



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

(June 2014)

Prepared for:

PIMA COUNTY DEPARTMENT OF
ENVIRONMENTAL QUALITY

Tucson, Arizona

Prepared by:

FMR ASSOCIATES, INC.

Tucson, Arizona

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**Introduction
and Goals**

This Campaign Effectiveness Study, conducted for the Pima County Department of Environmental Quality, was designed to evaluate the specific effectiveness of the 2013-2014 Clean Air and Clean Stormwater Program Campaigns. 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.

Areas of Investigation – The tracking survey was implemented and the results analyzed so as to determine the success of the Campaign in accomplishing its objectives, including:

1. Determining current travel behavior (commuting/telecommuting/compressed work weeks) in Pima County and measuring changes from previous studies.
2. Increasing long-range awareness that motor vehicles are the primary source of air pollution and that effective long-term solutions to air quality problems will involve reducing single occupant motor vehicle trips.
3. Determining the present and potential use of alternate transportation modes, with specific emphasis on carpooling and employer encouragement of alternative modes. Estimating the number of daily commuter miles saved through alternative modes.
4. Assessing the awareness and perceptions of air quality problems in Tucson and what is known about air pollution. Learning whether children are talking about or bringing home materials from school about improving air quality. Determining the actions, if any, taken to help reduce air pollution.
5. Measuring the awareness of the Clean Air Program in Pima County and various clean air special events or activities.

6. Assessing the attitudes, knowledge or awareness of the destination of stormwater, the perceived problem in Tucson with pollutants entering stormwater, the degree to which specific pollutants contribute to stormwater pollution and the level of interest in activities to prevent stormwater pollution (such as installing Low Impact Development [LID] features, participating in roadway and drainageway clean-ups, etc.).
7. Determining current behaviors related to disposing of wastes (pet waste, industrial wastes, household waste, automotive waste, landscaping chemicals/wastes), application of landscape chemicals, installing LID features and participating in citizen volunteer programs to clean up adopted locations.
8. Tracking how disposal behaviors and citizen participation behaviors change over time.
9. Determining the government entity most likely to be contacted in the event of witnessing the dumping of trash or other chemicals into a storm drain or wash.

Methodology Overview – To accomplish the goals of this study, a random sampling of 500 men and women, 16 years of age and older, in the Pima County area was interviewed by telephone during early June 2014. The specific procedures used to select the sample are explained in detail in the Appendix of this report.

Details of the Findings

Profile of Respondents

Interview Language – In line with past years, 98% of all survey interviews were conducted in English. The balance (2% or 9 overall) of interviews were conducted in Spanish by a bilingual interviewer. All nine of the Spanish-language interviews were among self-identified Hispanics: three in the Northwest zip code zone and six in the South. (Refer to Table 3 for zip code zone definitions.)

Table 1 Type of Interview

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
English	98%	99%	96%	99%	99%	98%	98%	98%
Spanish	2%	1%	4%	1%	1%	2%	2%	2%
	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

Question: Would you feel most comfortable if this interview is conducted in Spanish, English or does it make no difference?

Self-Identified Ethnicity – As in all prior surveys, there were sampling quotas (based on Pima County household distributions) with respect to ethnicity. The 2014 sample breaks down as follows: 67% Whites, 24% Hispanics and 9% non-Hispanic minorities (African-Americans, Asian/Pacific Islanders and Native Americans). These totals are in line with survey quota, and represent the highest percentage of non-Whites (33%) in recent years. The highest percentage of non-Whites live in the Central (45%) and South (42%) zip code zones.

Table 2 Racial Background of Respondents

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
White	75%	76%	76%	77%	75%	76%	78%	74%	71%	67%
Hispanic	18%	16%	19%	19%	20%	19%	17%	20%	24%	24%
African-American	1%	3%	2%	2%	2%	2%	1%	2%	3%	5%
Native American	3%	2%	2%	2%	1%	2%	2%	4%	2%	2%
Asian, Pacific Islander	2%	2%	1%	1%	2%	2%	2%	1%	1%	2%

Question: This survey is intended to reflect the attitudes of all segments of the population. To which of the following ethnic groups do you belong?

Area of Residence – Once again, there were geographic sampling quotas (based on population density in Pima County). Based on their home zip code, all survey respondents were assigned to one of these four regions: Northwest, Central, South and East. For the 2014 sample, and in line with targeting quotas, there is a nearly equal distribution of Central, Northwest and South residents (28% each) – with the balance (16%) in the East zone.

Table 3 Area of Residence

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
<u>Central</u> 85710 85711 85712 85716 85718 85719	31%	32%	29%	26%	28%	27%	29%	28%	30%	28%
<u>South</u> 85321 85614 85622 85629 85634 85641 85701 85706 85707 85708 85713 85714 85735 85736 85746 85756 85757 85341 85601 85633 85639	24%	22%	32%	32%	31%	27%	30%	28%	29%	28%
<u>Northwest</u> 85653 85654 85658 85704 85705 85737 85739 85741 85742 85743 85745 85755 85652 85738	29%	25%	25%	28%	25%	29%	26%	28%	27%	28%
<u>East</u> 85619 85715 85730 85747 85748 85749 85750	16%	19%	14%	15%	16%	17%	16%	16%	14%	16%
	N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

	Air Quality Problem		
	Major	Moderate	Minor
<u>Central</u> 85710 85711 85712 85716 85718 85719	31%	28%	25%
<u>South</u> 85321 85614 85622 85629 85634 85641 85701 85706 85707 85708 85713 85714 85735 85736 85746 85756 85757 85341 85601 85633 85639	28%	27%	30%
<u>Northwest</u> 85653 85654 85658 85704 85705 85737 85739 85741 85742 85743 85745 85755 85652 85738	27%	27%	30%
<u>East</u> 85619 85715 85730 85747 85748 85749 85750	14%	18%	16%
	N=90	N=259	N=135

Gender – There is a 50/50 split of men and women in the 2014 sample. As in past studies, all Pima County residents contacted to participate in this survey were further randomized within households 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 randomly-selected household.

Table 4 Gender of Respondents

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Men	49%	41%	45%	46%	46%	44%	47%	44%	45%	50%
Women	51%	59%	55%	54%	54%	56%	53%	56%	55%	50%

Question: For this survey, we need to speak with the male or female in your household who is sixteen years old or older and most recently celebrated a birthday. Are you that person?

Age Category – In line with last year, one-half of survey respondents are 26 to 55 years old. Among the rest, more are older (56+) (40%) than younger (under 26) (10%). Still, the 2014 sample skews slightly older than last year (which included 35% respondents 56+). The highest concentration of 26 to 55 year-olds reside in the Central or South zips, while the oldest respondents (66+) are more apt to live in the Northwest region.

Table 5 Age of Respondents

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
16 to 25	17%	12%	15%	15%	13%	14%	10%	10%	13%	10%
26 to 35	15%	14%	13%	16%	18%	16%	17%	15%	19%	17%
36 to 45	20%	15%	16%	19%	17%	17%	20%	19%	19%	18%
46 to 55	20%	19%	14%	14%	13%	16%	17%	16%	14%	15%
56 to 65	12%	16%	16%	13%	13%	14%	14%	15%	14%	16%
66 to 75	8%	12%	16%	15%	16%	14%	15%	17%	15%	16%
76 or over	8%	11%	9%	8%	9%	8%	6%	8%	6%	8%

Question: Please stop me when I read the age category you belong to. Are you...

Length of Residence – Two-thirds of survey respondents have lived in Pima County for 11+ years. This is up slightly from last year (62%), but lower than we found in 2011 (73%). These long-term Pima County residents are most apt to live in the Central or East zips.

One of four are 2-to-5 (12%) or 6-to-10 (14%) year residents. Unchanged since last year, 6% are “new” (for less than two years) Pima County residents. These “new” residents are more likely to reside in the South zip codes. The remaining 3% are part-year residents.

Table 6 Length of Residence in Pima County

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Part year	4%	5%	6%	9%	5%	6%	2%	3%	8%	3%
Less than 2 years	7%	n/a	5%	9%	4%	6%	4%	2%	6%	6%
2 to 5 years	15%	n/a	10%	18%	10%	15%	16%	10%	9%	12%
6 to 10 years	12%	n/a	10%	14%	11%	13%	12%	12%	14%	14%
11 or more years	57%	n/a	69%	49%	70%	60%	65%	73%	62%	66%

Question: Do you live in Pima County all year or are you a part-year resident?

Question: How many years have you lived in Pima County?

Household Member With a Breathing-Related Medical Condition – Highly consistent with last year, 38% of survey respondents report that someone in their household suffers from a breathing-related medical condition. As indicated in Table 7, and allowing for multiple mentions, two of ten indicate that they themselves have a breathing-related medical condition. Another 26% report that children (10%) or other family members (16%) are similarly afflicted.

The incidence of households with one or more members impacted by a breathing-related medical condition is highest in the South zip region (47%). As we have found in past studies, there is a strong correlation between the incidence of impacted households and the perception of a progressively more serious air quality problem in the Tucson area.

