



**EVALUATION OF THE 2012-2013  
PIMA COUNTY CLEAN AIR CAMPAIGN  
AND BASELINE STORM WATER  
ISSUE AWARENESS SURVEY**

(June, 2013)

*Executive Summary*

*Prepared for:*

PIMA COUNTY DEPARTMENT OF  
ENVIRONMENTAL QUALITY

Tucson, Arizona

*Prepared by:*

FMR ASSOCIATES, INC.

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**Final In-Tab Sample and Telephone Survey Tracking Comparisons** – This telephone tracking survey study, conducted on behalf of the Pima County Department of Environmental Quality (PDEQ), includes 504 interviews conducted among randomly-selected men and women age 16 or older who live in Pima County. As we have done in previous years, all 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.” 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.

The surveys were completed in early June 2013 and 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. Once again, the 2013 in-tab sample is highly representative of projected demographic patterns and on target with geographic sampling quotas.

The sample size for the 2013 survey (N=504) is larger than the 2011 (N=403) and 2008 (N=402) projects, but similar to the studies conducted between 2004 and 2007 (N=500-503).

Where possible and relevant, data from this project is tracked and compared with prior “Clean Air” Campaign surveys. New to the current study, respondents were also asked a series of questions designed to collect baseline data regarding storm water perceptions/knowledge and hazardous waste issues.

**Awareness of the Pima County “Clean Air” Program** – Overall, 43% are familiar with the Pima County “Clean Air” Program. This is significantly lower than the level of awareness we found in 2011 (52%), but is in line with the 2008 survey (46%). Program awareness is consistent among those who think that Tucson has a “major” (47%) or “moderate” (46%) air quality problem – compared to 37% of those who perceive a “minor” problem. Geographically, awareness is somewhat lower only in the Northwest zips (39% versus 42%-47% elsewhere).

**Awareness of Various “Clean Air” Events or Activities** – Among the seven individual event/activities tracked from the 2011 study, awareness is generally unchanged to slightly lower. Fully nine of ten are familiar with at least one program event or activity, up slightly from 88% in 2011. And, across-the-board, awareness of specific events continues to be significantly higher among respondents familiar with the “Clean Air” Program.

One-half or more are familiar with three “Clean Air” events:

- **“Earth Day Festival and Parade”** (66% awareness, down just slightly from 68% in 2011. Awareness is similar regardless of geography.)
- **“Bike to Work Day”** (54% awareness, down slightly from 57% in 2011. East residents [62% versus 50%-56% elsewhere] are most likely to recall this event.)
- **“Bike Fest”** (48% awareness, down from 53% in 2011. Geographically, recall is lower only in the Northwest zips [40% versus 49%-53% elsewhere].)

Three other events elicit awareness of at least 22%, including:

- **“Walk and Roll to School Day”** (36% awareness, up from 34% in 2011. East region residents indicate elevated awareness.)
- **“Green Living Fair”** (27% awareness, down from 32% in 2011. Awareness tends to be higher among South zip residents.)
- **“Bike to the Zoo Day”** (22% awareness, up from 20% in 2011. Familiarity is highest in the Central zips.)

The remaining two “Clean Air” events – **“Pedal the Pueblo”** (new to the current study with 13% recall) and **“Cyclovia”** (11%, down slightly from 13% in 2011) – are familiar to just over one of ten each. “Pedal the Pueblo” is familiar regardless of geographic area (slightly higher in the South zips), while Northwest residents are more apt to recall “Cyclovia.”

**“Clean Air” Campaign Event Participation and Actions Taken** – Among the nine of ten familiar with at least one “Clean Air” Program campaign event, 17% report that they (or someone in their household) participated in one or more of these activities. This is identical to the record participation level recorded in 2011. There is participation regardless of geography, gender, age or air quality problem perception – with the highest participation levels among Northwest or East region residents. Among the record-tying 17% of respondents who indicate participation in a “Clean Air” event, three of four (76%) report that they have changed (or are considering actions to change) their daily routines or behaviors to help improve air quality. Among the total sample, this equates to a record topping 11% who indicate a behavior change due to their participation in a campaign event – up progressively from 9% in 2011 and 7% in 2008. Who is most likely to indicate a willingness to change behaviors? Central or South region residents, non-Whites and households impacted by a breathing-related medical condition.

