



**EVALUATION OF THE 2013-2014
PIMA COUNTY CLEAN AIR PROGRAM CAMPAIGN AND
CLEAN STORMWATER PROGRAM CAMPAIGN SURVEY**

(June 2014)

Executive Summary

Prepared for:

PIMA COUNTY DEPARTMENT OF
ENVIRONMENTAL QUALITY

Tucson, Arizona

Prepared by:

FMR ASSOCIATES, INC.

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Methodology Overview and Survey Tracking – This tracking survey, conducted on behalf of the Pima County Department of Environmental Quality (PDEQ), is comprised of 502 telephone interviews conducted among randomly-selected men and women (16+) who live in Pima County. Similar to prior surveys, all respondents were further randomized by interviewing “the male or female in your household who is 16 or older and most recently celebrated a birthday.” There was only one interview conducted per household. A Spanish-language version of the final questionnaire design was prepared and made available to survey respondents who requested it.

These surveys were conducted in early June 2014. Interviews were distributed on the basis of geographic population density in Pima 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 2014 in-tab sample is representative of projected demographic patterns and on target with geographic sampling quotas.

Both the 2014 (N=502) and 2013 (N=504) projects have similar sample sizes, which are larger than the 2011 (N=403) and 2008 (N=402) studies.

This project analyzed and tracked the overall effectiveness of the Clean Air Program after 24 campaign sessions. For the second consecutive year, the survey also measured and tracked attitudes, knowledge, awareness and behaviors related to stormwater management for the Clean Stormwater Program Campaign.

Awareness of the Pima County “Clean Air” Program – A majority of survey respondents (52%) are familiar with the Pima County “Clean Air” Program. This is up from 43% in 2013, but identical to 2011 findings (52%). Awareness is highest in the East zip codes (66%), and somewhat lower in the South (44%). As we found last year, program awareness is consistent among those who perceive that Tucson has a “major” (58%) or “moderate” (57%) air quality problem (versus just 38% awareness among those who think it is a “minor” issue).

Awareness of Various “Clean Air” Events or Activities – Unchanged since last year, nine of ten are familiar with at least one “Clean Air” Program event or activity. Among the seven “Clean Air” events tested in both 2013 and 2014, awareness has increased in four cases (with only a slight decline in the other three).

Consistent with past findings, awareness of specific events continues to be significantly higher among respondents familiar with the “Clean Air” Program.

Unchanged since last year, the three events that elicit the highest degree of awareness include:

- **“Earth Day Festival and Parade”** (68% awareness, up slightly from last year [66%]. Awareness is consistent regardless of geography [highest in the East zips].)
- **“Bike to Work Day”** (63% awareness, up from 54% last year. This is the highest awareness recorded to-date. Familiarity is generally consistent across geography.)
- **“Bike Fest”** (45% awareness, down just slightly from 48% last year. There are few differences based on geography.)

Two of ten or more are familiar with four other “Clean Air” events:

- **“Walk and Roll to School Day”** (32% awareness, down from 36% last year. Awareness is somewhat lower only in the Northwest zips [26% versus 32%-36% elsewhere].)
- **“Car-Free Day”** (New to the current study, three of ten [regardless of geography] indicate familiarity.)
- **“Cycloviva”** (21% awareness, up from just 11% last year. Central or East residents are more likely to be familiar with this event.)
- **“Bike to the Zoo Day”** (20% awareness, down slightly from 22% last year. East zip residents indicate increased familiarity.)

Up slightly from 13% last year, 16% are familiar with the **“Pedal the Pueblo”** event. Awareness is marginally lower only in the Northwest zips (10% versus 16%-19% elsewhere).

“Clean Air” Campaign Event Participation and Actions Taken – Among the nine of ten who are aware of at least one “Clean Air” event, 12% report that they or someone in their household participated in one or more of these activities. This is down from the record 17% participation levels reported in 2011 and 2013, but consistent with 2004-2008 findings (9%-12%). Event participation is highest in the Central zips and among 36 to 45 year-olds and non-Hispanic minorities. Among the 12% who indicate participation in a “Clean Air” event, 55% say that they have changed (or are considering actions to change) their daily routines or behaviors to help improve air quality. This is down from 2013 levels (76%), but in line with 2011 findings (57%). Among the total sample, this means that 6% indicate a change in behavior after participating in a “Clean Air” program event. This is down from a record-setting 11% last year, and 9% in 2011. In the current study, Central or South residents, Hispanics, those with some college (but no degree) and households impacted by a breathing-related medical condition are most apt to indicate a change in (or willingness to change) routines or behaviors to improve air quality.