Table 7 Household Member With Breathing-Related Medical Condition

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Yes	30%	n/a	36%	34%	40%	37%	37%	33%	37%	38%
Respondent	(13%)	n/a	(17%)	(16%)	(16%)	(15%)	(19%)	(14%)	(19%)	(20%)
Children	(10%)	n/a	(11%)	(11%)	(12%)	(14%)	(11%)	(12%)	(12%)	(10%)
Other family member	(12%)	n/a	(16%)	(14%)	(19%)	(19%)	(17%)	(15%)	(16%)	(16%)
No	70%	n/a	64%	65%	59%	62%	62%	66%	62%	59%
Don't know/ Not sure	–	n/a	0%	1%	1%	1%	1%	1%	1%	3%
	n/a	n/a	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

Question: Do you, your children or any other family member suffer from a breathing-related medical condition – such as asthma, emphysema, lung disease, etc.? If yes, who?

Number of Motor Vehicles Owned or Leased – Compared to last year, fewer households report having two or more motor vehicles owned or leased (from 67% to 59%). This decrease is most evident among 3+ vehicle households (from 27% to 21%).

Overall, one-third are single-vehicle households (up from 28% in 2013). The remaining 9% indicate that no one in their household owns or leases a motor vehicle (up from 2%-7% in recent surveys). These tend to be Central zip code residents. The incidence of single-vehicle households is relatively consistent across geographic zones (only slightly higher in the East). Northwest residents are most apt to report multi-vehicle (3+) households.

Table 8 Number of Motor Vehicles Owned or Leased

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
No working cars	4%	n/a	7%	3%	2%	4%	6%	5%	6%	9%
One	30%	n/a	34%	28%	30%	27%	30%	25%	28%	32%
Two	40%	n/a	36%	42%	43%	44%	40%	46%	40%	38%
Three or more	22%	n/a	23%	27%	24%	26%	24%	24%	27%	21%

Question: How many motor vehicles in working condition are owned or leased by members of your household?

Frequency of Checking Tire Pressure – Among households with at least one vehicle, more (compared to last year) report checking the tire pressure on the vehicle they drive most often on a weekly basis (from 18% to 20%). Similar to 2013 findings, four of ten check tire pressure each month – while more check it 3 to 4 times per year (from 26% to 30%). Among the rest, fewer report checking tire pressure “only as needed” (from 3% to 1%) or “only when the car is serviced” (from 2% to 1%). Few “never” check tire pressure (3%, down from 4%).

Who is most likely to check their tire pressure on a weekly basis? South zip residents, men (24% versus 17% of women), non-Whites and those who perceive at least a “moderate” air quality problem. There is little difference based on awareness of the Pima County “Clean Air” program. However, among those aware of the “Pump Up Your MPG” contest, 28% check their tire pressure weekly (versus 20% among those unaware).

Table 8a Frequency of Checking Tire Pressure on Vehicle Driven Most Often

	06/13 Total	06/14 Total	Awareness of “Pump Up Your MPG” Contest	
			Yes	No
Every week	18%	20%	28%	20%
Every month	41%	40%	35%	40%
3 to 4 times a year	26%	30%	33%	30%
Once a year	3%	2%	0%	2%
Never	4%	3%	0%	4%
Only as needed/Before a trip	3%	1%	0%	2%
Only when car is serviced	2%	1%	0%	1%
Not sure/Don't know	2%	3%	4%	3%
	N=472	N=458	N=46	N=412

Question: Thinking about the vehicle you drive most often, would you say that you check the tire pressure...

Education Level – Three of four survey respondents have at least some college level education, up slightly from 71% in 2013. This includes 29% who are college graduates (unchanged since last year) and 18% who have completed graduate level coursework or hold an advanced degree (up from 14%). Among the rest, more are high school graduates (13%) than have less than a high school diploma (9%). Northwest residents are most likely to have a college degree or better (57%).

Table 9 Education Level of Respondents

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Less than high school	10%	5%	12%	5%	10%	8%	8%	9%	8%	9%
Completed high school/ Trade school	52%	20%	24%	18%	24%	19%	19%	18%	19%	13%
Some college		29%	26%	28%	25%	25%	29%	26%	28%	28%
College graduate	19%	28%	24%	29%	23%	31%	27%	28%	29%	29%
Some graduate work or graduate degree	13%	19%	13%	20%	16%	16%	15%	18%	14%	18%

Question: What was the last grade of school you completed?

Annual Household Income – Unchanged since last year, two of ten refused to divulge their annual household income category. Among those who did, the median household income is \$57,419. This is up from \$47,872 in 2013. Compared to 2013, there are more in the \$80,000 or more income category (from 21% to 27%).

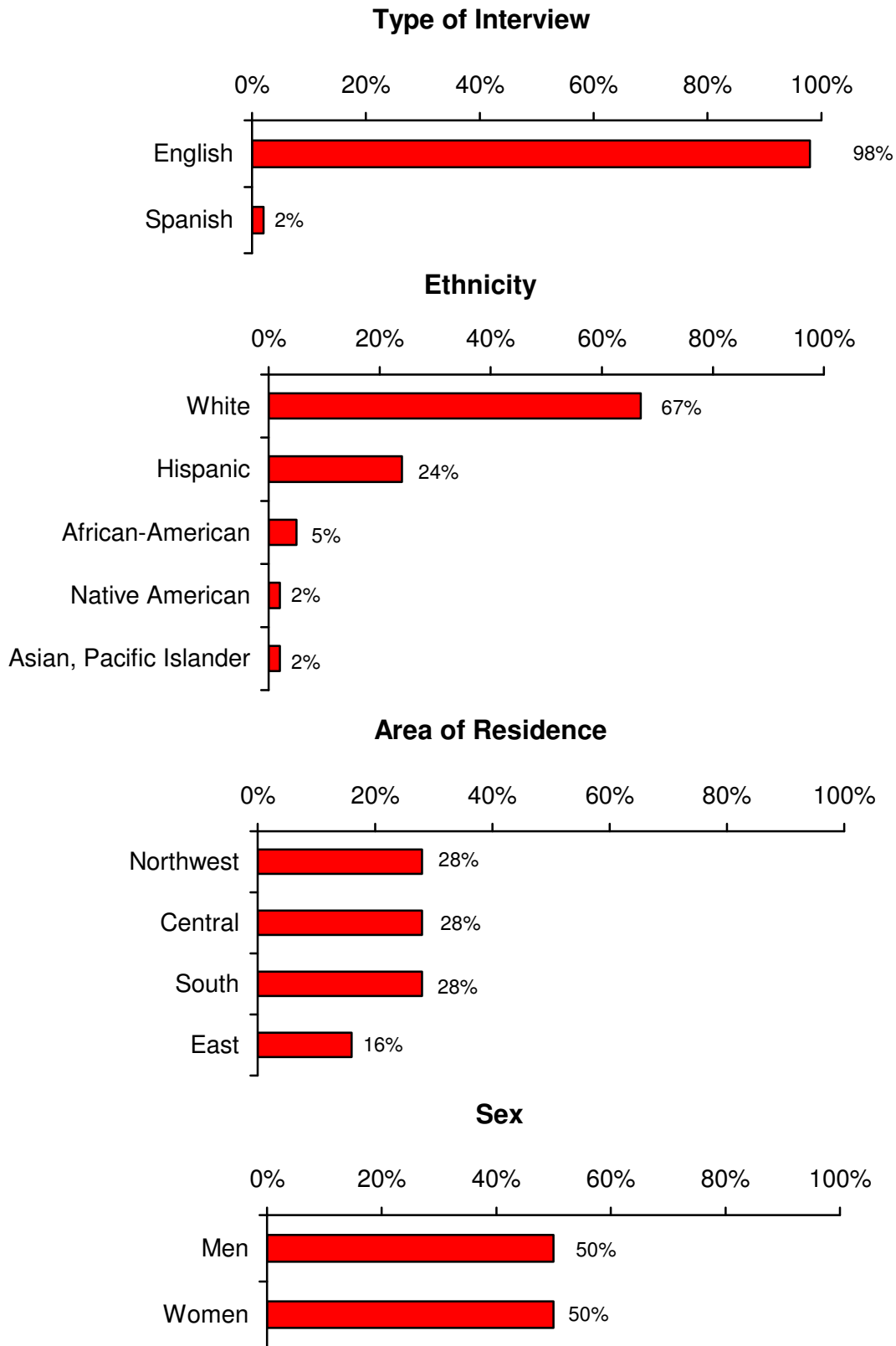
Table 10 Household Income

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Less than \$15,000	10%	9%	13%	8%	7%	5%	8%	5%	9%	8%
\$15,000 to \$24,999	15%	14%	14%	10%	12%	8%	9%	7%	9%	10%
\$25,000 to \$39,999	18%	22%	18%	18%	12%	15%	16%	15%	16%	9%
\$40,000 or more*	41%	53%	32%	48%	49%	50%	49%	47%	46%	53%
No answer/Refused	16%	2%	23%	16%	20%	21%	18%	25%	21%	20%
* \$40,000 to \$59,999	19%	23%	14%	19%	20%	16%	19%	13%	15%	15%
\$60,000 to \$79,999	10%	13%	9%	10%	11%	12%	12%	12%	10%	11%
\$80,000 or more	12%	17%	9%	19%	18%	22%	18%	22%	21%	27%

