



**EVALUATION OF THE 2010-2011  
PIMA COUNTY CLEAN AIR CAMPAIGN**

(June, 2011)

*Executive Summary*

*Prepared for:*

PIMA COUNTY DEPARTMENT OF  
ENVIRONMENTAL QUALITY

Tucson, Arizona

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**Final In-Tab Sample and Tracking Comparisons** – This telephone tracking survey project, conducted for the Pima County Department of Environmental Quality (PDEQ), is comprised of 403 interviews conducted among randomly-selected men and women age 16 or older who live in Pima County. As in past projects, survey respondents were further randomized by interviewing “the male or female in your household who is 16 or older and most recently celebrated a birthday.” All telephone interviews were conducted in early June 2011 and distributed on the basis of geographic population density in the county – with specific steps taken to ensure a proportionate number of interviews in each of four zip code-defined survey “regions” (Northwest, Central, South and East) based on recent population estimates. The 2011 final in-tab sample is once again highly representative of projected demographic patterns and on target with geographic sampling quotas. Once again, a Spanish-language version of the final questionnaire design was prepared and made available to survey respondents who requested it. Where possible and relevant, data from this project is tracked and compared with prior surveys. The sample sizes for the 2011 (N=403) and 2008 (N=402) projects are smaller than recent studies conducted between 2004 and 2007 (N=500-503).

**Awareness of the Pima County “Clean Air” Program** – A majority are aware of the Pima County “Clean Air” Program (52%). This represents an increase from the 2008 study (46%), but is lower than the all-time high recorded in 2006-2007 (59%). Awareness is directly related to the perceived seriousness of Tucson’s air quality. Still, even 48% of those who think there is a “minor” air quality problem indicate an awareness of the program. Awareness is generally consistent regardless of geography, marginally lower only in the South zips (46% versus 52%-55% in the other regions).

**Awareness of Various Clean Air Events or Activities** – Among individual events tracked from the 2008 study, awareness remains basically unchanged to higher. Overall, 88% are aware of at least one “Clean Air” event or activity. This is down from 2008 (93%) or 2007 (90%) levels, but consistent with 2006 findings (88%). Still, similar to past studies, awareness of specific events remains much higher among those familiar with the “Clean Air” Program. The majority are familiar with these three events:

- **“Earth Day Festival and Parade”** (68% awareness, down only slightly from 2008 levels [72%]. Awareness is generally consistent regardless of geography.)
- **“Bike to Work Day”** (57% awareness, down slightly from 61% in 2008 [the highest mention recorded to-date]. Northwest residents indicate the highest degree of familiarity, while awareness is lowest in the South region.)
- **“Bike Fest”** (53% awareness, up significantly from three of ten in 2008 [the first time this event was evaluated]. Recall is highest among Northwest residents.)

One-third overall are aware of these two “Clean Air” events:

- **“Walk and Roll to School Day”** (34% awareness, basically unchanged since 2008 [33%]. Awareness is generally consistent regardless of region [slightly higher in the Northwest zips] and higher among those who perceive a progressively more serious air quality problem.)
- **“Green Living Fair”** (New to the current study, 32% familiarity – with marginally higher awareness among Northwest zip residents.)

Two of ten in the current study are aware of **“Bike to the Zoo Day,”** up from just one of ten in 2007-2008. Central or East residents indicate increased awareness of this event.

Another new event – **“Cyclovia”** – is familiar to 13% overall. These tend to be Central zip residents.

**“Clean Air” Campaign Event Participation and Subsequent Actions Taken** – Among the 88% of survey respondents familiar with at least one campaign event, participation in these events is at a record high. Specifically, 17% of those aware of at least one event indicate that they (or someone in their household) participated in at least one activity. This is up from one of ten in 2008, and represents the highest participation level recorded to-date (versus 8%-12% in recent years). What’s more, participation is generally consistent across a full spectrum of ages (16 to 65 year-olds) and highest in the Central or East zips. Participation is directly related to perceived seriousness of the air quality problem and incidence of a household medical-related breathing problem. Significantly, among the record 17% who indicate past-participation in a “Clean Air” event, fully 57% report that they have changed (or are considering actions to change) their daily routine or behaviors to help improve air quality. This equals 9% of the total sample – up from 7% overall in both 2007 and 2008. The willingness to change is evident regardless of education and higher among residents in the Northwest or East zips and those who perceive a “moderate” air quality problem.