Opinion of Activities/Events – About three of four familiar with at least one “Clean Air” event have a favorable opinion of “events that encourage people to use other modes of transportation or work from home instead of driving alone” (73%). This is down from 85%-86% in 2011 and 2013, including fewer who are highly positive (from 42%-45% to 38% now). Still, the percentage “very favorable” is generally consistent across geography and among those 16 to 65. Women, non-Whites and the newest Pima County residents (for less than two years) are most apt to be “very favorable” of “Clean Air” events. A high degree of favorability is also directly related to the perceived seriousness of the air quality problem. As we found in 2013, just one of ten have a negative opinion (to any degree) of air quality events. Instead, more are unsure or have no specific opinion (15%).

Steps Taken to Reduce Air Pollution – Similar to last year, the “top 3” steps taken by respondents (on an unaided basis) to help reduce air pollution in the Tucson area include:

- **Generally reduced driving** (44%, up from 37% last year. This is particularly true among Northwest residents. Those aware of the Pima County “Clean Air” Program are also more apt to indicate they are driving less [47% versus 41% unfamiliar].)
- **Carpool/Less driving alone** (28%, unchanged since last year. South zip residents and those who perceive a “moderate” air quality problem are more apt to be carpooling.)
- **Keep car tuned** (25%, up from 12% last year. There are few differences based on geography.)

Significantly, the percentage who indicate (on an unaided basis) that they are **keeping their tires properly inflated** has tripled since last year – from 7% to 22% now. This is true regardless of gender, age or “Clean Air” Program awareness. Most apt to be keeping their tires inflated are Northwest or South residents, higher income households and those who perceive a “major” air quality problem.

In addition, more say they have also **bought a more fuel efficient car** (13%, up from 7%), **planted trees** (12%, up from 5%), **avoided excessive idling** (12%, up from 4%) and **adjusted vehicle emissions equipment** (11%, up from 3%). In fewer numbers, some have **chosen one day a week not to drive** (6%, up slightly from 5%) and/or **bought bicycles** (6%, down from 8%).

Overall, 15% report that they have done **nothing** to reduce air pollution (down from 21% last year). These tend to be the oldest respondents (76+).

Among the 15% who have done “nothing” to reduce air pollution, what reasons are offered? In line with last year, 63% do not cite a specific reason for their lack of action. Among those who do offer a reason for their inaction, the largest share continue to say they **lack the knowledge or education (“don’t know how”) to take specific steps** (15%, up from 10%). Others claim they are **“too old”** (5%, up from 2%), **live too far/not near anyone else** (4%) and/or concerned about the **cost** (4%) or **convenience** (3%) of taking action. A few add that they do not perceive there to be an air pollution problem (4%).

School Materials Recall Among School Age Children – Slightly more than two of ten (22%) indicate that they have children between the ages and 5 and 18 living in their household (down from 33% in 2013). These tend to be South region residents and non-Whites.

A majority of households with children ages 5 to 18 (regardless of geography or gender) report that these kids have “talked about or brought home materials from school about improving air quality” (54%). This is highest recall in recent years (and up from four of ten last year). Recall in the current study is highest among 36 to 45 year-olds and those with some college (but no degree).

Most Effective Means of Communicating Air Quality Alerts on Air Quality Action Days – Consistent with recent surveys, and allowing for multiple responses, the most effective methods for communicating an air quality alert when an Air Quality Action Day occurs include:

- **Television alerts** (57% most effective, basically unchanged since last year [58%]. This method is mentioned regardless of geographic region [somewhat lower only in the South zips].)
- **Radio announcements** (49% most effective, up from 41% last year. Among South residents, radio is as effective as television [50% each]. East zip residents and households impacted by a breathing-related condition are also more likely indicate that radio is highly effective for communicating an air quality alert.)
- **Television news reports** (42% most effective, up from 35% last year. More highly effective among East residents.)
- **Cell phone/Text messages** (24%, up from 21% last year. There are few differences based on geography.)
- **Internet website postings** (11%, down from 16% last year. Central residents indicate a higher degree of effectiveness.)

As we found last year, less than one of ten indicate that **email** is the most effective media to communicate an air quality alert (8%).