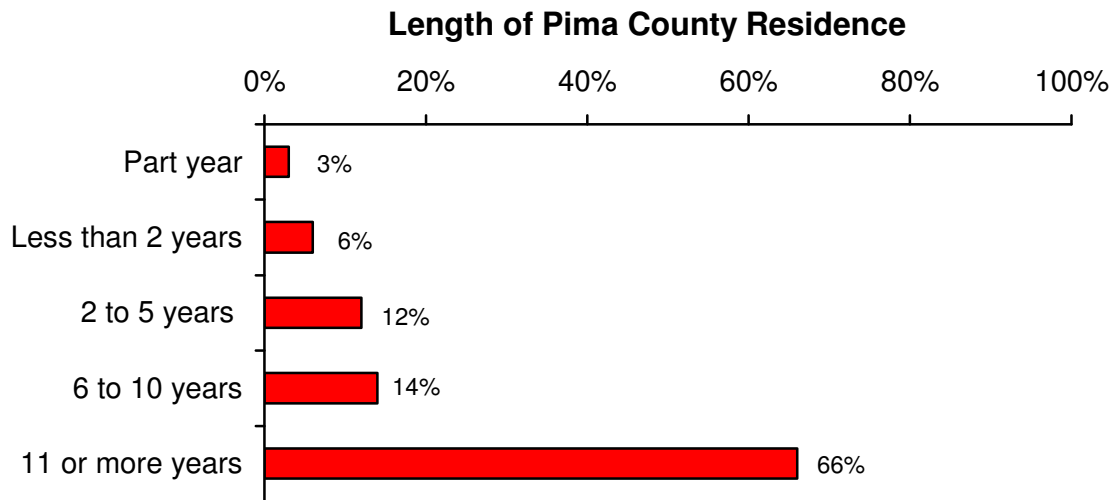
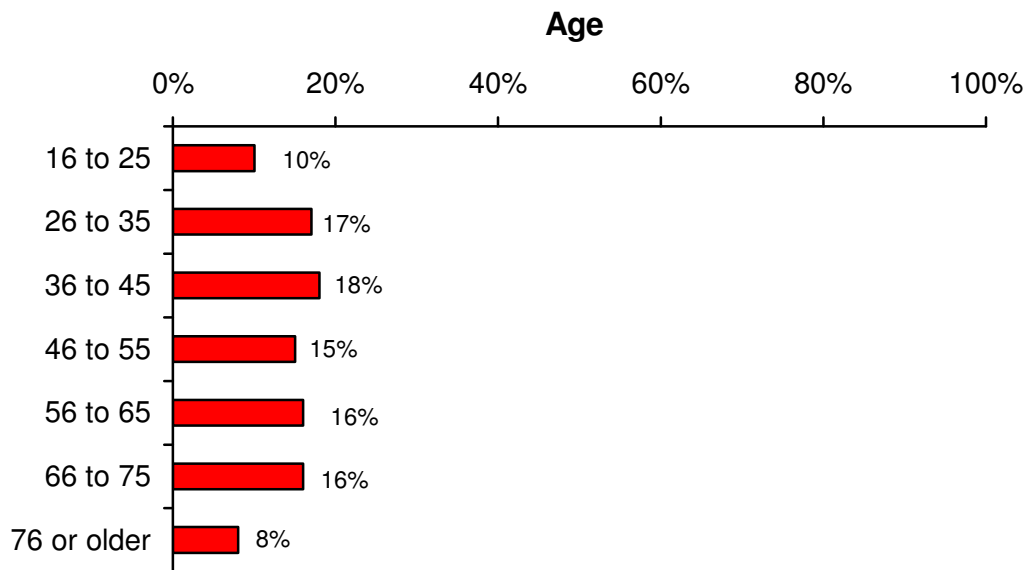
Question: As I read the following categories, please tell me into which group your total annual household income falls. We are not interested in your exact income, just your household income category...from all sources before taxes.

Display 1

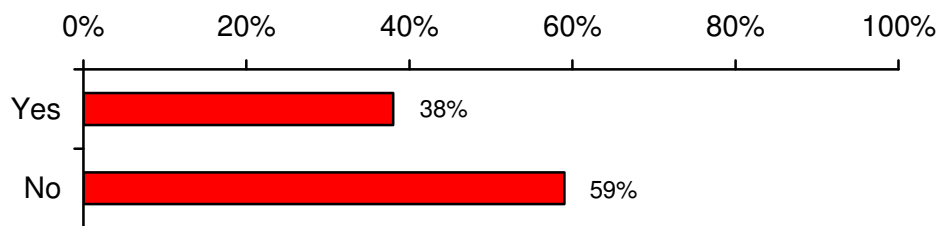
Demographic Profile of Respondents
(Among the Total Sample)



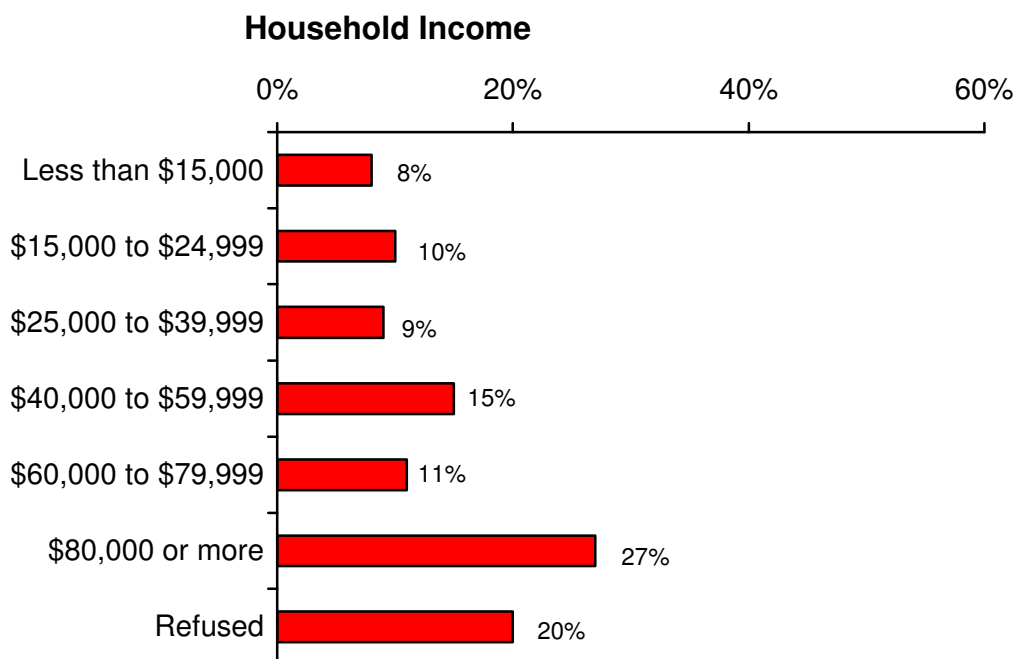
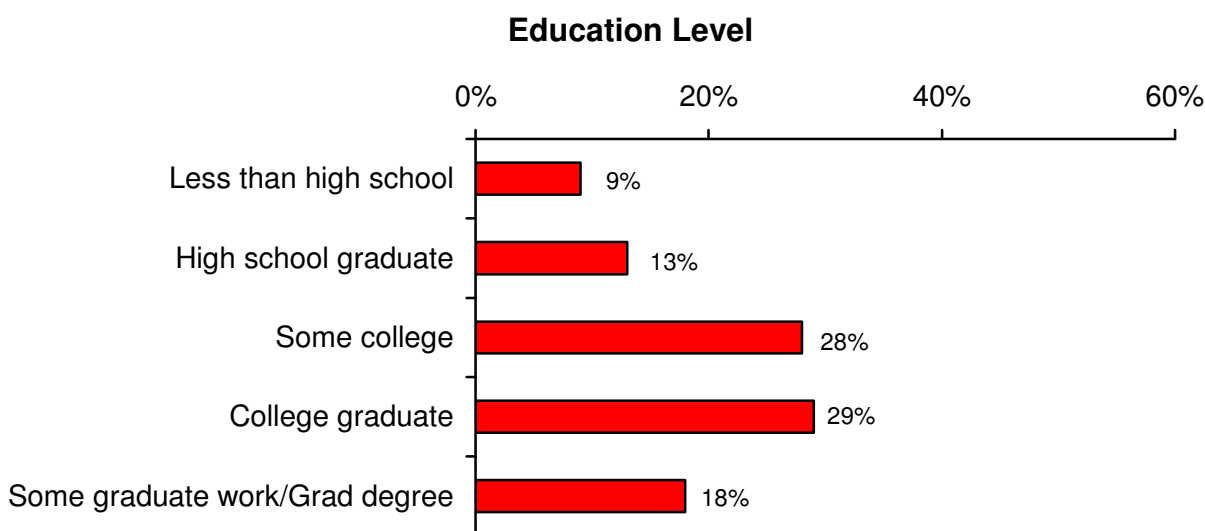
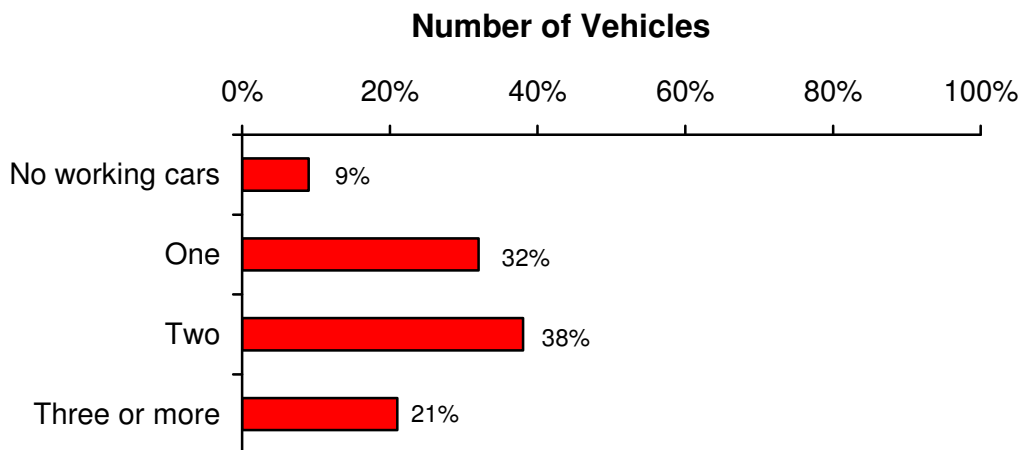
Display 1 (Cont'd) Demographic Profile of Respondents
 (Among the Total Sample)