**Opinion of Activities/Events** – Equaling the record positive mention in 2011, 85% of those aware of at least one “Clean Air” campaign event have a favorable opinion of “events that encourage to use other modes of transportation or work from home instead of

driving alone.” This includes 45% who are “very favorable” of such events – just shy of the record 46% highly favorable evaluation recorded back in 2008. In the current study, “very favorable” opinions are consistent across geography (somewhat lower only in the East zips) and highest among women (54% versus 34% of men), 56 to 65 year-olds, Hispanics, college graduates and those who perceive that Tucson has progressively more serious air quality problem. Just one of ten have a negative opinion of activities or events to encourage other modes of transportation, down from 13% in 2011.

**Steps Taken to Reduce Air Pollution** – Last asked in 2007, respondents in the current survey were asked to describe (on an unaided basis) “what (if anything) they have been able to do to reduce air pollution in the Tucson area.” The three most frequent “steps taken” include:

- **Generally reduced driving** (37%, down slightly from 39% in 2007. This is true regardless of geography [lower only in the Northwest zips], and is most prevalent among those who perceive a progressively more serious air quality problem.)
- **Carpool/Less driving alone** (28%, down from 40% in 2007 [when it was the most popular step taken]. There are few differences based on geography. Instead, those who perceive that Tucson has a progressively more serious air quality problem are more apt to indicate carpooling to reduce air pollution.)
- **Keep car tuned** (12%, down from 28% in 2007. These tend to be Northwest or East residents and those who perceive a “minor” air quality problem.)

In lesser numbers, others have **bought bicycles** (8%, up from 5% in 2007), **kept their tires properly inflated** (7%, down from 14%), **bought a more fuel efficient car** (7%, down from 11%), **chosen one day a week not to drive** (5%, up slightly from 4%) and/or **planted trees** (5%, down from 12%).

Two of ten overall indicate that they have done **nothing** to reduce air pollution (up from 14% in 2007) – more often South region residents, 56 to 65 year-olds, those who perceive a “minor” air quality problem and respondents unaware of the “Clean Air” Program.

Among the two of ten who have done “nothing” to reduce air pollution, what reasons are offered? Two-thirds do not offer a specific reason for their lack of action (65%). This is particularly true among South region residents and Hispanics. Among the rest, the following is a summary of reasons for doing “nothing” to reduce air pollution:

- ✓ **Lack of knowledge or education to take action** (10%, unchanged since 2007.)
- ✓ **Not convenient to take action** (7%, down from 12%.)
- ✓ **Just moved here** (5% – as expected these tend to be new [for less than 2 years] or part year residents.)
- ✓ **Live too far/Not near anyone else** (5% [down from 9%] – exclusively South or Northwest residents.)

**School Materials Recall Among School Age Children** – One-third indicate that they have children aged 5 to 18 living in their household. This is up from 27%-30% in the last six studies. Northwest or East residents and Hispanics are especially apt to say they have young children living in their household.

Among these households with school age children, four of ten households indicate that these kids have “talked about or brought home materials from school about improving air quality.” This is up from 36% in 2011 and 29% in 2008. Significantly, there is little difference in school material recall based on geography (with a slightly higher mention in the East zips). Recall is highest among respondents who perceive that Tucson has a progressively more severe air quality problem.

**Most Effective Means of Communicating Air Quality Alerts on Air Quality Action Days** – In line with the 2011 (and allowing for multiple mentions), the most effective method for communicating information concerning Air Quality Action Days include the following:

- **Television alerts** (58% most effective, up from 51% in 2011. Mentioned across geographic region [somewhat lower only in the Northwest zips], television alerts are considered especially effective among households impacted by a breathing-related medical condition.)
- **Radio announcements** (41% most effective, down only slightly from 43% in 2011. Only South region residents consider radio announcements to be less highly effective.)
- **Television news reports** (35% most effective, down just slightly from 37% in 2011. Most effective in the Central zips, as well as among households impacted by a medical-related breathing condition.)
- **Cell phone/Text messages** (21% most effective – reflective of growth since 2008 [8%] and 2011 [19%]. Effective regardless of geography, it is the youngest respondents [16 to 25] who are most receptive to this means of communication.)
- **Internet website postings** (16% most effective, basically unchanged since 2011 [17%]. Northwest residents and 16 to 25 year-olds are more apt to indicate that website postings are more highly effective.)

