( <i>Don't read</i> )	1%
	99	Refused ( <i>Don't read</i> )	0%
Q8	When compared to most other areas in California, would you say that the air quality in your County is better, worse or about the same? <i>Get answer. If 'better' or 'worse', ask: Would that be much (better/worse) or somewhat (better/worse)?</i>		
	1	Much better	8%
	2	Somewhat better	17%
	3	About same	34%
	4	Somewhat worse	14%
	5	Much worse	23%
	98	Not sure ( <i>Don't read</i> )	4%
	99	Refused ( <i>Don't read</i> )	0%
Q9	And how about when compared to Los Angeles? Would you say that the air quality in your County is better, worse or about the same? <i>Get answer. If 'better' or 'worse', ask: Would that be much (better/worse) or somewhat (better/worse)?</i>		
	1	Much better	32%
	2	Somewhat better	30%
	3	About same	20%
	4	Somewhat worse	7%
	5	Much worse	6%
	98	Not sure ( <i>Don't read</i> )	4%
	99	Refused ( <i>Don't read</i> )	0%
Q10	In your opinion, does the County in which you live occasionally experience high levels of air pollution?		
	1	Yes	70%
	2	No	25%
	98	Not sure ( <i>Don't read</i> )	4%
	99	Refused ( <i>Don't read</i> )	0%

Q11	Do you or any member of your household ever experience negative health effects due to air pollution? <i>If yes, probe if just the respondent, just other members of household, or both.</i>	
	1 Yes, just respondent	8%
	2 Yes, just other members of household	18%
	3 Yes, both respondent and other members of household	22%
	4 No	51%
	98 Not sure ( <i>Don't read</i> )	2%
	99 Refused ( <i>Don't read</i> )	0%
Q12	Would you say that <b>most</b> of the air pollution that does occur in your County comes from sources within your County, or is most of it produced in other areas and then blown by the wind into your County? Or are you not sure?	
	1 Most from within County	37%
	2 Most blown by wind from other areas	39%
	98 Not sure	23%
	99 Refused ( <i>Don't read</i> )	1%
Q13	What would you say are the main causes of air pollution in your County? <i>Probe: Any other causes? Do NOT Read Categories. Check up to 3 responses.</i>	
	1 Driving/ Auto emissions	70%
	2 Manufacturing/Industrial Emissions	22%
	3 Farm Spraying/Plowing/Agricultural Burning	41%
	4 Gas powered equipment like lawn mowers/leaf blowers	5%
	5 Barbecues/Lighter Fluid	0%
	6 Fireplaces	1%
	7 Wild fires	3%
	8 Household products like aerosol spray cans, hair spray, cleaning products & paint	1%
	9 Other (Singular responses)	4%
	10 Blows in from surrounding regions	4%
	11 Topography of area / Valley traps air	3%
	12 Dirt and dust	2%
	98 Don't Know/Not Sure	7%
	99 Refused	0%