Household Member With Breathing-Related Medical Condition



Display 1 (Cont'd) Demographic Profile of Respondents (Among the Total Sample)



Awareness of Information About Air Quality/Pollution

Awareness of the Pima County “Clean Air” Program – A majority 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). There is also a higher degree of awareness among women (58% versus 46% of men), 36 to 45 or 56 to 65 year-olds and 6+ year Pima County residents. Awareness is consistent between Whites and Hispanics (51%-53%), but lower among non-Hispanic minorities (44%). With respect to education, program awareness is marginally lower only among the most those with at least some graduate level coursework (41% versus 53%-54% of college graduates or less).

Table 11 Awareness of the Pima County “Clean Air” Program

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Yes	53%	43%	48%	53%	59%	59%	46%	52%	43%	52%
No	47%	57%	49%	41%	37%	36%	46%	43%	52%	45%
Don't know	–	–	3%	6%	4%	5%	7%	5%	5%	3%
	N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Yes	49%	55%	44%	66%	58%	57%	38%
No	50%	43%	52%	31%	38%	40%	59%
Don't know	1%	3%	4%	2%	4%	2%	2%
	N=140	N=141	N=138	N=83	N=90	N=259	N=135

Question: Have you ever heard of or are you aware of the Pima County Department of Environmental Quality “Clean Air” Program?

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.

Once again, 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], and elevated among women, 46 to 55 year-olds and Hispanics. Recall is marginally higher among those who perceive a “major” or “moderate” air quality problem.)
- **“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. It is highest among women, 56 to 65 year-olds, the most long-term [11+ year] Pima County residents and those who perceive that Tucson has a “moderate” air quality problem.)
- **“Bike Fest”** (45% awareness, down just slightly from 48% last year. Women, Hispanics, 2-to-5 year Pima County residents and respondents who perceive a “moderate” air quality problem are more apt to be familiar. There are fewer differences based on geography or age.)

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]. Event awareness is higher among women, 56 to 65 year-olds, non-Hispanic minorities and those who think Tucson has a “major” or “moderate” air quality problem.)
- **“Car-Free Day”** (New to the current study, three of ten [regardless of geography] indicate familiarity. Awareness is directly related to the perception of the air quality program and is elevated among those 56 or older, non-Whites and those with some college or less.)
- **“Cyclovia”** (21% awareness, up from just 11% last year. Central or East residents, women, 46 to 65 year-olds and those who perceive a progressively more serious air quality problem 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, women and the least formally educated respondents indicate increased familiarity. Awareness is directly related to the perceived seriousness of the air quality problem.)

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).

Table 12 Awareness of Various Clean Air Events or Activities

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
“Earth Day Festival and Parade”	68%	n/a	71%	70%	66%	74%	72%	68%	66%	68%
“Bike to Work Day”	45%	n/a	53%	50%	56%	55%	61%	57%	54%	63%
“Bike Fest”	–	–	–	–	–	–	30%	53%	48%	45%
“Walk and Roll to School Day”*	19%	n/a	28%	29%	38%	22%	33%	34%	36%	32%
“Car-Free Day”	–	–	–	–	–	–	–	–	–	30%
“Cyclovia”	–	–	–	–	–	–	–	13%	11%	21%
“Bike to the Zoo Day”	11%	n/a	9%	8%	5%	10%	11%	20%	22%	20%
“Pedal the Pueblo”	–	–	–	–	–	–	–	–	13%	16%
None of these	12%	n/a	13%	11%	12%	10%	7%	12%	10%	10%
	N=508	n/a	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
“Earth Day Festival and Parade”	66%	69%	67%	74%	71%	73%	61%
“Bike to Work Day”	65%	66%	59%	63%	62%	71%	53%
“Bike Fest”	44%	45%	48%	45%	43%	51%	38%
“Walk and Roll to School Day”*	26%	33%	36%	32%	36%	37%	20%
“Car-Free Day”	29%	33%	27%	31%	39%	31%	24%
“Cyclovia”	16%	27%	16%	26%	26%	21%	17%
“Bike to the Zoo Day”	16%	21%	18%	30%	33%	21%	12%
“Pedal the Pueblo”	10%	16%	18%	19%	21%	17%	10%
None of these	11%	10%	11%	10%	11%	7%	16%
	N=140	N=141	N=138	N=83	N=90	N=259	N=135

* Was “Walk Our Children to School Day” (6/02-5/06).

Question: I am now going to read you some events or activities that are used to promote clean air in the Tucson area. As I read each, simply tell me if you have seen or heard of the event.

Household Participation in a “Clean Air” Event – 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 zip codes and among 36 to 45 year-olds, non-Hispanic minorities and higher income households. There are fewer differences with respect to gender and those who perceive a “major” or “moderate” air quality problem. There are few differences based on education. As might be expected, survey respondents familiar with the “Clean Air” Program are also more apt to report event participation (15% versus 9% of those unaware).

Table 12a Participation of Anyone in Household in a Clean Air Campaign Event (Among Those Aware of at Least One Event)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Yes	8%	n/a	12%	10%	9%	11%	10%	17%	17%	12%
No	92%	n/a	86%	86%	88%	86%	88%	82%	83%	84%
Don't know	–	n/a	2%	4%	4%	3%	2%	1%	1%	3%
	n/a	n/a	N=434	N=447	N=444	N=455	N=374	N=354	N=452	N=450

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Yes	6%	17%	12%	15%	15%	16%	4%
No	93%	78%	84%	81%	82%	80%	93%
Don't know	1%	5%	4%	4%	2%	4%	3%
	N=125	N=127	N=123	N=75	N=80	N=242	N=114

Question: Did you or anyone in your household attend or participate in any of the clean air events in the past year?

Incidence of Changing Routines/Behaviors to Improve Air Quality After Participating in “Clean Air” Events – 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.

Table 12b Incidence of Changing Routines/Behaviors to Improve Air Quality After Participating in Clean Air Events
(Among Those With a Household Member Who Participated)

	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	Area			
						North- west	Central	South	East
Yes	65%	81%	57%	76%	55%	38%	64%	60%	46%
No	27%	11%	41%	23%	39%	62%	23%	40%	54%
Don't know	8%	8%	2%	1%	5%	0%	14%	0%	0%
	N=52	N=36	N=61	N=75	N=56	N=8	N=22	N=15	N=11

	Air Quality Problem		
	Major	Moderate	Minor
Yes	75%	46%	80%
No	17%	49%	20%
Don't know	8%	5%	0%
	N=12	N=39	N=5

Question: After participating in a clean air event, did you or someone in your household take or consider any actions to change your daily routines or behaviors to help improve air quality?

Opinion of Activities/Events to Encourage Use of Other Modes of Transportation

– 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%).

Table 13 Opinion of Activities/Events to Encourage Use of Other Modes of Transportation
(Among Those Aware of at Least One Event)

	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Very favorable	33%	31%	39%	43%	45%	46%	42%	45%	38%
Somewhat favorable	45%	50%	39%	40%	39%	36%	44%	40%	35%
Not very favorable	9%	9%	7%	4%	5%	5%	7%	6%	5%
Not at all favorable	7%	5%	3%	3%	3%	3%	6%	4%	6%
Don't know/No answer	6%	6%	11%	10%	8%	9%	1%	5%	15%
	n/a	N=434	N=447	N=444	N=455	N=374	N=354	N=452	N=450

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Very favorable	41%	36%	39%	36%	54%	39%	26%
Somewhat favorable	34%	36%	37%	35%	30%	40%	31%
Not very favorable	7%	5%	5%	4%	4%	2%	12%
Not at all favorable	6%	9%	2%	8%	2%	3%	13%
Don't know/No answer	13%	14%	18%	17%	10%	15%	18%
	N=125	N=127	N=123	N=75	N=80	N=242	N=114

Question: Overall, what is your opinion of these events and activities that encourage people to use other modes of transportation or work from home instead of driving alone? Is your opinion of the various Clean Air Campaign events and activities very favorable, somewhat favorable, not very favorable or not at all favorable?

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, women, 66 to 75 year-olds and newer Pima County residents [for less than five years]. 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, Hispanics, multi-car [3+] households and those who perceive a “moderate” air quality problem are more apt to be carpooling – with no difference based on “Clean Air” Program awareness.)
- **Keep car tuned** (25%, up from 12% last year. There are few differences based on geography, perception of the air quality problem in Tucson or “Clean Air” Program awareness.)

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+).