In line with 2011 findings, 8% report that **email** is the most effective method of communicating an air quality alert.

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

**PDEQ/Sun Rideshare Awareness** –

- **You are aware of the Pima County Department of Environmental Quality** (64% agree, down slightly from the past two surveys [69%-70%]. Awareness is highest in the South zips – with few differences based on air quality problem perception. Fully 82% familiar with the “Clean Air” Program are aware of PDEQ [versus 48% of those unaware].)
- **You are aware of the services provided by Sun Rideshare** (45% agree, down only slightly from baseline 2011 levels [48%]. Most familiar with Sun Rideshare services are East region residents.)

**Air Pollution/Gas Price Evaluations** –

- **You are aware that air pollution causes health problems** (In line with past studies, nearly all are in agreement [99%].)
- **You understand what an air pollution advisory means** (89% agree, up slightly from 87% in 2011. There are few differences in agreement based on geography [somewhat lower only in the Northwest zips].)
- **You are aware that the majority of our air pollution comes from motor vehicle use** (81% agree, up from 79% in 2011 [the first time this statement was read]. Agreement is consistent across geography [highest in the Central zips]. Those who perceive a “moderate” air quality problem are most apt to agree with this statement.)
- **You are aware of air pollution advisories in Tucson** (75% agreement, unchanged since 2011. Agreement is highest in the Central or East zips and among respondents who perceive a “moderate” air quality problem.)
- **You have seen or heard commercials on TV or radio regarding clean air or pollution** (68% agreement, down from 74% in 2011. Agreement is lower in only the Northwest zips, with few differences based on perceived air quality problem.)
- **Because of *higher gas prices*, you are generally driving less** (59% agreement, down from 62%-64% in recent years. Agreement is consistent regardless of geography [highest in the South zips]. Those who perceive a progressively more serious air quality problem in Tucson are most apt to agree.)
- **Because you want to *reduce air pollution*, you are generally driving less** (53% agreement – up from 2011 [48%] and rebounding to 2008 levels [55%]. There are

relatively few differences based on area of residence. Respondents who perceive a progressively more serious air quality problem are more apt to agree.)

- **You have noticed a reduction in the amount of dust generated at construction sites or at other dust producing activities** (38% agree, down from the last two studies [44%-45%]. East region residents are most apt agree.)

**Actions Taken to Drive Less Because of Higher Gas Prices** – Respondents who are driving less as a result of higher gas prices (59% of the total sample) are again most apt to be **reducing or combining trips** (61%, down from 71% in 2008-2011). Who is most likely to be reducing or combining trips? Northwest or South residents and those who think that Tucson has a “major” air quality problem.

In response to higher gas prices, others are:

- **Carpooling/Vanpooling** (24%, up from 22% in 2011 and 14% in 2008. These are most apt to be East region residents and those who perceive a progressively more severe air quality problem.)
- **Walking for short trips or errands** (14%, up slightly from 2011 [13%]. These tend to be Central residents.)
- **Walking to work or school** (9%, up from 3%-5% in previous years. East or Central zip residents and those who perceive a “moderate” air quality problem are more apt to be walking to work or school.)
- **Riding the bus** (9%, up from 4% in 2011. Bus ridership is consistent across geography [somewhat higher in the Central zips].)

In lesser numbers, others are **riding a bicycle for short trips or errands** (5%, basically unchanged from 4% in 2011), **working a compressed work week** (4%, up slightly from 3%), **riding a bicycle to work or school** (4%, up from 2%) and/or **telecommuting** (3%, basically unchanged from 4%).

**Perceived Seriousness of Air Quality Problem in Tucson Area** – Among the total sample, 17% think that there is a “serious” air quality problem in the Tucson area. This is down from 19% in 2011 and 25% in 2008. Instead, more a few more now indicate a “moderate problem” (from 53% in 2011 to 55% now) – while the percentage who rate air quality as a “minor problem” is unchanged at 24%. Central or South region residents, women, non-Whites, lower income households and those impacted by a breathing-related medical condition are more apt to perceive that air quality is a “major” issue in Tucson. The perception of a “minor” problem is relatively consistent across geography (slightly higher in the Central zips).