**Opinion of Activities/Events** – Fully 86% of survey respondents aware of at least one “Clean Air” campaign event have a favorable opinion of “events that encourage people to use other modes of transportation or work from home instead of driving alone.” This is the highest favorable rating recorded to-date (compared to 78%-84% in recent years), although the percentage “very favorable” is down slightly from 2008 (42%, down from 46%). Those “very favorable” towards “Clean Air” events tend to be Northwest or South region residents and respondents impacted by a medical-related breathing problem – as well as those who perceive a progressively more serious air quality problem. Overall, 13% have a negative opinion of “Clean Air” activities (up from 7%-8% between 2006 and 2008).

**Information Encouraging Transportation Behavior Changes** – Highly consistent with past surveys, these four types of information would most likely encourage the use of alternative methods of transportation:

- **Information about how alternative modes can save you money** (53%, up significantly from 2006-2008 levels [42%-44%], and the highest total recorded to-date. Money-saving information is especially relevant to South region residents.)
- **Information about how alternative modes can save you gasoline** (34%, down slightly from 2008 [38%] – but consistent with 2007 findings [34%]. Again, importance is highest in the South.)
- **Information about how alternative modes can help reduce air pollution** (25%, off slightly from 2008 [27%] and 2007 [29%] totals. Information related to air pollution is more important to East region residents and those who perceive a progressively more severe air quality problem [including 46% who deem it a “major” issue].)
- **Information on how alternative modes can improve your health** (24%, basically unchanged since 2008 [23%]. Health-related information is *less* important only to East region residents [17% versus 24%-27% in the other zones].)

New to the current study, 8% indicate that **information on how alternative modes can reduce global climate change** is relevant to them. These tend to be Northwest or East region residents and those who perceive a “major” air quality problem. Down slightly from recent surveys (10%-13%), 7% (regardless of geography) say in the current study that **information about how to use alternative modes** could encourage their usage. Identical to 2008, 19% say that **nothing** would encourage them to use alternative modes – most likely those who indicate that Tucson’s air quality problem is “minor.”

**Air Quality Awareness and School Materials Recall Among Children** – Down slightly from three of ten in the last three studies, 27% in the current survey indicate that they have children ages 5 to 18 living in their household. The greatest concentration of households with children is once again in the South zip code area (41%). Among respondents with children ages 5 to 18 in their household, one-third indicate that these children have asked questions or talked about air pollution. This represents a 10% increase over 2008. These households are most likely to be located in the Northwest region. In addition, nearly four of ten report that their children have “talked about or brought home materials from school about improving air quality” (36%). This represents a significant increase from the 2008 study (29%). School material recall is also higher among households in the Northwest and those familiar with the “Clean Air” Program.

**Most Effective Means of Communicating Air Quality Alerts on Air Quality Action Days – The three most effective methods for communicating information related to Air Quality Action Days include:**

- **Television alerts** (51% most effective, down from 64% in 2008. Named regardless of geography [slightly lower only in the Central zips], television alerts are considered more effective by women and 55 to 75 year-olds.)
- **Radio announcements** (43% most effective, up from 40% in 2008. Perceived effectiveness is lower only in the Central region; but higher among 36 to 55 year-olds.)
- **Television news reports** (37% most effective, down from 41% in 2008. Again, only Central region residents consider TV news reports less effective.)

Clearly, the greatest increases in perceived effectiveness relates to digital media. Up from just “single-digit” mention in 2008, more now consider **cell phone/text messages** (19%, up from 8%) or **Internet web postings** (17%, up from 6%) to be most effective. The appeal of both methods is higher among younger (16 to 35 year-old) people. Also up from 2008, nearly one of ten consider **email** “most effective” (8%, up from 5%).