Table 14

Steps Taken to Reduce Air Pollution

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/13 Total	05/14 Total
Generally reduced driving/Driven less	25%	n/a	31%	33%	39%	39%	37%	44%
Carpool/Less driving alone	17%	n/a	28%	19%	32%	40%	28%	28%
Keep car tuned	13%	n/a	25%	20%	31%	28%	12%	25%
Keep tires properly inflated	1%	n/a	4%	5%	13%	14%	7%	22%
Bought more fuel efficient car	3%	n/a	6%	5%	8%	11%	7%	13%
Planted trees	1%	n/a	4%	5%	10%	12%	5%	12%
Avoid excessive idling	-	n/a	3%	4%	6%	6%	4%	12%
Adjusted vehicle's emission control equipment	4%	n/a	10%	8%	12%	7%	3%	11%
Chosen once a week not to drive	1%	n/a	5%	3%	2%	4%	5%	6%
Bought bicycles	6%	n/a	6%	6%	8%	5%	8%	6%
Bought alternative-fueled car	-	-	-	-	2%	3%	4%	3%
Using fireplace/Wood stove less	6%	n/a	4%	2%	4%	6%	3%	3%
Using BBQ grill less	1%	n/a	3%	1%	2%	6%	1%	2%
Walk	8%	n/a	3%	3%	3%	1%	2%	2%
Moved closer to work	0%	n/a	2%	1%	4%	2%	2%	2%
Ride the bus	3%	n/a	2%	1%	1%	0%	1%	2%
Challenged friends/Co-workers to change	-	-	-	-	0%	3%	1%	2%
Advocated alternative to cars	-	n/a	2%	1%	1%	1%	1%	1%
Other	9%	n/a	8%	8%	7%	5%	7%	4%
Nothing	23%	n/a	20%	29%	15%	14%	21%	15%
	N=508	n/a	N=500	N=502	N=502	N=503	N=504	N=502

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Generally reduced driving/Driven less	51%	38%	46%	40%	44%	49%	38%
Carpool/Less driving alone	21%	30%	34%	25%	26%	33%	22%
Keep car tuned	24%	25%	29%	23%	29%	26%	24%
Keep tires properly inflated	24%	18%	28%	18%	27%	22%	22%
Bought more fuel efficient car	14%	11%	9%	20%	14%	15%	8%
Planted trees	16%	13%	9%	10%	13%	14%	11%
Avoid excessive idling	14%	11%	12%	10%	11%	12%	13%
Adjusted vehicle's emission control equipment	9%	16%	9%	11%	11%	12%	10%
Chosen once a week not to drive	6%	7%	7%	4%	6%	7%	4%
Bought bicycles	4%	8%	6%	2%	6%	6%	5%
Bought alternative-fueled car	2%	4%	2%	6%	3%	5%	2%
Using fireplace/Wood stove less	6%	2%	1%	2%	2%	4%	2%
Using BBQ grill less	4%	1%	1%	1%	1%	3%	2%
Walk	1%	4%	2%	0%	3%	2%	2%
Moved closer to work	2%	4%	0%	1%	1%	2%	2%
Ride the bus	1%	4%	1%	0%	3%	0%	4%
Challenged friends/Co-workers to change	1%	4%	1%	0%	1%	2%	1%
Advocated alternative to cars	2%	2%	1%	0%	2%	2%	0%
Other	2%	5%	6%	4%	4%	4%	4%
Nothing	16%	16%	12%	16%	13%	10%	22%
	N=140	N=141	N=138	N=83	N=90	N=259	N=135

Question: What, if anything, have you been able to do to help reduce air pollution in the Tucson area?

Reasons for Not Taking Steps to Reduce Air Pollution – In line with last year, 63% of those who indicate that they are doing “nothing” to reduce air pollution (15% of the total sample) do not cite a specific reason for their lack of action. These tend to be Central or East residents and Hispanics.

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%).

Table 14a **Reasons for Not Taking Steps to Reduce Air Pollution**
(Among Those Who Have Done “Nothing”)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/13 Total	05/14 Total
Lack of knowledge/Education/Don't know how	13%	8%	16%	9%	10%	15%
Elderly	10%	6%	13%	7%	2%	5%
Lives too far/Not near anyone/Home is out of the way/Area/Location/Distance/Too far	6%	8%	9%	9%	5%	4%
Cost	–	–	–	–	–	4%
Don't think it's a problem	–	–	–	–	–	4%
Not convenient	12%	8%	6%	12%	7%	3%
Lazy	4%	4%	–	4%	1%	1%
Just moved here	–	–	–	–	5%	1%
Don't go anywhere	4%	4%	5%	4%	2%	1%
Nothing/No reason	36%	36%	40%	38%	51%	48%
Don't know/No answer	10%	14%	17%	16%	14%	15%
	N=102	N=144	N=77	N=68	N=104	N=75

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
Lack of knowledge/Education/Don't know how	18%	22%	6%	8%	0%	31%	7%
Elderly	14%	4%	0%	0%	17%	4%	3%
Lives too far/Not near anyone/Home is out of the way/Area/Location/Distance/Too far	4%	4%	0%	8%	0%	12%	0%
Cost	0%	9%	0%	8%	8%	4%	3%
Don't think it's a problem	0%	0%	12%	8%	0%	4%	7%
Not convenient	4%	0%	6%	0%	0%	0%	7%
Lazy	4%	0%	0%	0%	8%	0%	0%
Just moved here	0%	4%	0%	0%	0%	0%	3%
Don't go anywhere	0%	0%	6%	0%	8%	0%	0%
Nothing/No reason	46%	52%	41%	54%	50%	27%	55%
Don't know/No answer	9%	4%	29%	23%	8%	19%	17%
	N=22	N=23	N=17	N=13	N=12	N=26	N=29

Question: What has prevented you from helping to reduce air pollution?

Presence of Children 5-18 in Household – As indicated in Table 15, 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, 16 to 45 year-olds and non-Whites.

Table 15 Presence of Children Ages 5-18 in Household

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Yes	31%	26%	29%	28%	30%	30%	30%	27%	33%	22%
No	69%	74%	71%	72%	70%	70%	70%	73%	67%	78%
	N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
Yes	18%	21%	32%	13%	17%	22%	24%
No	82%	79%	68%	87%	83%	78%	76%
	N=140	N=141	N=138	N=83	N=90	N=259	N=135

Question: Do children 5 to 18 years of age live in your household?

Incidence of Children Ages 5-18 Receiving Air Pollution Information From School

– 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). School material recall is similar among those aware (53%) or unaware (57%) of the “Clean Air” Program.

Table 15a Incidence of Children Ages 5-18 Receiving Information From School About Air Pollution (Among Households With Children Ages 5-18)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Yes	37%	39%	32%	34%	36%	36%	29%	36%	40%	54%
No	63%	61%	62%	61%	59%	50%	64%	59%	51%	34%
Don't know	–	–	6%	4%	5%	14%	7%	6%	9%	11%
	n/a	n/a	N=143	N=139	N=149	N=153	N=119	N=109	N=168	N=110

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Yes	56%	53%	54%	54%	47%	59%	52%
No	44%	30%	32%	36%	47%	29%	36%
Don't know	0%	17%	14%	9%	7%	12%	12%
	N=25	N=30	N=44	N=11	N=15	N=58	N=33

Question: Have the children 5 to 18 years old in your home ever talked about or brought home materials from school about improving air quality – including school presentations or brochures?

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], most often by those 56 or older.)
- **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, women and those 56 or older.)
- **Cell phone/Text messages** (24%, up from 21% last year. There are few differences based on geography, with increased effectiveness among 26 to 55 year-olds.)
- **Internet website postings** (11%, down from 16% last year. Central residents, women and 16 to 35 year-olds 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%).

Table 16

**Most Effective Means of Communicating
Air Quality Alerts on Air Quality Action Days**

	5/08 Total	6/11 Total	6/13 Total	6/14 Total	Area			
					North- west	Central	South	East
Television alerts	64%	51%	58%	57%	57%	60%	50%	65%
Radio announcements	40%	43%	41%	49%	46%	48%	50%	55%
Television news reports	41%	37%	35%	42%	45%	40%	38%	48%
Cell phone/Text messages	8%	19%	21%	24%	26%	23%	25%	22%
Internet website postings	6%	17%	16%	11%	9%	15%	12%	10%
E-mail	5%	8%	8%	8%	9%	4%	8%	10%
None/Can't think of any	9%	2%	3%	3%	1%	6%	3%	0%
	N=402	N=403	N=504	N=502	N=140	N=141	N=138	N=83

	Air Quality Problem		
	Major	Moderate	Minor
Television alerts	60%	55%	59%
Radio announcements	52%	48%	53%
Television news reports	50%	43%	36%
Cell phone/Text messages	24%	27%	21%
Internet website postings	13%	12%	9%
E-mail	3%	10%	6%
None/Can't think of any	4%	2%	2%
	N=90	N=259	N=135

Question: At times, air pollution in the Tucson area increases to levels that affect people with breathing-related medical conditions. When an Air Quality Action Day occurs, which of the following methods, or others, would be most effective to communicate an air quality alert?

Agreement With Various Statements Regarding PDEQ Programs and Air Pollution

– As in past surveys, respondents were read a variety of statements related to air pollution and asked to agree or disagree with each. These responses are summarized in Table 17.