**Importance of Regional Campaign to Encourage People to Take Actions to Improve Air Quality** – Fully 89% of survey respondents believe it is at least “somewhat important” to have a regional campaign that encourages people to improve air quality. This is up from 84% in 2011, and more in line with 2006-2008 totals. Nearly one-half (48%) think that a regional campaign is “very important” (up from 46% in 2011, but short of the 55% recorded in 2008). Meanwhile, just one of ten in the current study say that a regional air quality improvement campaign is “not very” or “not at all” important (down from 15% in 2011). Once again, the high degree of importance placed on a regional campaign is directly related to the perception of the air quality problem in Tucson. Who places the highest degree of strong importance on a regional campaign? Women (57% versus 36% of men), 26 to 35 year-olds, Hispanics and lower income households – with no real difference based on geography.

**Work Commuting Behavior** – Among the 2013 in-tab sample, 27% indicate that they are employed on a full-time basis. This is down from 35% in 2011. Full-time employees are most apt to reside in the Northwest or East zips, and tend to be men (35% versus 22% of women). Another 11% work part-time, up from 8% in 2011. Those who work part-time are more likely to be East region residents and younger. One of ten overall report they are currently unemployed. This is the first “double digit” unemployment recorded since 2002. Unemployed respondents are more apt to reside in the Central zips. Down from 35% in 2008, three of ten in the current study are retired. South area residents are most likely to be retired. Unchanged since 2011, 9% (regardless of geography) are students. Compared to the last study, more are homemakers (from 9% to 13%).

Two-thirds of full-time employees indicate that they work a “standard” work schedule (8 hour days, five days a week). This is down somewhat from 2011 levels (72%), but consistent with 2008 findings (64%). Among the rest, and similar to 2011, 9% work 10-hour days, 4 days per week. Fewer work different schedules, including 80 hours over 9 days with the 10<sup>th</sup> day off (3%) or 12-hour days 3 or 4 days a week (2%). However, more now indicate their work schedule varies or have some other work schedule variation (19%, up from 11% in 2011). Compressed workweek options are more likely to be utilized at large (100+ workers) jobsites.

Eight of ten use **single passenger commuting to work or school** (79%), down from 84% in 2011. The average frequency of use is identical to 2011 at 4.5 days. Central zip code residents are *least* apt to drive alone 5+ days a week (35% versus 48%-57% in other regions).

In line with 2007 findings (the last time this question was asked), “**convenience**” remains the top reason that single occupant vehicle commuters cite for driving alone to and from work or school (33%). This is particularly true in the East (41%) region. Also consistent with 2007 findings, one of four single-occupant vehicle commuters each indicate that they have “**irregular work hours**” (25%) and/or have “**no one to carpool with**” (24%). The most formally educated respondents are more apt to report irregular work hours, while a lack of people to carpool with is more common in the East zip codes. Overall,

12% of single-occupant vehicle commuters continue to say that they “**need their car for business**” (down slightly from 15% in 2007). These are more apt to be East zip residents, 46 to 55 year-olds and those who perceive a “major” or “moderate” air quality problem.

Down slightly from 2011 (28%), 26% **carpool or vanpool** at least one day per week, with a minor downtick in average frequency (from 4.0 to 3.9 days). South zip code residents continue to be more apt to carpool/vanpool 5+ days per week (19% versus 10%-12% in other areas), with greater carpooling among those who perceive a “major” or “moderate” air quality problem.

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

- **Work at home instead of driving to work** (Compared to 2011, more are telecommuting [from 9% to 15%], with an increase in frequency as well [from 3.3 to 3.5 days]. Residents of the Central zip code are most apt to telecommute [19%], while just 6% of South area residents do.)
- **Walk to work or school** (The percentage walking to work or school has decreased somewhat [from 15% to 12%], with lower average days as well [3.7 days, down from 4.0 in 2011 – but still higher than 3.4 days in 2008]. Only Northwest area residents are less apt to walk to work or school [8% versus 13%-15% elsewhere].)
- **Ride a bike to work or school** (A few more are riding bikes to work or school [from 7% to 9%], but are doing so less frequently [from 3.7 days to 2.1 days]. Central zip code residents are most apt to ride a bike to work or school.)
- **Ride the bus to work or school** (Bus ridership is up [from 5% to 9%], with an increase in average days as well [from 3.1 to 3.8]. More apt to take the bus to work or school are Central or South region residents.)
- **Ride a motorcycle to work or school** (More are riding a motorcycle to work or school [from 2% to 5%], with a slight downtick in frequency [from 2.7 days to 2.6].)