What are the notification preferences of respondents from households impacted by a breathing-related medical condition? Similar to overall preferences, television alerts (53%), radio announcements (48%) and television news alerts (33%) are perceived to be “most effective.”

**Agreement With Various Statements Regarding Air Pollution** – The following is a summary of agreement with ten statements about air pollution, gas prices and related government agencies.

***PDEQ/Sun Rideshare Evaluations*** –

- **You are aware of the Pima County Department of Environmental Quality (PDEQ)** (69% agree, basically unchanged since the 2008 survey [70%]. Awareness is lower only in the South zips [56% versus 70%-77% in the other regions]. Those who perceive a “major” air quality problem and respondents familiar with the “Clean Air” Program are most apt to indicate awareness of PDEQ [85% versus 50% unfamiliar].)
- **You are aware of the services provided by Sun Rideshare** (New to the current study, 48% agree. Agreement is lower only among South region residents [41% versus 50%-52% in the other zones] and highest among survey respondents aware of the “Clean Air” Program.)

### **Air Pollution/Gas Price Evaluations –**

- **You are aware that air pollution causes health problems** (As we have found in prior surveys, agreement is nearly universal [98%.])
- **You understand what an air pollution advisory means** (87% agree, up from 79% in 2008 [when the statement read was “you understand what an air pollution advisory means, issued as part of an Air Quality Action Day”]. Awareness is especially high in the East zip, with no difference based on impact of a breathing-related medical condition.)
- **You are aware that the majority of our air pollution comes from motor vehicle use** (New to the 2011 study, 79% agree with this statement – with a similar degree of agreement regardless of geography.)
- **You are aware of air pollution advisories in Tucson** (75% agreement, down only slightly from 2008 [79%]. Once again, awareness is directly related to the perceived seriousness of Tucson’s air quality problem and higher among Northwest or East region residents.)
- **You have seen or heard commercials on TV or radio regarding clean air or air pollution** (74% agree, up from 69% in 2008. Agreement is lower only in the South zip and highest among those aware of the Pima County “Clean Air” Program [83% versus 64% who are unaware].)
- **Because of higher gas prices, you are generally driving less** (64% agree, consistent with 2006-2008 totals [62%-64%]. South region residents are most apt to agree with this statement. Agreement is marginally higher among those aware of the “Clean Air” Program [68%] than not [60%.])
- **Because you want to reduce air pollution, you are generally driving less** (48% agree [regardless of “Clean Air” Program awareness], down from 55% in 2008. Still, agreement is directly related to the perceived seriousness of Tucson’s air quality problem and higher among South zip residents.)
- **You have noticed a reduction in the amount of dust generated at construction sites or at other dust producing activities** (45% agree, basically unchanged since 2008 [44%]. Agreement is highest in the Central zip codes [54% compared to only 34% in the East] and among respondents familiar with the “Clean Air” Program.)

**Actions Taken to Drive Less Because of Higher Gas Prices –** Among the 64% of respondents who are generally driving less (for any purpose, including trips related to shopping, recreation, errands, etc.) because of higher gas prices, seven of ten again indicate (on an unaided basis) that they are reducing or combining trips (71%, unchanged since 2008). These tend to be East region residents. The incidence of reducing or combining car trips is inversely related to perceived air quality problem.

Because of higher gas prices, others are also carpooling/vanpooling (22%, up from 14% in 2008) and/or walking for short trips or errands (13%, basically unchanged). Carpooling is more popular among South region residents, while Central or East zip residents are more apt to walk for short trips.

Less than one of ten are walking to work or school (5%, up slightly from 4%), riding the bus (4%, down from 10%), riding a bicycle for short trips or errands (4%, down from 10%), staying at home (7%, up from 4%) or telecommuting (unchanged at 4%).

**Perceived Seriousness of Air Quality Problem in the Tucson Area** – Two of ten perceive that there is a “major” air quality problem in the Tucson area (19%). This is down from 2008 (25%), and represents the lowest total recorded in the recent past. The majority continue to indicate a “moderate” air quality problem (53%, down somewhat from 58% in 2008). One of four in the current study perceives a “minor” air quality problem (versus 13% to 20% since 2000). The perception of a “major” air quality problem is higher in the Northwest (25%) or South (20%) zip codes as compared to the Central or East (14% each). Who is more likely to perceive that Tucson’s air quality is a “minor problem”? East region residents, newer Pima County residents, higher income households and those with a college degree or better.