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], and higher among women, 56 to 65 year-olds, Whites and college graduates or better. 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 or gender. Awareness is elevated among 46 to 55 year-olds, college graduates or better and 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 women, the oldest [76+] respondents, 6+ year Pima County residents and 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, women 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, women, 16 to 35 year-olds 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 56+ and respondents 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, women, Whites 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] or gender. Most apt to agree are 16 to 25 year-olds, Hispanics and lower income households. A majority of high income households [\$60,000+] disagree [56%.])
- **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, women, 56 to 65 year-olds and those aware of the “Clean Air” Program [59% versus 49% unaware].)

Table 17

Agreement With Various Statements Regarding PDEQ Programs and Air Pollution

	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
You are aware that air pollution causes health problems.*	-	-	-	-	98%	96%	98%	99%	94%
You have seen or heard information about the importance of keeping your tires properly inflated.	-	-	-	-	-	-	-	-	90%
You understand what an air pollution advisory means.**	84%	86%	88%	83%	83%	79%	87%	89%	87%
You are aware that the majority of our air pollution comes from motor vehicle use.	-	-	-	-	-	-	79%	81%	82%
You have seen or heard commercials on TV or radio regarding clean air or air pollution.	-	-	74%	75%	76%	69%	74%	68%	80%
You are aware of air pollution advisories in Tucson.	79%	78%	74%	70%	74%	79%	75%	75%	78%
You are aware of the Pima County Department of Environmental Quality (PDEQ).***	44%	48%	45%	48%	65%	70%	69%	64%	68%
Because of <i>higher gas prices</i> , you are generally driving less	-	-	-	63%	64%	62%	64%	59%	55%
Because you want to <i>reduce air pollution</i> , you are generally driving less	-	-	-	-	-	55%	48%	53%	55%
You are aware of the services provided by Sun Rideshare.	-	-	-	-	-	-	48%	45%	49%
You are aware of the "Clean Water Starts With Me" campaign.	-	-	-	-	-	-	-	-	47%
You have seen or heard of the "Pump Up Your MPG" contest.	-	-	-	-	-	-	-	-	10%
	N=1006	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
You are aware that air pollution causes health problems.*	98%	92%	93%	93%	93%	96%	91%
You have seen or heard information about the importance of keeping your tires properly inflated.	94%	90%	84%	90%	84%	92%	90%
You understand what an air pollution advisory means. **	91%	89%	80%	90%	88%	90%	83%
You are aware that the majority of our air pollution comes from motor vehicle use.	81%	81%	89%	76%	88%	85%	75%
You have seen or heard commercials on TV or radio regarding clean air or air pollution.	84%	72%	86%	77%	81%	82%	78%
You are aware of air pollution advisories in Tucson.	86%	78%	68%	82%	81%	81%	73%
You are aware of the Pima County Department of Environmental Quality (PDEQ).***	68%	72%	59%	75%	64%	73%	64%
Because of <i>higher gas prices</i> , you are generally driving less	55%	55%	59%	52%	59%	59%	48%
Because you want to <i>reduce air pollution</i> , you are generally driving less	51%	59%	56%	52%	69%	62%	33%
You are aware of the services provided by Sun Rideshare.	52%	48%	47%	49%	43%	54%	48%
You are aware of the "Clean Water Starts With Me" campaign.	46%	48%	44%	52%	53%	51%	38%
You have seen or heard of the "Pump Up Your MPG" contest.	7%	14%	6%	12%	12%	12%	4%
	N=140	N=141	N=138	N=83	N=90	N=259	N=135

* Was "You are aware that airborne dust causes health problems" (5/07-5/08).

** Was "You understand what an air pollution advisory means, issued as part of an Air Quality Action Day" (6/03-5/08).

*** Was "You are **knowledgeable** about the Pima County Department of Environmental Quality (PDEQ)" (6/03-5/06).

Question: As I read the following statements, simply tell me if you agree or disagree.



Actions Taken to Drive Less Because of Higher Gas Prices – Survey respondents who indicate that they are driving less because of higher gas prices (55% of the total sample) were asked to describe specific actions taken. As indicated in Table 17a, two-thirds say they are **reducing or combining trips** (68%, up from 61% last year) – most often Northwest residents, those 56 or older and high income households. There is no difference based on the perceived severity of the air quality problem in Tucson.

Other actions taken in response to higher gas prices include:

- **Carpooling/Vanpooling** (18%, down from 24% last year. These tend to be Central residents, 16 to 25 year-olds and Hispanics.)
- **Walking for short trips or errands** (13%, basically unchanged from 14% last year. Central residents and non-Whites 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 and those with the least amount of formal education.)

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%).

Table 17a **Actions Taken to Drive Less Because of Higher Gas Prices**
(Among Those Driving Less)

	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Reducing/Combining trips	77%	76%	70%	71%	61%	68%
Carpooling/Van pooling	21%	24%	14%	22%	24%	18%
Walking for short trips or errands	16%	19%	14%	13%	14%	13%
Riding the bus	2%	9%	10%	4%	9%	8%
Telecommuting	2%	4%	4%	4%	3%	5%
Riding a bicycle for short trips/ Errands	5%	4%	10%	4%	5%	3%
Compressed work week	4%	2%	2%	3%	4%	2%
Walking to work or school	3%	4%	4%	5%	9%	2%
Riding a bicycle to work or school	2%	2%	3%	2%	4%	1%
	N=318	N=320	N=251	N=258	N=298	N=278

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
Reducing/Combining trips	82%	60%	65%	65%	68%	68%	68%
Carpooling/Van pooling	17%	25%	17%	7%	17%	20%	14%
Walking for short trips or errands	12%	17%	11%	12%	13%	14%	11%
Riding the bus	3%	13%	10%	2%	6%	9%	8%
Telecommuting	5%	9%	2%	0%	2%	5%	6%
Riding a bicycle for short trips/ Errands	0%	8%	2%	2%	4%	3%	2%
Compressed work week	5%	3%	1%	0%	4%	3%	0%
Walking to work or school	0%	1%	2%	5%	2%	3%	0%
Riding a bicycle to work or school	0%	1%	1%	0%	0%	0%	2%
	N=77	N=77	N=81	N=43	N=53	N=152	N=65

Question: What actions are you taking to drive less?

Perceived Seriousness of Air Quality in Tucson Area – Consistent with last year (at 17%), 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) – as well as respondents who perceive a progressively more serious stormwater pollution problem.

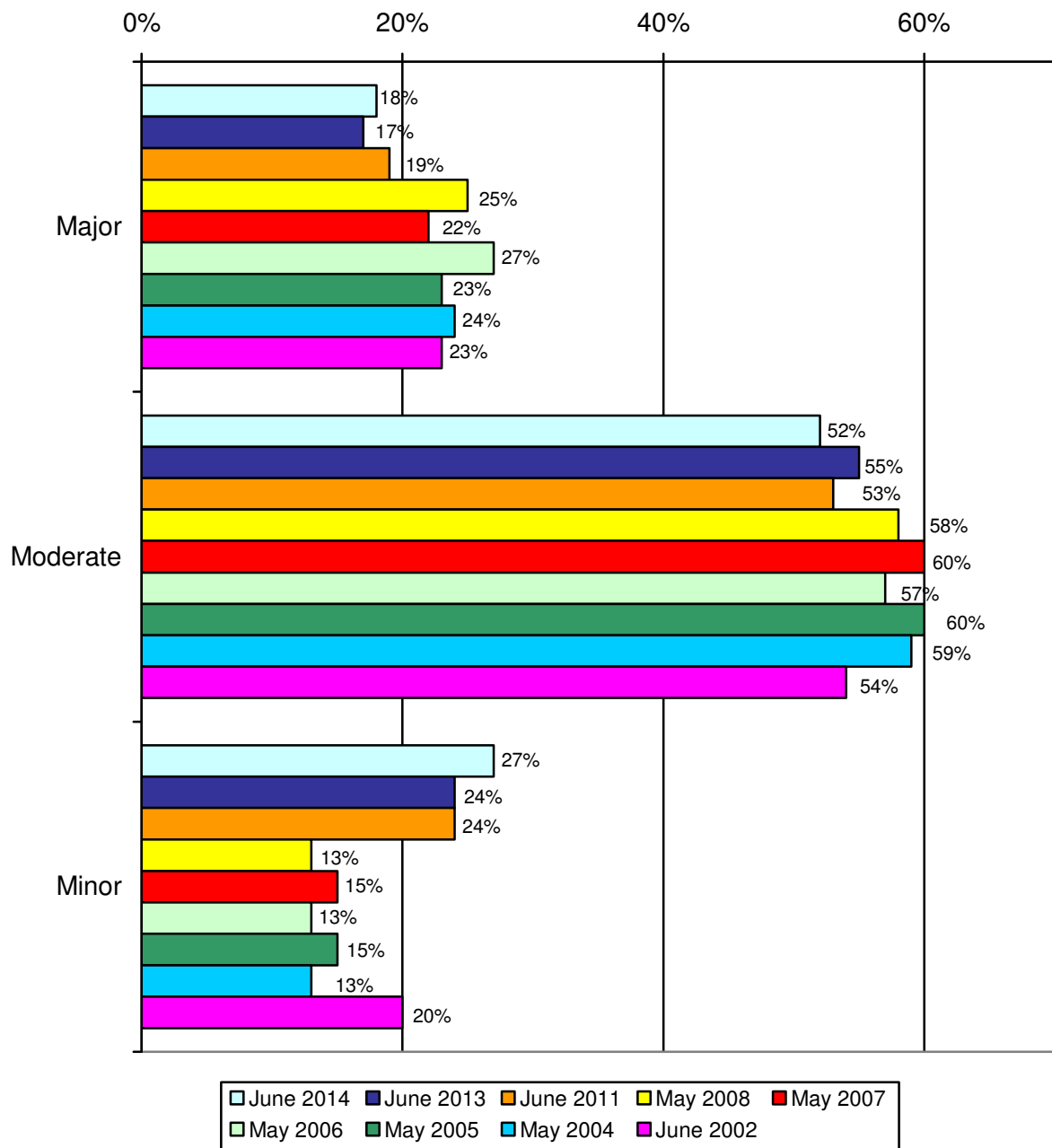
Who is more likely to think that Tucson has a “minor” air quality problem? Men (37% versus 17% of women) and 16 to 35 year-olds – with fewer differences with respect to education level or geography (slightly higher in the South or Northwest zips).