**Most Used Mode of Transportation for Work/School Commute** – Two-thirds of respondents who work outside the home or attend school say that **single-passenger vehicle commuting** is their *most-used* method to commute between home and work or school. This represents improvement from 70%-71% in the last two surveys. Who is most likely to drive alone to work or school most often? Northwest residents (73%). This compares to just 56% of Central residents. Instead, 44% of Central area residents primarily use an alternative mode.

**Carpooling** is the most-used commute method of 12% (up from 10% in 2011), more often Central (15%) or South (13%) area residents. Compared to 2011, twice as many primarily **telecommute** (from 4% to 8%), especially respondents in the Northwest (11%)

or East (10%) zip codes. More are also **taking the bus** most often for their commute (from 2% to 6%), most often South area residents (10%). Overall, slightly fewer say that their most used method of commuting is **walking** (from 8% to 5%). However, among Central area residents, walking (14%) is nearly as popular as carpooling (15%). Few commute primarily by **riding a bike** (from 4% to 1%) or a **motorcycle** (2%, up from 1%). Motorcyclists tend to be South area residents, while those who primarily ride a bike are in the East zip codes.

**Miles Traveled to Work or School** – Compared to 2011, work or school commute distances tend to be shorter. Six of ten (61%, up from 55% in 2011) report commutes of 5 miles or less (29%, up from 27%) or 6 to 10 miles (32%, up from 28%). Another one of ten (up from 6%) report traveling between 11 and 14 miles. Just 23% travel 15 or more miles (down from 38% in 2011, and nearly identical to 2008). Who has the longest commutes? Three of ten Northwest (28%) or East (30%) zip code residents commute 15 miles or more. On the other hand, four of ten Central residents travel 5 miles or less.

**Telecommuting** – Unchanged since 2011, 19% of workers employed outside the home report that they telecommute. The incidence of telecommuting is consistent among workers who live in the Northwest, Central or East zips – including both small (less than 50 employees) and large (100+ employees) jobsites. Among telecommuters, a majority now indicate that they do so more than once a week (52%). This is about double the 2011 mention (26%). Among the rest, 12% telecommute about once a week – while 36% do so 2-3 times a month (21%) or once a month or less (15%).

**“Compressed Workweek” Programs** – In line with the 2011 survey, one-third of workers employed outside the home have the option of compressed workweek programs. These tend to be South region residents who work at small (less than 50 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 **3,195,589** vehicle miles per day – or **32%** of total miles driven/not driven. The percentage of miles saved has increased from 25% in 2011 to 32% in 2013 – which is more in line with 2007 and 2008 findings (30% each).

While the percentage of miles saved through the use of alternate modes has increased to 32%, the actual number of vehicle miles saved daily has increased by just 17% (from 2,739,932 to 3,195,589) – due to a decrease in average single-passenger commuter distance (from 14.8 miles in 2011 to 11.6 now – a decrease of 22%) and fewer single-passenger commuters (from 84% to 79%). The 2007 levels of single-passenger commuting and average commute distance are more in line with the current study, but with a slightly smaller share of miles saved through alternative mode use (30%).

### ***Baseline Storm Water Perceptions and Practices***

**Perception of Where Storm Water That Flows Into Tucson Storm Drains Ends Up** – After being informed that streets in the Tucson area are equipped with storm drains, 44% indicate that (to the best of their knowledge) the storm water that flows into storm drains ends up in a **river or wash**. This includes one-half of Central and East region residents.

In lesser numbers, others think that storm water that flows into storm drains end up in:

- ✓ **Sewage plants** (12% – more often Central or East zip residents.)
- ✓ **Groundwater** (7% – regardless of geography.)
- ✓ **Water plants** (6% – typically Northwest or East region denizens.)
- ✓ **Canals** (4% – with an increased mention in the East area.)

Overall, 35% **do not know** where storm water ends up. This includes one-half of South region residents, with few differences based on perceived seriousness of Tucson's storm water pollution problem.

**Low Impact Development Practices Implemented/Installed** – The most often implemented low impact development practice at home or work is **landscaping with native plants**. Four of ten have landscaped with native plants – regardless of geography (slightly higher among Central zip residents).