Air Pollution Statement Evaluations – The following is a summary of agreement/disagreement with twelve statements related to program awareness, pollution awareness, topics and knowledge:

PDEQ and Rideshare Awareness –

- **You are aware of the Pima County Department of Environmental Quality** (68% agree, up from 64% last year. Awareness is somewhat lower only in the South zips [59% versus 68%-75% elsewhere]. The vast majority of those aware of the “Clean Air” Program are familiar with PDEQ [86% versus 46% of those unaware].)

- **You are aware of the services provided by Sun Rideshare** (49% agree, up from 45% last year. There are few differences in awareness based on geography. Awareness is elevated among those familiar with the “Clean Air” Program [57% versus 41% of those unfamiliar].)

PDEQ Program Awareness –

- **You are aware of the “Clean Water Starts With Me” campaign** (47% agree. Awareness is consistent across geography, and is highest among those aware of the “Clean Air” Program [65% versus 26% of those unaware]. In addition, awareness is directly related to the perceived severity of the stormwater pollution problem.)
- **You have seen or heard information about the importance of keeping your tires properly inflated** (Fully nine of ten agree, slightly lower only in the South zips [84% versus 90%-94% elsewhere].)
- **You have seen or heard of the “Pump Up Your MPG” contest** (10% agree. There is some marginally higher awareness among Central residents and those familiar with the “Clean Air” Program.)

Air Pollution/Gas Price Evaluations –

- **You are aware that air pollution causes health problems** (While the vast majority continue to agree [94%], it is slightly lower than 96%-99% in previous surveys.)
- **You understand what an air pollution advisory means** (87% agreement, consistent with the last two surveys [87%-89%]. Agreement is somewhat lower only in the South zip codes [80% versus 89%-91% elsewhere].)
- **You are aware that the majority of air pollution comes from motor vehicle use** (82%, up slightly from last year [81%]. South residents and those who perceive a progressively more severe air quality problem are especially apt to agree.)
- **You have seen or heard commercials on TV or radio regarding clean air or pollution** (80% agree, a significant increase from 68% last year. Recall is highest in the Northwest or South zips, as well as among those aware of the Pima County “Clean Air” Program [86% versus 72% who are unfamiliar].)
- **You are aware of air pollution advisories in Tucson** (78% agree, up slightly from 75% last year. Northwest residents and households impacted by a breathing-related medical condition are most apt to agree. There is also elevated agreement among those aware of the “Clean Air” Program [88% versus 66% unaware].)
- **Because of higher gas prices, you are generally driving less** (55% agree, down progressively from 2011 [64%] and 2013 [59%] levels. Agreement is generally consistent regardless of geography [slightly higher only in the South].)

- **Because you want to *reduce air pollution*, you are generally driving less** (55% agree, up slightly from last year [53%]. Agreement is directly related to the perceived seriousness of the air quality problem in Tucson, and higher among Central residents and those aware of the “Clean Air” Program [59% versus 49% unaware].)

Actions Taken to Drive Less Because of Higher Gas Prices – Among survey respondents who indicate that they are driving less because of higher gas prices (55% of the total sample), two-thirds say they are **reducing or combining trips** (68%, up from 61% last year) – most often Northwest residents.

Other actions taken in response to higher gas prices include:

- **Carpooling/Vanpooling** (18%, down from 24% last year. These tend to be Central residents.)
- **Walking for short trips or errands** (13%, basically unchanged from 14% last year. Central residents are more likely to be walking for short trips and errands.)
- **Riding the bus** (8%, virtually identical to last year [9%]. Bus riders tend to be Central or South residents.)

Because of higher gas prices, others are **telecommuting** (5%, up from 3%), **riding a bicycle for short trips/errands** (3%, down from 5%) or participating in a **compressed work week** (2%, down from 4%). Few are **walking to work or school** (2%, down from 9%) or **riding a bicycle to work or school** (1%, down from 4%).

Perceived Seriousness of Air Quality Problem in Tucson Area – Consistent with last year, 18% of survey respondents perceive that Tucson has a “major” air quality problem (compared to 22%-27% between 2002 and 2008). At the same time, the percentage who indicate a “minor problem” has increased (from 24% in 2011 and 2013 to 27% now) – representing the highest recent total to-date. In line with prior surveys, a slight majority continue to rate air quality as a “moderate problem” (52%, down from 55%). The perception of a “major” air quality problem is relatively consistent across geographic area (slightly higher in the Central zips). Women (25% versus 11% of men), non-Whites, those with progressively less formal education and households impacted by a breathing-related medical condition are most likely to perceive a “serious” problem. This is also the case among those aware of the “Clean Air” Program (20% versus 15% unfamiliar). The perception of a “minor” air quality problem is higher among men (37% versus 17% of women), with fewer differences with respect to education level or geography (slightly higher in the South or Northwest zips).