**Importance of Regional Campaign to Encourage People to Take Actions to Improve Air Quality** – Consistent with prior surveys, the vast majority of respondents think it is at least “somewhat important” to have a regional campaign that encourages people to improve air quality (84%). However, compared to recent years, fewer think such a campaign is “very important” (46%, down from 50%-60% in recent years and 55% in 2008). Among the rest, 15% indicate that a regional campaign is of little (8%) or no (7%) importance (up from 9% in 2008). As we have found in past years, the high degree of importance for a regional campaign is directly related to the perceived seriousness of the air quality problem in Tucson. It is also higher among those aware of the “Clean Air” Program (48% versus 42% not aware) or impacted by a breathing-related medical problem (58% versus 40% not impacted). Strong support is generally consistent regardless of geography and highest among 6-to-10 year Pima County residents and non-Whites (especially Hispanics).

**Frequency of Using Driving Alternatives** – As we found in 2007 (the last time this question series was asked), the vast majority indicate that they are **combining automobile trips** (86%, down slightly from 88%). In the current study, fully 55% (lower only in the East zips) report combining automobile trips more often (up from 50% in 2007) as compared to a year ago – increasing progressively and incrementally since 2001 (29%). Importantly, those familiar with the “Clean Air” Program are among those most apt to be combining trips most often (63% versus 46% unaware of the program).

Most also report **walking for short trips or errands** (54%, down slightly from 57% in 2007). Significantly, the largest share to-date indicate walking more often (34%, up from 25% in 2007) – especially South region residents.

Compared to recent years, a larger percentage are **carpooling or vanpooling** (48%), and a record percentage are doing so more often (24%, up from 20% in 2007). Those carpooling more often tend to be South zip residents and those aware of the “Clean Air” Program (28% versus 21% unaware of the program).

In line with 2007 findings, seven of ten are **riding a bicycle for short trips or errands** (31%, up slightly from 29%). Once again, a record number indicate riding their bike more often (17%, up from just 10% in 2007) – particularly Central residents.

Overall, 15% report **walking to work** (down from 20% in 2007). Still, among those who do, a larger percentage indicate they are walking to work more (8%) rather than less (4%) often. In 2007, as many were walking less as more often (5% each). East region residents are more likely to be increasing their frequency of walking to work.

The percentage of survey respondents **riding the bus** is basically unchanged since 2007 (22%). However, for the first time in the recent past, a slightly larger number are riding the bus more (6%) rather than less (5%) often. Who is most likely to be increasing their bus ridership? South region residents, non-Whites and those with lower incomes or less formal education.

In line with the 2007 survey, 15% report **riding a bicycle to work**. Among these bike riders, a slightly larger share indicate riding less (6%) than more (4%) often.

**Work Commuting Behavior** – Up from three of ten in 2008, one-third of survey respondents are employed on a full-time basis (34%). The percentage of full-time employees is highest in the Central region (43%) and lowest in the Northwest (28%). Similar to past years, men (42%) remain far more likely than women (28%) to be employed full-time. Another 8% are employed on a part-time basis (down from 12%), more often South region residents. Similar to the 2008 study, 35% are retired. Retirees are most apt to live in the Northwest or East zip codes. Among the rest, 9% are students (unchanged from 2008) and 9% are homemakers (down slightly from 12%). Students are more apt to reside in the South zips, while Northwest or South region residents are more likely to be homemakers. Another 6% indicate that they are currently unemployed (down slightly from 8% in 2008), more often Central region residents.

More than seven of ten full-time employees (72%) work a “standard” work schedule (8 hours/day, 5 days/week). This is up from 64% in 2008, and more consistent with the 2007 survey (68%). Basically unchanged since 2008, one of ten work a 10-hour day, 4 days per week – while 5% work 12 hour days, 3 or 4 days per week. Fewer work 80 hours over 9 days with the tenth day off (2%). Compressed workweek schedules are equally likely to be utilized at small (less than 50 employees) or large (100+ employees) jobsites. Another 11% overall (down from 16% in 2008) indicate that their work schedule varies. This is the case regardless of jobsite size.