Table 18 Perceived Seriousness of Air Quality Problem in Tucson Area

	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Major problem	23%	24%	23%	27%	22%	25%	19%	17%	18%
Moderate problem	54%	59%	60%	57%	60%	58%	53%	55%	52%
Minor problem	20%	13%	15%	13%	15%	13%	24%	24%	27%
Don't know	3%	3%	2%	3%	2%	4%	4%	5%	4%

Question: How much of an air quality problem do you think exists in the Tucson area? Do you think this is a major problem, a moderate problem or a minor problem?

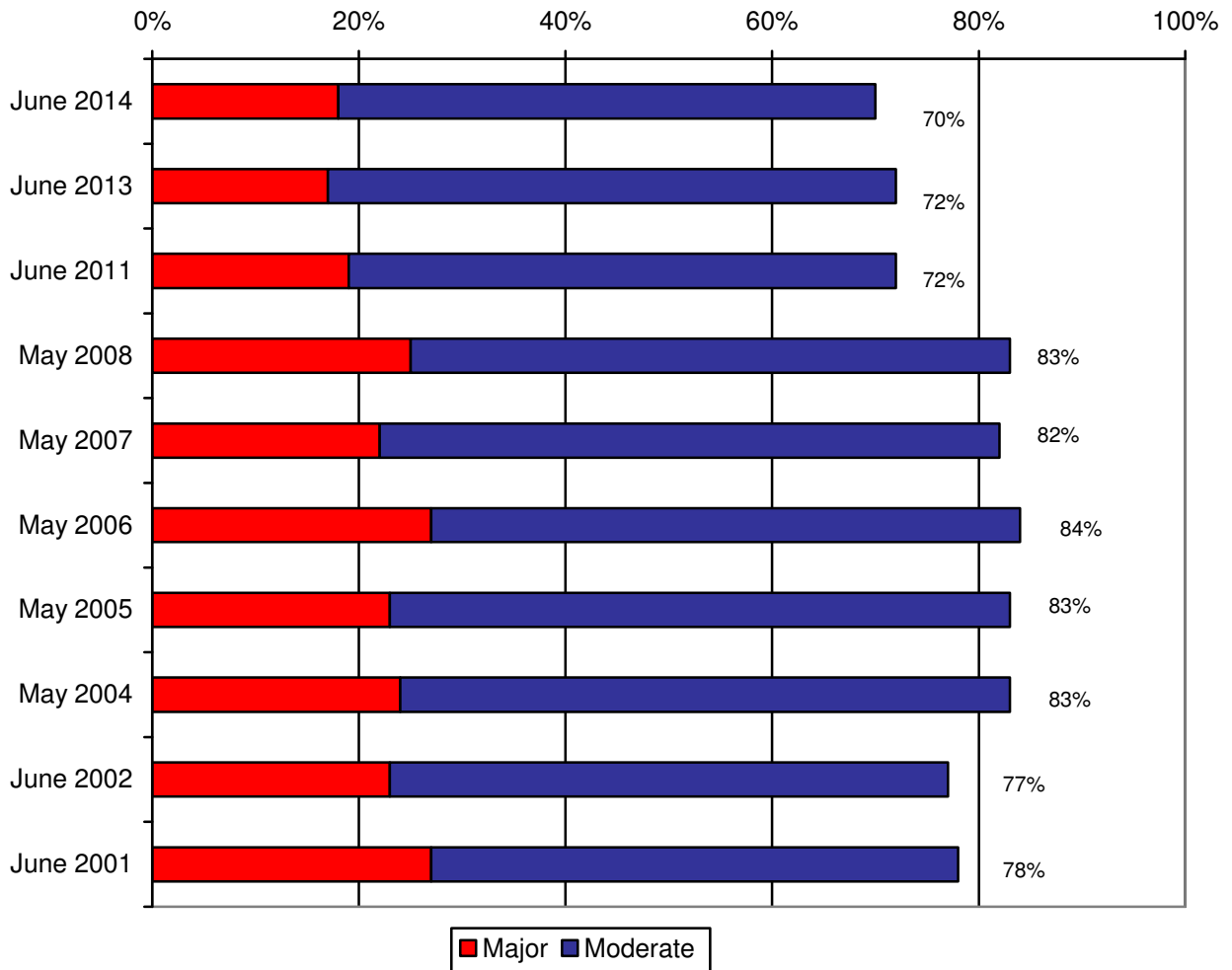
Display 18 Perceived Seriousness of Air Quality Problem in Tucson Area
(Among the Total Sample)



Display 18

**Perceived Seriousness of
Air Quality Problem in Tucson Area**

Among the Total Sample – Sum of “Moderate” and “Major” Responses



Importance of Regional Campaigns 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). Women (57% versus 37% of men), 16 to 25 year-olds, newer Pima County residents (for less than five years), Hispanics and those impacted by a breathing-related medical condition are also more apt to think that these campaigns are “very important.” There are fewer differences with respect to geography (slightly lower only in the East zips).

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.

Table 19 Importance of Regional Campaign to Encourage People to Take Actions to Improve Air Quality

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Very important	51%	50%	52%	54%	54%	60%	55%	46%	48%	47%
Somewhat important	36%	36%	38%	34%	36%	29%	35%	38%	41%	36%
Not very important	7%	7%	7%	5%	6%	7%	5%	8%	5%	8%
Not at all important	5%	4%	2%	4%	3%	4%	4%	7%	5%	8%
Don't know/No answer	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
	N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Very important	49%	48%	47%	42%	67%	53%	24%
Somewhat important	32%	28%	43%	41%	26%	40%	35%
Not very important	9%	12%	4%	7%	3%	4%	20%
Not at all important	9%	11%	4%	8%	3%	3%	20%
Don't know/No answer	1%	1%	1%	1%	1%	0%	1%
	N=140	N=141	N=138	N=83	N=90	N=259	N=135

Question: How important do you think it is to have a regional campaign that encourages people to take actions to improve air quality, such as carpooling, riding the bus, biking, walking or working at home? Would you say it is very important, somewhat important, not very important or not at all important?

Work Commuting Behavior

Employment Status – 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. Full-time workers are distributed across the four geographic regions (with a slight emphasis on the Central zips), and are most apt to be men (38% versus 20% of women), 26 to 55 year-olds and college graduates or better. Another 8% work part-time, down from 11% in 2013. Part-time employees are more apt to be Northwest or South region residents, women and younger. 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 – especially those 66 or older. Geographically, retirees are more apt to live in the Northwest and 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%).

Table 20

Employment Status
(Multiple Mentions Allowed)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Employed full-time (30 hours or more each week)	40%	37%	30%	28%	34%	35%	29%	35%	27%	30%
Employed part-time (Less than 30 hours each week)	10%	10%	9%	9%	11%	11%	12%	8%	11%	8%
A student	14%	6%	13%	15%	11%	10%	9%	9%	9%	4%
Retired	26%	33%	32%	33%	32%	31%	34%	35%	31%	38%
A homemaker	8%	7%	12%	13%	12%	10%	12%	9%	13%	9%
Currently unemployed	10%	7%	8%	6%	4%	4%	8%	6%	10%	11%
	N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
Employed full-time (30 hours or more each week)	27%	33%	28%	29%	16%	33%	31%
Employed part-time (Less than 30 hours each week)	1%	5%	11%	4%	8%	7%	10%
A student	1%	6%	8%	2%	2%	4%	7%
Retired	44%	29%	35%	47%	43%	38%	36%
A homemaker	6%	11%	11%	6%	12%	9%	7%
Currently unemployed	9%	14%	9%	11%	18%	9%	9%
	N=140	N=141	N=138	N=83	N=90	N=259	N=135

Question: Are you one or more of the following...

Location of Place of Employment – Among those employed on a part or full time basis (38% of the total sample), 22% work at a home-based business. This is up from 16%-19% in the last three surveys (including those who work exclusively at home or in combination with another company), but in line with 2005-2007 findings (21%-22%). As a result, the percentage employed only outside the home has decreased (from 84% last year to 78% now). Those who work outside the home are most apt to reside in the Northwest or South zip codes.