Importance of Regional Campaign to Encourage People to Take Actions to Improve Air Quality – More than eight of ten think it is important (to some degree) to have a regional campaign that encourages people to improve air quality (83%). Still, this is down from 89% last year – with fewer who rate such a campaign as “very” (from 48% to 47%) or “somewhat” (from 41% to 36%) important. At the same time, more consider regional air quality campaigns to be unimportant (from 10% last year to 16% now). Consistent with past years, there is a direct relationship between those who think

regional campaigns are “very important” and their perception of the air quality problem. In addition, those aware of the “Clean Air” Program place a higher degree of strong importance on regional campaigns (50% versus 42% unaware). Those who place a low degree of importance on a regional air quality campaign tend to be Central residents, men, 6-to-10 year Pima County residents and college graduates.

Work Commuting Behavior – Among the 2014 in-tab sample (and allowing for more than one category of response), 30% in the 2014 survey say that they are employed on a full-time basis. This is up from 27% in 2013. Another 8% work part-time, down from 11% in 2013. Similar to 2013, one of ten overall report they are currently unemployed (11%). Unemployed respondents are more apt to reside in the Central zips. Up from 31% in 2013, 38% in the current study are retired. Geographically, retirees are more apt to live in the Northwest or East area zips. Another one of ten are homemakers. This is down slightly from 13% in 2013, but identical to 2011 findings. Compared to prior surveys, fewer are students (4%).

The majority of full-time employees indicate that they work a “standard” work schedule (8 hour days, five days a week) (56%, down from 67% last year). Among the rest, one of ten work 10-hour days, 4 days per week (virtually unchanged at 10%). A few more work different schedules, including 12-hour days 3 or 4 days a week (5%, up from 2%) or 80 hours over 9 days with the 10th day off (4%, up from 3%). However, more now indicate their work schedule varies or have some other work schedule variation (26%, up from 19% last year). Like last year, compressed workweek options are more likely to be utilized at large (100+ employees) jobsites. Most of those who work outside the home report that there are more than 100 employees at their primary place of work (56%). This up from the last few surveys (46%-50%).

More than eight of ten use **single passenger commuting to work or school** (83%). This is up from 2013 (79%), but consistent with 2011 levels (84%). The average frequency of use is identical to 2011 and 2013 at 4.5 days. South zip code residents are *least* apt to drive alone 5+ days a week (51% versus 55%-60% in other regions).

Why do single occupant vehicle commuters drive alone to and from work or school? Up slightly from last year, 27% each say they have “**irregular work hours**” (up from 25%) and/or have “**no one to carpool with**” (up from 24%). Higher income households (\$40,000+), workers at large jobsites (100+ employees) and Central or South residents are more apt to report irregular work hours; while a lack of people to carpool with is more common in the Northwest zip codes and among workers at smaller (less than 50 employees) jobsites. Up significantly from last year, and the highest mention to-date, one of four say that they “**like to drive alone**” (25%, up from 9%). Fewer indicate that “**convenience**” is the reason they drive alone to and from work or school (20%, down from 33% last year). More than in any previous survey, 13% now say that there is “**no bus service in the area**” (up from just 4% in 2013). These are more apt to be South area residents. Overall, one of ten single-occupant vehicle commuters continue to say that they “**need their car for business**” (9%, down slightly from 12% in 2013). These are more apt to be East zip residents. Other single occupant vehicle commuters cite “**personal errands**” (2%, down from 7%) and “**child drop off**” (2%, down from 6%) as reasons for driving along to and from work or school.

Down from 2013 (26%), 10% **carpool or vanpool** at least one day per week, with a downtick in average frequency (from 3.9 to 3.1 days). Overall, carpooling is similar regardless of area of residence.