Others have implemented or installed the following low impact development practices:

- **Landscaped depressions that collect storm water** (16% implementation. Northwest or East region residents are more apt to have created landscaped depressions.)
- **Connecting runoff from a roof or paved surface to a basin or to water plants** (14% implementation. Usage is lower only in the South zips.)
- **Natural areas protected from clearing and grading** (12% implementation, regardless of geography.)
- **Water harvesting, using rain barrels or cisterns** (12% implementation. These tend to be Northwest zip residents.)
- **A trench that is filled with gravel to collect storm water** (11% implementation. Usage is elevated in the East zips.)
- **Porous pavements or bricks** (10% implementation – more often East residents.)

One-third overall indicate they have not implemented any low impact development practices (or are simply not sure). This is the case regardless of geography.

**Perceived Seriousness of Storm Water Pollution Problem in Tucson Area** – Using a “1-to-9” scale (where “1” means “not a problem” and “9” means “a serious problem”), fully 84% of respondents indicate that there is a “serious” (41%) or “moderate” (43%) problem “in the Tucson area with polluting materials entering storm drains.” Just 16% believe it is “not a problem” – yielding a 5.7 average score on the “1-to-9” rating scale. The degree of perceived seriousness is highest in the East zips (6.1 versus 5.8 each in the Central and South regions). Meanwhile, just 31% of Northwest area residents consider storm water pollution to be a “serious problem” (5.3). Increased perception of a storm water pollution problem is elevated among women, 16 to 35 year-olds, Hispanics, progressively more long-term Pima County residents and those with some college education (but no degree). On the other hand, seven of ten “new” residents (for less than two years) consider the problem to be “moderate” (4.8).

**Rating of Various Contributors to Storm Water Pollution Problem in the Tucson Area** – Using the same “1-to-9” scale, about eight of ten overall rate five of the six factors evaluated to be a “moderate” or “serious” problem contributing to storm water pollution in the Tucson area, including:

- **Automotive fluids such as oil, gasoline and brake fluid** (45% rate as “serious,” 79% combined “serious” plus “moderate” problem overall [5.8 average score on the “1-to-9” scale]. East region residents, 16 to 35 year-olds and non-Whites are more apt to perceive automotive fluids to be a “serious problem.”)
- **Chemicals and materials from industrial facilities** (40% rate as “serious,” 78% combined “serious” plus “moderate” problem overall [5.7 average score]. Less of a perceived problem only in the East zips [5.2 versus 5.6-5.8 elsewhere]. Women, 16 to 25 year-olds, Hispanics and lower income households are more likely to think that materials from industrial facilities are a “serious problem.”)
- **Chemicals and materials from construction sites** (39% rate as “serious,” 81% combined “serious” plus “moderate” problem overall [5.6 average score]. Opinions are similar regardless of geography. More apt to think that construction site materials contribute to storm water pollution are women and non-Whites.)
- **Household products such as cleaning fluids, detergents, paints, degreasers and bleaches** (38% rate as “serious,” 77% combined “serious” plus “moderate” problem overall [5.5 average score]. Perceived seriousness is slightly lower only in the Central zips [5.4 versus 5.6-5.7 elsewhere]. Women, Hispanics and lower income households are more likely to consider household products as a “serious” contributor to storm water pollution.)
- **Pesticides, fertilizers and debris from lawns and gardens** (37% rate as “serious,” 79% combined “serious” plus “moderate” problem overall [5.5 average score]. Geographically, average scores are somewhat lower only in the Northwest region [5.3 versus 5.5-5.6 elsewhere].)

Four of ten say that **animal waste from household pets** is “not a problem” with respect to contributing to the storm water pollution problem in the Tucson area. Among the rest, only 23% rate animal waste as a “serious problem” (4.4 average score).

For all six factors tested, the seriousness of each as a contributor to the storm water pollution problem is directly related to the overall perceived degree of a storm water pollution problem in the Tucson area.

**Methods Used to Dispose of Various Types of Household Hazardous Waste – The three most utilized methods to dispose of household hazardous waste (including items such as household chemicals, automotive fluids and lawn & garden chemicals) include:**

- ✓ **Hazardous waste collection site** (47% usage, particularly South region denizens.)
- ✓ **Auto parts store** (46% usage. Similar usage across geography.)
- ✓ **Put in the garbage** (30% usage. These are more apt to be Northwest or Central residents.)