Section 6: Reducing Air Pollution – General Strategies							
Q14	Do you think there are actions that <b>residents</b> of your County can take to significantly reduce air pollution? <i>Do NOT read options.</i>						
	1	Yes	69%	Ask Q15			
	2	No	19%	Skip to Q16			
	98	Not sure ( <i>Don't read</i> )	13%	Skip to Q16			
	99	Refused ( <i>Don't read</i> )	0%	Skip to Q16			
Q15	What actions can they take to reduce air pollution? <i>Probe: Any others? Do NOT read options. Allow up to 3 responses.</i>						
	1	Reduce Driving/Carpool/Vanpool	65%				
	2	Use public transit	21%				
	3	Reduce use of gas powered equipment like lawn mowers/leaf blowers	10%				
	4	Don't BBQ or use Lighter Fluid	1%				
	5	Don't burn wood in fireplace	15%				
	6	Don't burn trash/brush	5%				
	7	Reduce use of household products like aerosol spray cans, hair spray, cleaning products & paint	1%				
	8	Other (Singular responses)	14%				
	9	Change vehicles / Buy Hybrid	15%				
	10	Tune-up, maintain auto	5%				
	98	Don't Know/Not Sure	0%				
	99	Refused	0%				
Q16	Next, I'm going to read a list of strategies that have been suggested for reducing air pollution in your County. I'd like you to tell me whether, in your opinion, each strategy would be a very effective, somewhat effective, or not at all effective approach to reducing the overall amount of air pollution. Here's the first/next one: -----.						
		<i>Randomize</i>	Very Effective	Somewhat Effective	Not at all Effective	No Opinion	Refused
A	Reducing the amount that people drive		54%	33%	10%	2%	0%
B	Providing financial incentives to encourage people to ride public transit, car pool, bike, or walk		45%	37%	17%	2%	0%
C	Concentrating new development that occurs in areas that are well-served by public transit		36%	42%	16%	5%	1%
D	Reducing the use of gas powered equipment like lawn mowers and leaf blowers		23%	47%	27%	3%	0%
E	Reducing the use of coal barbecues and lighter fluid		22%	40%	33%	4%	0%

F	Reducing the use of household products such as aerosol spray cans, hair spray, cleaning products & paint	19%	42%	34%	5%	0%
G	Reducing the use of wood fireplaces and wood stoves in the winter	30%	41%	27%	2%	1%
H	Reducing the use of off-road motorcycles, ATVs and boats	10%	46%	40%	4%	0%
I	Placing stricter regulations on industries that create air pollution	61%	26%	10%	3%	0%
J	Using a computer and the Internet to work or shop from home	33%	34%	28%	4%	1%

#### Section 7: Reducing Air Pollution – Personal Behavior

We recognize that people have very demanding schedules and lifestyles. Making changes to reduce air pollution can be difficult for many people, and impossible for others. For these next few questions, please give us your honest opinions.

Q17	In the past 12 months, have you taken any actions <b>specifically</b> for the purpose of reducing air pollution?	
	1 Yes	44% Ask Q18
	2 No	55% Skip to Q19
	98 Not sure ( <i>Don't read</i> )	1% Skip to Q19
	99 Refused ( <i>Don't read</i> )	0% Skip to Q19
Q18	What actions did you take to reduce air pollution? <i>Probe: Any others? Do NOT read options. Allow up to 3 responses.</i>	
	1 Reduced Driving/Carpool/Vanpool	69%
	2 Used public transit	9%
	3 Reduced use of gas powered equipment like lawn mowers/leaf blowers	17%
	4 Reduced BBQ or use Lighter Fluid	18%
	5 Reduced wood burning/Changed to gas fireplace	18%
	6 Reduced burning of trash/brush	2%
	7 Reduced use of household products like aerosol spray cans, hair spray, cleaning products & paint	10%
	9 Other (Singular responses)	6%
	10 Changed vehicles / bought Hybrid	3%
	11 Used environment-friendly products	1%
	12 Tuned-up auto	5%
	13 Recycled	3%
	14 Conserved energy	2%
	98 Don't Know/Not Sure	0%



Q19	Looking forward to the next 12 months, are there any actions that you are willing to take to reduce air pollution?			
	1	Yes	64%	Ask Q20
	2	No	25%	Skip to Q21
	98	Not sure ( <i>Don't read</i> )	10%	Ask Q20
	99	Refused ( <i>Don't read</i> )	1%	Ask Q20