Use of Alternative Work/School Commute Modes – The following is a summary of the use of alternative modes for commute travel:

- **Ride the bus to work or school** (Bus ridership is virtually unchanged since last year at 10%, although there is a decrease in average days [from 3.8 to 3.1]. More apt to take the bus to work or school are Central or South region residents.)
- **Work at home instead of driving to work** (Compared to 2013, fewer are telecommuting [from 15% to 7%], while frequency has remained unchanged at 3.5 days.)
- **Ride a motorcycle to work or school** (Slightly more are riding a motorcycle to work or school [from 5% to 7%], with a downtick in frequency [from 2.6 days to 2.3].)
- **Walk to work or school** (The percentage walking to work or school has decreased [from 12% to 6%], with lower average days as well [2.3 days, down from 3.7 in 2013]. South area residents are most apt to walk to work or school [13%].)
- **Ride a bike to work or school** (Fewer are riding bikes to work or school [from 9% to just 1%], and are doing so less frequently [from 2.1 days to 1.5 days]. The few riding bikes are more apt to be Northwest or South residents.)

Most Used Mode of Transportation for Work/School Commute – Eight of ten who work outside the home or attend school indicate that **single-passenger vehicle commuting** is their **most-used** method to commute between home and work or school. This is up from two-thirds in 2013. Northwest (85%) and East (86%) area residents are most likely to drive alone to work or school most often. Meanwhile, South residents are more likely to primarily use an alternative mode (26%).

Consistent with last year, 6% are **taking the bus** most often for their commute, most often Central area residents (12%). **Carpooling** is the most-used commute method of 5% overall (down from 12% in 2013). Down from 2013 (8%), but consistent with 2011, 4% primarily **telecommute**, more often respondents in the South (8%) zip codes. Overall, fewer say that their most used method of commuting is **walking** (from 5% to 2%). Few commute primarily by **riding a motorcycle** (unchanged at 2%) or a **bike** (unchanged at 1%).

Miles Traveled to Work or School – Compared to 2013, work or school commute distances tend to be longer. Four of ten (down from 61% in 2013) report commutes of 5 miles or less (14%, down from 29%) or 6 to 10 miles (26%, down from 32%). Another one of ten (virtually unchanged at 9%) report traveling between 11 and 14 miles. Overall, 41% say they travel 15 or more miles (up from 23% in 2013, but consistent with 38% in 2011). Who has the longest commutes? One-half of South zip code residents (51%) commute 15 miles or more. On the other hand, the majority of Central residents travel 10 miles or less (54%).

Telecommuting – Down slightly from 2013, 17% of workers employed outside the home report that they telecommute. The incidence of telecommuting is greatest in the Central zips, as well as at small jobsites with less than 50 employees. Among telecommuters, two-thirds indicate that they do so more than once a week (64%, up from 52% in 2013). Among the rest, 8% telecommute about once a week (down from 12%) – while 28% do so 2-3 times a month (12%) or once a month or less (16%).

“Compressed Workweek” Programs – Compared to 2013, fewer workers employed outside the home report that they have the option of compressed workweek programs (23%, down from 32%). These tend to be Northwest or South region residents who work at medium (50-100 employees) or large (100+ employees) jobsites.

Daily Commuter Miles Saved Through Alternate Modes – Based on the combination of 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 **1,780,530** vehicle miles per day – or **16%** of total miles driven/not driven. The percentage of miles saved has decreased from 32% in 2013 to 16% now.

While the percentage of miles saved through the use of alternate modes has decreased to 16%, the actual number of vehicle miles saved daily has decreased by 44% (from 3,195,589 to 1,780,430) – due to an increase in average single-passenger commuter distance (from 11.6 miles in 2013 to 15.0 now – an increase of 29%) and more single-passenger commuters (from 79% to 83%). The current levels of single-passenger commuting and average commute distance are in line with the 2011 study; however, in 2011 there was a greater share of miles saved through alternative mode use (25% versus 16% now). This is due to higher usage of alternative modes in 2011.

Final Air Quality Campaign Observations

General awareness of the Pima County “Clean Air” Program has increased by 21% since 2013, from 43% to 52%. As we found last year, fully nine of ten are familiar with at least one “Clean Air” event. In line with past years, there continues to be a significant difference in key attitudes and behaviors related to air quality among those aware of the “Clean Air” Program and those unaware (52% and 45%, respectively). This relationship continues to be readily apparent, as summarized in the comparative displays below.