More than eight of ten utilize **single passenger commuting to work or school** (84%), up from 74% in 2008. The average frequency of use is 4.5 days, down slightly from 4.7 in 2008. Northwest (45%) and East (37%) residents are *less* apt to drive alone 5+ days a week (compared to 58%-60% in the Central and South zips).

Compared to 2008 (22%), more **carpool or vanpool** at least one day per week (28%), with an uptick in the average frequency as well (from 3.9 days to 4.0 days). South zip code residents are particularly apt to carpool/vanpool 5+ days per week (27% versus 6%-10% in other areas).

**Use of Alternative Commute Modes** – The following is a summary of the utilization of alternative methods of work/school commute travel:

- **Walk to work or school** (The incidence of walking to work/school has experienced a slight uptick from 2008 [from 14% to 15%], with a significant increase in frequency [from 3.4 days to 4.0 days]. Only Central area residents are *less* apt to walk to work or school.)
- **Work at home instead of driving to work** (Compared to 2008, slightly fewer are telecommuting [from 12% to 9%], with a slight uptick in average days [from 3.2 to 3.3]. Telecommuting is greater among Northwest and East zip code residents.)
- **Ride a bike to work or school** (Slightly fewer are riding bikes [from 8% to 7%], although they are doing so more often [from 3.5 days to 3.7 days]. The incidence of biking to work or school is somewhat higher in the South and East zip code areas.)
- **Ride the bus to work or school** (Bus ridership is down [from 11% in 2008 to 5% now], with a decrease in frequency as well [from 3.7 days to 3.1 days]. South and East residents are more apt to take the bus.)
- **Ride a motorcycle to work or school** (Motorcycle usage [2%, up from 1%] and frequency [from 1.0 days to 2.7 days] have increased.)

**Miles Traveled to Work or School** – Compared to 2008, there has been a shift to longer work commutes. More than one-half (55%, down from 60%) report commutes of 5 miles or less (27%, down from 34%) or 6 to 10 miles (28%, up slightly from 26%). Another 6% (up slightly from 4%) report traveling between 11 and 14 miles. Meanwhile, significantly more report traveling 15 miles or more to work or school (38%, up from 24%). Four of ten or more South (49%), Northwest (44%) and East (42%) area residents report commutes of 15 miles or more, while nearly one-half of Central residents travel 5 miles or less.

**Telecommuting** – Among workers employed outside the home, 19% indicate that they telecommute. This represents a significant increase (+111%) in the incidence of telecommuting since 2008 (9%). Telecommuters tend to reside in the Northwest or East zips and be employed at large jobsites (with 100+ employees). Among those who telecommute, six of ten do so more than once a week (26%) or about once a week (33%). This is up from 54% in 2008, although the percentage of more than once a week telecommuters has declined somewhat (from 31% to 26%). Among the rest, four of ten telecommute 2 to 3 times a month (15%, down from 31%) or once a month (or less) (from 15% to 26%).

**“Compressed Workweek” Programs** – One-third of those employed outside the home have “compressed workweek” programs available to them. This is up from 2008 levels (27%), and more consistent with 2007 findings (31%). The availability of compressed workweek programs is consistent regardless of geography, and among small (less than 50 employees) or large (100+ employees) employers.

**Daily Commuter Miles Saved by Alternate Modes** – Based on the combined results related to modes of commuter travel and distances traveled with employment estimates (Source: Department of Commerce), we estimate that the reduction of single-occupant vehicles commuting through the use of alternative methods of travel saves **2,739,932** vehicle miles per day – or **25%** of total miles driven/not driven. This has declined from a peak of 30% in 2007 and 2008.