Q20	Some actions are easier for people to take than others. As I read each of the following actions, please indicate how difficult it would be for <b>you</b> to take this action using a scale from one to five. A one means that it would be easy for you to take the action, whereas a five means it would be very difficult for you to take the action. You can use any number between one and five. If the action doesn't apply to you for some reason, just say so. <i>Make sure respondent understands the scale.</i>							
	<i>Randomize</i>	Easy (1)	2	3	4	Very Difficult (5)	Doesn't Apply	Refused
A	Reduce the amount that you drive at least one day per week	36%	15%	14%	8%	20%	6%	0%
B	Carpool or vanpool to work or school at least one day per week	28%	10%	12%	5%	29%	15%	0%
C	Use public transit at least one day per week	20%	2%	11%	9%	44%	14%	0%
D	Reduce by 25% your use of household products that cause air pollution, like aerosol cans, hair spray, cleaning products and paint	45%	19%	15%	6%	6%	9%	0%
E	Reduce by 25% the amount of wood you burn in the winter	43%	8%	7%	4%	8%	30%	1%
F	Reduce by 25% your use of gas powered equipment like lawn mowers and leaf blowers	32%	17%	19%	7%	9%	15%	1%
G	Reduce by 25% your use of coal barbecues or lighter fluid	49%	11%	8%	3%	11%	18%	0%
H	Switch to a vehicle that gets better gas mileage	30%	8%	17%	9%	26%	11%	0%
I	Ensure that your vehicle is always tuned properly	62%	14%	9%	3%	7%	5%	0%
J	Before starting a fire in the winter, call a hotline to determine if it is OK based on the current air quality	50%	7%	10%	5%	8%	20%	1%
K	Use a computer and the Internet to work or shop from home at least one day per week	40%	11%	12%	6%	18%	13%	0%

<b>Section 8: Valley Air District</b>				
Ok - let me switch to a different topic				
Q21	Prior to taking this survey, were you aware of the name of the agency that is responsible for monitoring the air quality in your region and for implementing air pollution reduction programs?			
	1	Yes	27%	Ask Q22
	2	No	67%	Skip to Q23
	98	Not sure ( <i>Don't read</i> )	6%	Skip to Q23
	99	Refused ( <i>Don't read</i> )	0%	Skip to Q23
Q22	What is the name of the agency?			
	1	San Joaquin Valley Air Pollution Control District	41%	
	2	Valley Air District	4%	
	3	Other name	37%	
	98	Not sure ( <i>Don't read</i> )	18%	
	99	Refused ( <i>Don't read</i> )	0%	
Q23	The name of the agency that is responsible for monitoring the air quality in your region and for implementing air pollution reduction programs is the San Joaquin (Wah-Keen) Valley Air Pollution Control District - also known as the Valley Air District. Overall, would you say that you have a favorable or unfavorable opinion of the District -- or do you not have an opinion? <i>Get answer, then ask:</i> Would that be a very (favorable/unfavorable) or somewhat (favorable/unfavorable) opinion of the District?			
	1	Very favorable	9%	Skip to Q25
	2	Somewhat favorable	20%	Skip to Q25
	3	Somewhat unfavorable	5%	Ask Q24
	4	Very unfavorable	6%	Ask Q24
	98	No opinion	59%	Skip to Q25
	99	Refused ( <i>Don't read</i> )	1%	Skip to Q25

Q24	Why do you have an unfavorable opinion of the District? (Verbatim responses recorded and grouped into the following categories.)		
	1	Too many unnecessary restrictions	14%
	2	General negative comment	2%
	3	Ineffective / Poor air quality remains	30%
	4	Inaccurate information, claims	15%
	5	Inactive / not doing enough	23%
	6	Politically influenced / unfair	11%
	97	Other (Singular responses)	5%
	98	Not sure	2%
Q25	In the past six months, have you heard, read or seen any news stories, advertisements or public service announcements that involve the Valley Air District?		
	1	Yes	42%
	2	No	54%
	98	Not sure ( <i>Don't read</i> )	4%
	99	Refused ( <i>Don't read</i> )	0%

### Section 9: Attitudes

Q26	Next, I'm going to read a series of statements. For each that I read, I'd like you to tell me whether you agree or disagree with the statement. Here is the (first/next) one: _____. Do you agree or disagree with this statement, or are you not sure?				
	<i>Randomize</i>	Agree	Disagree	Not Sure	Refused
A	Tougher regulations are needed to reduce the air pollution caused by manufacturing facilities, refineries and farms in the region	75%	16%	9%	1%
B	Economic growth and prosperity are more important than environmental issues	19%	19%	19%	19%
C	Government standards for pollution are generally too strict	18%	70%	12%	0%
D	In the big picture, the actions of one person do not make a difference when it comes to pollution	21%	75%	4%	0%
E	Reducing air pollution is everybody's responsibility - government, business and residents	97%	2%	1%	0%
F	The Valley Air District has been too aggressive in enforcing air pollution regulations on businesses and residents	17%	67%	16%	1%