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (52%)	<u>Unaware</u> (45%)
<i>Air Quality Event Awareness</i>			
Earth Day Festival & Parade			
2014	+21%	75%	62%
2013	+25%	74%	59%
Bike to Work Day			
2014	+50%	75%	50%
2013	+71%	70%	41%
Bike Fest			
2014	+37%	52%	38%
2013	+60%	61%	38%
Walk and Roll to School Day			
2014	+100%	42%	21%
2013	+92%	50%	26%
Car-Free Day			
2014	+133%	42%	18%
Bike to the Zoo Day			
2014	+190%	29%	10%
2013	+100%	32%	16%
Pedal the Pueblo			
2014	+188%	23%	8%
2013	+162%	21%	8%
Cyclovia			
2014	+73%	26%	15%
2013	+9%	12%	11%
• Participation in a “Clean Air” event			
2014	+67%	15%	9%
2013	+13%	18%	16%

✓ **On average, there is a 95% higher awareness and/or participation in “Clean Air” events or programs among those familiar with the “Clean Air” Program – up from 81% in 2013.**

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (52%)	<u>Unaware</u> (45%)

PDEQ and Sun Rideshare Awareness

- Aware of PDEQ

2014	+87%	86%	46%
2013	+71%	82%	48%
 - Aware of Sun Rideshare services

2014	+39%	57%	41%
2013	+88%	60%	32%
- ✓ **On average, there is a 63% greater awareness of PDEQ and Sun Rideshare services among those aware of the “Clean Air” Program.**

PDEQ Activity Understanding

- Understand air pollution advisory meaning

2014	+18%	94%	80%
2013	+12%	94%	84%
 - Aware of Tucson air pollution advisories

2014	+33%	88%	66%
2013	+49%	91%	61%
 - Seen or heard TV/radio commercials regarding clean air or air pollution

2014	+19%	86%	72%
2013	+55%	82%	53%
 - Seen or heard information about the importance of keeping tires properly inflated

2014	+13%	95%	84%
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- ✓ **On average, there is a 21% higher understanding of PDEQ activities among those aware of the “Clean Air” Program.**

Steps Taken to Reduce Air Pollution (Unaided)

- Driven less/Reduced Driving

2014	+15%	47%	41%
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 - Carpool more/Less solo driving

2014	+11%	30%	27%
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 - Keep car tuned

2014	+13%	27%	24%
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- ✓ **There is a 13% greater likelihood of taking specific steps to reduce air pollution 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> (45%)
<i>Air Quality Perceptions</i>			
• Perceive that Tucson area has a “moderate” or “major” air quality problem			
2014	+26%	77%	61%
2013	+12%	76%	68%

- ✓ **There is a 26% greater perception of air quality problems in the Tucson area among those aware of the “Clean Air” Program (up from 12% in 2013).**

Clearly, these findings and tracking results again suggest that the “Clean Air” Program increases awareness, belief and actions related to improving air quality. Consequently, targeting those unaware of the program continues to be a key recommendation of this study. And what is the profile of Pima County residents unfamiliar with the “Clean Air” Program? Northwest or South residents, men, 16 to 35 or 46 to 55 year-olds, non-Hispanic minorities and “new” (for less than five years) Pima County residents. South residents and 46 to 55 year-olds – along with Central residents and Hispanics – are also among those most likely to indicate a change in behavior as a result of their participation in “Clean Air” Program activities. As a result, promotional, communication and awareness-building efforts should be targeted towards these groups.

This study again highlights the increased benefit of greater promotional, marketing, branding and advertising efforts – to the extent possible – in order to expand awareness of the “Clean Air” Program (as well as awareness of and participation in specific events), especially to reach the sub-groups identified above.

Tire Inflation Education Campaign – Among households with at least one vehicle owned or leased in their household, a few more report that they check tire pressure at least weekly (from 18% in 2013 to 20% now). This is especially true among those few who are aware of the “Pump Up Your MPG” contest (28% versus 20% unaware). Among the rest, most continue to check their tire pressure “every month” (basically unchanged at 40%) or “3 to 4 times a year” (from 26% to 30%).

While just one of ten overall indicate specific aided familiarity with the “Pump Up Your MPG” contest, fully nine of ten “have seen or heard information about the importance of keeping your tires properly inflated.”

Related to this finding of increased awareness, the percentage who now say (on an unaided basis) they are keeping their tires properly inflated to help reduce air pollution in the Tucson area has tripled since last year – from 7% to 22%.

What is the direct impact of this action taken to keep tires properly inflated?