Two of ten each dispose of household hazardous waste by taking it to a **service station** (21%) or **landfill** (19%). South region residents and 56 to 65 year-olds are more apt to take waste to a service station. Landfill usage is lower only in the East zips (12% versus 19%-21% elsewhere) and generally consistent among 26 to 65 year-olds – with increased usage among progressively less formally educated respondents.

Another 11% dispose of their household hazardous waste by **pouring it down the sink or drain** – more often East area residents, low-income households and the newest (for less than two years) Pima County residents.

Overall, 8% are unsure how they dispose of hazardous household waste, more often the youngest respondents. One of ten claim to never use these types of products (or finish them all up when used).

**Government Entity to Call If Witness to Someone Dumping Trash or Chemicals in a Storm Drain** – More than one-third (35%) are not sure who they would call if they witnessed someone dumping trash or chemicals into a storm drain or wash and wanted to report it. This is the case regardless of geographic area (particularly in the Central zips), gender or perception of Tucson’s storm water pollution problem.

Among the rest, 28% indicate they would call **911 or the police department** to report illegal dumping. These tend to be East zip residents, 26 to 45 year-olds and the newest (for less than two years) Pima County denizens.

In lesser numbers, others would report illegal dumping into a storm drain or wash by calling **city government** (8%), **county government** (7%), **the sanitation department** (6%), **the water department** (5%) or **health department** (4%). Significantly, just 4% say they would *not* report illegal dumping.

***Final Air Quality Observations***

Compared to 2011, significantly fewer indicate general awareness of the Pima County “Clean Air” Program (from 52% to 43%). At the same time, fully nine of ten are familiar with at least one “Clean Air” event (up from 88% in 2011). As we have found in past years, there continues to be a significant difference in key attitudes and behaviors related to air quality – including Air Quality Event Awareness, PDEQ and Sun Rideshare Awareness, PDEQ Activity Understanding, Steps Taken to Reduce Air Pollution and Air Quality Perceptions – among those aware of the Program and those unaware (43% and 52%, respectively). Once again, this relationship remains readily apparent, as summarized in the comparative displays below (including a comparison, where possible, to 2011 findings).

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (43%)	<u>Unaware</u> (52%)
<b><i>Air Quality Event Awareness</i></b>			
Earth Day Festival & Parade			
<b>2013</b>	<b>+25%</b>	74%	59%
2011	+31%	77%	59%
Bike to Work Day			
<b>2013</b>	<b>+71%</b>	70%	41%
2011	+73%	71%	41%
Bike Fest			
<b>2013</b>	<b>+60%</b>	61%	38%
2011	+51%	62%	41%
Walk and Roll to School Day			
<b>2013</b>	<b>+92%</b>	50%	26%
2011	+79%	43%	24%
Green Living Fair			
<b>2013</b>	<b>+124%</b>	38%	17%
2011	+115%	43%	20%
Bike to the Zoo Day			
<b>2013</b>	<b>+100%</b>	32%	16%
2011	+108%	27%	13%
Pedal the Pueblo			
<b>2013</b>	<b>+162%</b>	21%	8%
• Participation in a “Clean Air” event			
<b>2013</b>	<b>+13%</b>	18%	16%
2011	+75%	21%	12%

✓ **On average, and highly consistent with 2011 findings, there is an 81% higher awareness and/or participation in “Clean Air” events or programs among those familiar with the “Clean Air” Program.**

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (43%)	<u>Unaware</u> (52%)
<b><i>PDEQ and Sun Rideshare Awareness</i></b>			
• Aware of PDEQ			
<b>2013</b>	<b>+71%</b>	82%	48%
2011	+70%	85%	50%
• Aware of Sun Rideshare services			
<b>2013</b>	<b>+88%</b>	60%	32%
2011	+54%	57%	37%
✓ <b>On average, there is an 80% greater awareness of PDEQ and Sun Rideshare services among those aware of the “Clean Air” Program – up from 62% in 2011.</b>			