<b>Section 10: Communications</b>			
Q27	In the past two days, have you heard, read, or seen any new stories or public service announcements about Spare the Air, poor air quality, or requests to drive less in this area, or to not use certain products that affect air quality?		
	1	Yes	43%
	2	No	54%
	3	Not sure ( <i>Don't read</i> )	3%
Q28	Where did you see or hear the news story, advertisement, or public service announcement? <i>Don't read choices. Multiple responses permitted.</i>		
	1	Television	77%
	2	Radio	21%
	3	Newspaper	13%
	4	Website	2%
	5	Billboard	5%
	6	E-mail	1%
	7	Employer	2%
	98	Other	1%
	99	Not sure ( <i>Don't read</i> )	0%
Q29	Before taking this survey, were you aware that today was a Spare the Air day?		
	1	Yes	17%
	2	No	82%
	3	Not sure ( <i>Don't read</i> )	1%
Q30	Prior to taking this survey, were you aware that there is a hotline the residents should call in the winter to determine if it is OK to burn wood based on the current air quality?		
	1	Yes	52%
	2	No	47%
	3	Not sure ( <i>Don't read</i> )	1%

<b>Section 11: Background/Demographics</b>			
<b>D1</b>	Are you currently employed full time, employed part time, self-employed, a student, a homemaker, retired, or are you currently not employed? <i>Multiple responses permitted.</i>		
	1	Employed full-time	45%
	2	Employed part-time	8%
	3	Self-employed	9%
	4	Student	12%
	5	Homemaker	6%
	6	Retired	20%
	7	Not employed	7%
	8	Not sure ( <i>Don't read</i> )	1%
	9	Refused ( <i>Don't read</i> )	1%
<b>D2</b>	Does your employer notify you of poor air quality days?		
	1	Yes	19%
	2	No	79%
	3	Not sure ( <i>Don't read</i> )	1%
<b>D3</b>	Does your employer encourage you to drive less, carpool, or use public transportation on poor air quality days?		
	1	Yes	18%
	2	No	81%
	3	Not sure ( <i>Don't read</i> )	1%
<b>D4</b>	In what year were you born?		
	18 to 24		16%
	25 to 34		18%
	35 to 44		22%
	45 to 54		18%
	55 to 64		10%
	65 and over		14%
	Refused ( <i>Don't read</i> )		3%

D5	How many children under the age of 18 do you have in your household?	
	None	48%
	1	16%
	2	21%
	3 or more	14%
	Refused ( <i>Don't read</i> )	1%
D6	What ethnic group do you consider yourself to be a part of or feel closest to? <i>If respondent hesitates, read list.</i>	
	Caucasian / White	51%
	Latino / Hispanic	34%
	African-American / Black	3%
	Asian-American	2%
	Mixed heritage / Other	7%
	Not sure or Refused ( <i>Don't read</i> )	3%
D7	This last question is for statistical purposes only. As I read the following income categories, please stop me when I reach the category that best represents your household's total annual income before taxes.	
	1 Under \$30,000	25%
	2 \$30,000 to \$49,999	19%
	2 \$50,000 to \$74,999	21%
	3 \$75,000 to \$99,999	9%
	4 \$100,000 to \$149,999	7%
	5 \$150,000 or more	5%
	7 Not sure or Refused ( <i>Don't read</i> )	13%
Those are all of the questions that I have for you! Thanks very much for participating. This survey is sponsored by the Valley Air District.		

#### Post-Interview Items

D8	Gender	
	1 Male	56%
	2 Female	44%