There are an estimated 632,997 working vehicles (automobiles, vans and trucks of one-ton capacity or less for household use) in Pima County (source: 2012 American Community Survey). A vehicle will save 144 gallons of gasoline per year with properly inflated tires (source: PDEQ).

If 22% are keeping their tires properly inflated, this yields an annual reduction of 20,053,345 gallons of gasoline not purchased (along with the pollutants this gasoline would release). This is a 214% increase from 6,380,610 gallons saved in 2013 (when 7% indicated they were keeping their tires properly inflated).

Stormwater Perceptions and Practices

Perception of Where Stormwater That Flows Into Tucson Storm Drains Ends Up –

After being told that streets in the Tucson area are equipped with storm drains, 49% indicate that (to the best of their knowledge) the water that flows into these drains ends up in a **river or wash** (up from 44% last year). This is especially true in the East zip codes (55% versus 44%-49% elsewhere).

Allowing for multiple responses, and highly consistent with 2013 findings, others think that stormwater that flows into storm drains ends up in:

- ✓ **Sewage plants** (11% [versus 12% last year], higher in the Central zip codes.)
- ✓ **Groundwater** (8% [versus 7% last year], more often South zip residents.)
- ✓ **Water plants** (5% [versus 6% last year], with few differences based on geography.)
- ✓ **Canals** (3% [versus 4% last year], slightly higher in the South or East zip codes.)

Most of the rest (32%, down slightly from 35% in 2013) **do not know** where stormwater ends up. These tend to be South residents.

Low Impact Development Practices Implemented/Installed – Compared to last year, usage of Low Impact Development (LID) practices (at home or business) has increased across-the-board. In addition, significantly fewer say they have *not* implemented any LID practices or are not sure (from 33% to 14%).

By far, the most implemented LID practice continues to be **landscaping with native plants** (59%, up from 41% last year). This is the case regardless of geography (slightly lower only in the South zips), with higher implementation among 46 to 75 year-olds and highly educated respondents.

Other LID practices implemented or installed at home or work include:

- **Landscaped depressions that collect stormwater** (38%, up from 16%. These tend to be East zip residents.)
- **Connecting runoff from a roof or paved surface to a basin or to water plants** (32%, up from 14%. Implementation is somewhat lower only in the Northwest zips [26% versus 33%-36% elsewhere].)
- **Porous pavements or bricks** (30%, up from 10%. Usage is higher among Northwest residents.)
- **Natural areas protected from clearing and grading** (26%, up from 12%. Increased implementation among Northwest zip residents.)
- **Water harvesting, using rain barrels or cisterns** (24%, up from 12%. Fairly consistent usage across geographic area [slightly lower only in the Central zips].)
- **A trench that is filled with gravel to collect stormwater** (24%, up from 11%. East residents are more likely to have implemented this LID practice.)

Perceived Seriousness of Storm Water Pollution Problem in Tucson Area – Similar to last year, the vast majority (89%) indicate that Tucson area has a “moderate” (51%) or “serious” (38%) problem “with polluting materials entering storm drains.” In addition, fewer perceive that it is “not a problem” (from 16% to 11%). This results in a 5.8 average score on the “1-to-9” rating scale (versus a 5.7 last year). The perception of a “serious” stormwater pollution problem is highest in the South zips (6.0 versus 5.6-5.8 elsewhere), as well as among women (6.1 versus 5.5 among men), 36 to 65 year-olds and Hispanics.

Rating of Various Contributors to Storm Water Pollution Problem in the Tucson Area – Using the same “1-to-9” scale, about three of four overall indicate that these five factors are “serious” or “moderate” contributors to stormwater pollution:

- **Pesticides, fertilizers and debris from lawns and gardens** (39% “serious” contributor, 77% “serious” plus “moderate” problem overall [5.5 average score on the “1-to-9” scale, unchanged since last year]. Geographically, only East region residents are somewhat less apt to consider this a significant problem [5.3 versus 5.5-5.6 elsewhere].)
- **Chemicals and materials from construction sites** (38% “serious” contributor, 77% “serious” plus “moderate” problem overall [5.5 average score, down slightly from 5.6 last year]. Northwest or South residents are more apt to believe that construction site materials contribute to pollution.)
- **Chemicals and materials from industrial facilities** (38% “serious” contributor, 76% “serious” plus “moderate” problem overall [5.5 average score, down from 5.7 last year]. Pollutants from industrial facilities are considered more of a significant contributor to stormwater pollution among East residents.)
- **Automotive fluids such as oil, gasoline and brake fluid** (38% “serious” contributor, 75% “serious” plus “moderate” problem overall [5.5 average score, down from 5.8 last year]. In 2013, automotive fluids were judged to be the most “serious” contributor to stormwater pollution [45%]. Perceived seriousness in the current study is lower only in the East zips [5.3 versus 5.5-5.6 elsewhere].)
- **Household products such as cleaning fluids, detergents, paints, degreasers and bleaches** (34% “serious” contributor, 77% “serious” plus “moderate” problem overall [5.4 average score, down slightly from 5.5 last year]. South residents are more likely to think that household products are a “serious” contributor to stormwater pollution.)