***PDEQ Activity Understanding***

• Understand air pollution advisory meaning			
<b>2013</b>	<b>+12%</b>	94%	84%
2011	+2%	88%	86%
• Aware of Tucson air pollution advisories			
<b>2013</b>	<b>+49%</b>	91%	61%
2011	+49%	88%	59%
• Aware that majority of air pollution comes from motor vehicle use			
<b>2013</b>	<b>+6%</b>	84%	79%
2011	+1%	79%	78%
• Seen or heard TV/radio commercials regarding clean air or air pollution			
<b>2013</b>	<b>+55%</b>	82%	53%
2011	+30%	83%	64%
• Noticed a reduction in the amount of dust generated at construction sites/other places			
<b>2013</b>	<b>+62%</b>	47%	29%
2011	+37%	52%	38%
✓ <b>On average, there is a 37% higher understanding of PDEQ activities among those aware of the “Clean Air” Program. This is up from 24% in 2011.</b>			

***Steps Taken to Reduce Air Pollution (Unaided)***

• Driven less/Reduced Driving			
<b>2013</b>	<b>+18%</b>	40%	34%
• Carpool more/Less solo driving			
<b>2013</b>	<b>+39%</b>	32%	23%
✓ <b>There is a 29% greater likelihood of taking specific steps to reduce air pollution among those aware of the “Clean Air” Program. In addition, 26% of those unaware of the “Clean Air” Program have done “nothing” to reduce air pollution (versus only 15% of those aware).</b>			

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (43%)	<u>Unaware</u> (52%)

***Air Quality Perceptions***

- Perceive that Tucson area has a “moderate” or “major” air quality problem

<b>2013</b>	<b>+12%</b>	76%	68%
2011	+9%	76%	70%

- ✓ **There is a 12% greater perception of air quality problems in the Tucson area among those aware of the “Clean Air” Program (up from 9% in 2011).**

**Once again, these findings and tracking results suggest that the Pima County “Clean Air” Program clearly increases awareness, belief and actions related to improving air quality.** As a result, targeting those unaware of the program continues to be a key recommendation of this study. What is the “target” profile of Pima County residents unfamiliar with the “Clean Air” Program? Northwest area residents, men, 16 to 35 year-olds, non-Whites and 2-to-10 year Pima County residents. Consequently, additional promotional, communication and awareness-building efforts should be targeted towards these groups – particularly men. For what reasons? Men are among those most likely to indicate a change in behavior as a result of their participation in “Clean Air” Program activities. In fact, among all participants in a “Clean Air” event, fully three of four change their daily behaviors to help improve air quality.

Without question, this study also 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 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, 59% say (on an aided basis) they check tire pressure at least monthly. These tend to be men (69% versus 52% of women) and those with household incomes of at least \$25,000 – with fewer differences based on geography, age or self-perceived ethnicity. Significantly, those aware of the Pima County “Clean Air” Program are 18% more likely to check their tire pressure at least monthly (66% versus 56% of those unaware). This is also true among multi-vehicle (3+) households.

While 59% check their tire pressure at least monthly, just 7% say it is an action they take (on an unaided basis) to reduce air pollution. This difference suggests a lack of understanding between maintaining proper tire pressure and reducing air pollution. Consequently, the upcoming Education Campaign might highlight the air pollution-reducing benefits of keeping tires properly inflated – with efforts targeted towards key audiences.

### ***Storm Water Education Targeting Recommendations***

Based on the findings of this study, we offer the following targeting recommendations for education-related campaigns related to storm water/storm drain pollution issues and improper household hazardous waste disposal:

- **Citizens who think that Tucson does *not* have a storm water pollution problem** (16% of total sample). These tend to be:
  - ✓ Northwest residents
  - ✓ Men
  - ✓ 66 or older
  - ✓ Higher income households (\$40,000+)
  - ✓ The most formally educated.
  
- **Dispose of hazardous household waste by putting in the garbage** (30% of total sample). These tend to be:
  - ✓ Northwest or Central residents
  - ✓ 36 to 45 year-olds
  - ✓ Newer (<5 years) Pima County residents
  - ✓ Non-Whites
  
- **Dispose of hazardous household waste by pouring down the sink or drain** (11% of sample). These tend to be:
  - ✓ East residents
  - ✓ Low income households
  - ✓ The newest (<2 years) Pima County residents
  
- **Unaware of whom to contact if witness to dumping of trash or chemicals into storm drain** (35% of total sample). These tend to be:
  - ✓ Central residents
  - ✓ 16 to 35 year-olds
  - ✓ Hispanics
  - ✓ 6+ year Pima County residents