The percentage of miles saved through use of alternative modes has decreased to 25%, and the actual number of vehicle miles saved daily has declined by 4% – due to an increase in the average commute distance (from 11.9 miles in 2008 to 14.8 miles now – an increase of 24%) and more single-passenger commuters (from 74% to 84%). The 2004 levels of single-passenger commuting and average commute distance were similar to the current study – but with a smaller share of miles saved through alternative mode use (21%).

***Final Observations***

As we have found in prior surveys, there is a significant difference in key attitudes and behaviors related to air quality – including Air Quality Event Awareness, PDEQ/Sun Rideshare Awareness & Usage, PDEQ Activity Understanding, Changes in Driving Behavior and Air Quality Perceptions – among those aware of the Pima County “Clean Air” Campaign and those unaware (52% and 43%, respectively). This relationship remains readily apparent, as summarized below.

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (52%)	<u>Unaware</u> (43%)
<b><i>Air Quality Event Awareness</i></b>			
Earth Day Festival & Parade	<b>+31%</b>	77%	59%
Bike to Work Day	<b>+73%</b>	71%	41%
Bike Fest	<b>+51%</b>	62%	41%
Walk and Roll to School Day	<b>+79%</b>	43%	24%
Green Living Fair	<b>+115%</b>	43%	20%
Bike to the Zoo Day	<b>+108%</b>	27%	13%
Cyclovia	<b>+112%</b>	17%	8%
• Participation in a “Clean Air” event	<b>+75%</b>	21%	12%

✓ **On average, there is an 80% higher awareness and/or participation in “Clean Air” events or programs among those familiar with the “Clean Air” Program. What’s more, participation in a campaign event is nearly twice as great among those familiar with the “Clean Air” Program (21% versus 12% not aware).**

***PDEQ/Sun Rideshare Awareness & Usage***

• Aware of PDEQ	<b>+70%</b>	85%	50%
• Aware of Sun Rideshare services	<b>+54%</b>	57%	37%

✓ **On average, there is a 62% greater knowledge and use of PDEQ/Sun Rideshare services among those aware of the “Clean Air” Program.**

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (52%)	<u>Unaware</u> (43%)
<b><i>PDEQ Activity Understanding</i></b>			
• Understand air pollution advisory meaning	+2%	88%	86%
• Aware of Tucson air pollution advisories	+49%	88%	59%
• Seen or heard TV/radio commercials regarding clean air or air pollution	+30%	83%	64%
• Noticed a reduction in the amount of dust generated at construction sites/other places	+37%	52%	38%
✓ <b>On average, there is a 30% higher understanding of PDEQ activities among those aware of the “Clean Air” Program.</b>			

***Changes in Driving Behavior***

• Combining automobile trips more often	+37%	63%	46%
• Carpooling/Vanpooling more often	+33%	28%	21%
✓ <b>There is a 35% greater degree of change in past-year driving behaviors among those aware of the “Clean Air” Program.</b>			

***Air Quality Perceptions***

• Perceive that Tucson area has a “moderate” or “major” air quality problem	+9%	76%	70%
✓ <b>There is a 9% greater perception of air quality problems in Tucson among those aware of the “Clean Air” Program.</b>			

**These findings again suggest that the Pima County “Clean Air” Program clearly increases awareness, belief and actions related to improving air quality and usage of alternative modes of transportation.** Consequently, targeting those unaware of the program continues to be a key recommendation of this project. What is the “target” profile of Pima County residents unfamiliar with the “Clean Air” Program? South area residents, men, 16 to 35 year-olds, non-Whites and Pima County residents for less than five years are among those more likely to be unfamiliar with the “Clean Air” Program. Consequently, additional promotional, communication and awareness-building efforts should be targeted towards these groups – particularly 26 to 35 year-olds. Why is that? Those 26 to 35 are among those most likely to indicate a change in behavior as a result of their participation in “Clean Air” Program activities.

Without question, this study also highlights the need to increase promotional marketing and advertising efforts – to the extent possible – in order to expand awareness of the “Clean Air” Program, as well as specific events. What type of information will most likely encourage use of alternative transportation methods? Information about how alternative modes can save money (as well as gasoline). It is also clear that the most effective means of communicating Air Quality Action Day alerts continues to be with television announcements.