Four of ten say that **household trash and bulky items like mattresses, sofas and tires** are a “moderate” contributor to stormwater pollution. Among the rest, slightly more say household trash is “not a problem” (31%) than a “serious problem” (29%) (4.9 average score).

Consistent with last year, more than four of ten do *not* believe that **animal waste from household pets** contributes to stormwater pollution (43%). Among those who do, 23% continue to say it is a “serious problem” (4.3 average score, down slightly from 4.4).

As we found in 2013 study, for each item evaluated, the degree of perceived seriousness was directly related to the severity of the stormwater pollution problem in the Tucson area.

Methods Used to Dispose of Various Types of Household Hazardous Waste – Compared to last year, these four methods of disposing of household hazardous wastes have increased in usage:

- **Hazardous waste collection site** (59%, up from 47% in 2013. Northwest or East residents are more apt to utilize these collection sites.)
- **Auto parts store** (50%, up from 46% in 2013. Usage is somewhat lower only in the Central zips [45% versus 49%-54% elsewhere].)
- **Service station** (32%, up from 21% in 2013. East residents are more likely to take household hazardous wastes to service stations.)
- **Landfill** (30%, up from 19% in 2013. Landfill usage continues to be highest in the South zips.)

On the other hand, somewhat fewer indicate disposing of household hazardous wastes by **putting them in the garbage** (from 30% to 26%) – while 12% continue to **pour in the sink or down the drain**. Northwest residents are more likely to put household hazardous waste in the garbage, while Central residents are more apt to pour them down the sink or drain. Overall, 5% indicate they would use some “other” method of disposal (more often by “recycling” the waste).

Among the rest, 13% are not sure how they dispose of household hazardous waste (6%) or say they do not use these products (or finish them all up when used) (7%).

Government Entity to Call If Witness Someone Dumping Trash or Chemicals in a Storm Drain – Down from 35% in 2013, three of ten in the current survey are not sure who they would contact if they witnessed someone dumping trash or chemicals into a storm drain or wash and wanted to report it. This is particularly true in the Northwest zip codes (39%).

Among those who specify an entity, three of ten (regardless of perceived severity of stormwater pollution problem) would call **911 or the police department** – up slightly from 28% last year. South residents (38% versus 26%-30% elsewhere) are most likely to contact 911.

As we found last year, fewer overall indicate that they would contact the **county government** (9%, up from 7%), **city government** (7%, down slightly from 8%), **sanitation department** (unchanged at 6%), a “**government agency**” (6%, up from 3%), **water department** (4%, down slightly from 5%), **health department** (unchanged at 4%) or **PDEQ** (4%, up from 1%). Unchanged since 2013, only 4% say they would *not* report illegal disposal or dumping.

Likelihood of Taking Part in Various Activities to Help Keep Stormwater Clean – New to the current survey, most (regardless of their perception of the stormwater pollution problem) indicate they would be “very likely” to participate (with few unlikely) in these five activities to help keep stormwater clean:

- **Safely dispose of chemicals** (82% “very likely” versus 4% “not at all likely.” This is the case regardless of geography.)
- **If you have a dog, using a doggie bag to clean up after them** (80% “very likely” versus 4% “not at all likely.” The percentage of “very likely” participation is slightly lower only in the East zips [75% versus 81%-82% elsewhere].)
- **Report a spill** (75% “very likely” versus 6% “not at all likely.” Results are similar regardless of area of residence.)
- **Replacing a toxic compound with a non-toxic compound** (67% “very likely” versus 6% “not at all likely.”)
- **Implement Low Impact Development practices** (54% “very likely” versus 8% “not very likely.” This is particularly true in the South zips [60% “very likely” compared to 48%-54% elsewhere].)