Table 21 Location of Place of Employment
(Among Those Employed)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Home-based business	12%	14%	12%	17%	18%	17%	15%	15%	12%	22%
Another company	84%	86%	86%	79%	78%	78%	82%	82%	84%	78%
Both	4%		2%	4%	4%	5%	4%	3%	4%	0%
	N=253	n/a	N=195	N=190	N=227	N=233	N=163	N=170	N=193	N=188

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
Home-based business	13%	35%	15%	30%	29%	22%	20%
Another company	87%	65%	85%	70%	71%	78%	80%
	N=53	N=54	N=54	N=27	N=21	N=104	N=56

Question: Do you operate a home-based business or are you an employee of another company?

Number of Full-Time Employees at Jobsite – 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%). The percentage who work at medium size jobsites (with 50 to 100 employees) is unchanged since last year at 16%. Consequently, fewer work at small jobsites with less than 50 employees (23%). East region residents, men and those with some college education (but no degree) are more apt to work at large worksites. Workers at small jobsites tend to be younger and have less formal education.

Table 22 Number of Full-Time Employees at Jobsite
(Among Those Who Work Outside the Home)

	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
More than 100	53%	50%	54%	55%	53%	50%	50%	46%	56%
Less than 100	47%	49%	46%	44%	46%	48%	49%	50%	39%
Between 50 and 100	(14%)	(12%)	(11%)	(12%)	(10%)	(14%)	(12%)	(16%)	(16%)
Less than 50	(33%)	(37%)	(35%)	(32%)	(36%)	(34%)	(37%)	(34%)	(23%)
Don't know	0%	1%	–	1%	1%	2%	1%	4%	6%

Question: Would you say that there are more than 100 employees, between 50 and 100 employees or less than 50 employees at your primary place of work?

Incidence of Telecommuting – Down slightly from 2013, 17% of workers employed outside the home report that they telecommute (“working from home as an alternative to going in to your office or place of business during regular business hours”). The incidence of telecommuting is greatest in the Central zips, as well as at small jobsites with less than 50 employees. Women are more apt than men to report that they telecommute (23% versus 12%, respectively).

Table 23 Incidence of Telecommuting
(Among Those Who Work Outside the Home)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Yes	5%	6%	8%	8%	4%	14%	9%	19%	19%	17%
No/Employer does not offer telecommuting/ Don't know/Not sure	95%	94%	92%	92%	96%	86%	91%	81%	81%	83%
	N=223	n/a	N=172	N=157	N=185	N=193	N=139	N=144	N=170	N=146

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
Yes	11%	26%	17%	16%	7%	25%	9%
No/Employer does not offer telecommuting/ Don't know/Not sure	89%	74%	83%	84%	93%	75%	91%
	N=46	N=35	N=46	N=19	N=15	N=81	N=45

Question: Some employers offer the option of telecommuting – in other words, working from your home as an alternative to going in to your office or business location during regular business hours. Do you personally ever telecommute during regular business hours? This excludes working extra hours at home in your spare time – such as evenings or weekends.

Frequency of Telecommuting – 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%).

Table 24 Frequency of Telecommuting
(Among Those Who Telecommute)

	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
More than once a week	42%	50%	46%	62%	52%	31%	26%	52%	64%
About once a week	32%	7%	23%	25%	15%	23%	33%	12%	8%
2 to 3 times a month	10%	21%	23%	12%	15%	31%	15%	21%	12%
Once a month	5%	21%	8%	0%	18%	15%	26%	15%	16%
	N=19	N=14	N=13	N=8	N=27	N=13	N=27	N=33	N=25

Question: How often do you typically telecommute (or work at home instead of driving to the office) – excluding working extra hours at home in your spare time?

Availability of “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.

Table 25 Availability of “Compressed Workweek” Programs
(Among Those Who Work Outside the Home)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
Yes	27%	27%	25%	31%	35%	31%	27%	33%	32%	23%
No	73%	73%	75%	69%	65%	69%	73%	67%	68%	77%
	N=223	N=456	N=172	N=157	N=185	N=193	N=139	N=144	N=170	N=146

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
Yes	30%	17%	24%	16%	13%	24%	22%
No	70%	83%	76%	84%	87%	76%	78%
	N=46	N=35	N=46	N=19	N=15	N=81	N=45

Question: Does your employer either require or offer any form of “COMPRESSED WORKWEEK”? For example, working four 10-hour days each week, rather than five 8-hour days.

Current Work Schedule – 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.

Table 26 Current Work Schedule
(Among Those Employed Full-Time)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
8 hour day, 5 days a week	58%	49%	70%	68%	62%	68%	64%	72%	67%	56%
10 hour day, 4 days a week	4%	6%	5%	6%	6%	6%	11%	10%	9%	10%
12 hour day, 3 or 4 days a week	4%	6%	8%	2%	10%	7%	6%	5%	2%	5%
80 hours over 9 days with the 10 th day off	2%	2%	8%	3%	1%	3%	3%	2%	3%	4%
Varies/Other	32%	38%	8%	21%	20%	17%	16%	11%	19%	26%
	N=223	n/a	N=129	N=121	N=138	N=146	N=100	N=118	N=125	N=115

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
8 hour day, 5 days a week	48%	53%	76%	41%	67%	57%	57%
10 hour day, 4 days a week	3%	12%	9%	18%	0%	8%	17%
12 hour day, 3 or 4 days a week	9%	3%	3%	6%	0%	8%	0%
80 hours over 9 days with the 10 th day off	0%	6%	3%	6%	0%	2%	9%
Varies/Other	39%	25%	9%	29%	33%	27%	17%
	N=33	N=32	N=33	N=17	N=9	N=67	N=35

Question: Which of the following most closely describes your current work schedule?

Daily Usage of Transportation Methods for Traveling To and From Work or School

– As in past projects, survey respondents who work outside the home or go to school were read a list of different travel methods and asked to indicate the number of days they use each one to travel to and from work or school. A summary of the data from this question series (including tracking data) is included in Table 27-S, with detailed daily usage in Table 27-D.

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).

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.

Other commute travel methods measured by this survey include:

- **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.)

Table 27-S Summary of Usage of Transportation Methods for Traveling To and From Work or School
(Among Those Working Outside the Home or Going to School)

Travel Method	2002 Usage* (N=260)	2002 Average Frequency	2004 Usage* (N=172)	2004 Average Frequency	2005 Usage* (N=210)	2005 Average Frequency
Drive alone	79%	4.6 days	84%	4.4 days	77%	4.3 days
Carpool/Vanpool	19%	3.5 days	17%	3.9 days	24%	3.6 days
Walk to work	12%	3.3 days	10%	4.1 days	15%	3.9 days
Ride a bike	7%	3.6 days	10%	3.6 days	13%	3.3 days
Work at home instead of driving to work	–	–	7%	2.7 days	8%	3.2 days
Take the bus	6%	3.6 days	4%	3.8 days	8%	4.0 days
Ride a motorcycle	1%	2.7 days	3%	2.6 days	3%	2.8 days

Travel Method	2006 Usage* (N=219)	2006 Average Frequency	2007 Usage* (N=229)	2007 Average Frequency	2008 Usage* (N=159)	2008 Average Frequency
Drive alone	81%	4.4 days	78%	4.1 days	74%	4.7 days
Carpool/Vanpool	24%	4.4 days	30%	3.4 days	22%	3.9 days
Walk to work	9%	3.2 days	14%	3.6 days	14%	3.4 days
Ride a bike	6%	2.8 days	9%	2.8 days	8%	3.5 days
Work at home instead of driving to work	6%	3.5 days	10%	2.7 days	12%	3.2 days
Take the bus	6%	3.9 days	7%	3.8 days	11%	3.7 days
Ride a motorcycle	3%	4.2 days	2%	3.6 days	1%	1.0 days

Travel Method	2011 Usage* (N=171)	2011 Average Frequency	2013 Usage* (N=205)	2013 Average Frequency	2014 Usage* (N=162)	2014 Average Frequency
Drive alone	84%	4.5 days	79%	4.5 days	83%	4.5 days
Carpool/Vanpool	28%	4.0 days	26%	3.9 days	10%	3.1 days
Walk to work	15%	4.0 days	12%	3.7 days	6%	2.3 days
Ride a bike	7%	3.7 days	9%	2.1 days	1%	1.5 days
Work at home instead of driving to work	9%	3.3 days	15%	3.5 days	7%	3.5 days
Take the bus	5%	3.1 days	9%	3.8 days	10%	3.1 days
Ride a motorcycle	2%	2.7 days	5%	2.6 days	7%	2.3 days

* Percentage who use each mode at least one day/week.

Table 27-D

**Detailed Daily Usage and Tracking of Transportation
Methods for Traveling To and From Work or School
(Among Those Working Outside the Home or Going to School)**

	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	Area				Awareness of "Clean Air" Program		
							North- west	Central	South	East	Yes	No	
Take the bus													
Not at all	94%	93%	89%	95%	91%	90%	94%	88%	87%	95%	90%	89%	
1-4 days/week	2%	4%	6%	4%	5%	8%	2%	12%	13%	0%	7%	10%	
5 days/week	4%	3%	3%	2%	2%	1%	2%	0%	0%	5%	1%	1%	
6+ days/week	0%	1%	2%	0%	2%	1%	2%	0%	0%	0%	1%	0%	
Ride a motorcycle													
Not at all	97%	98%	99%	98%	95%	93%	94%	100%	87%	90%	95%	92%	
1-4 days/week	2%	1%	1%	1%	4%	7%	6%	0%	11%	10%	6%	7%	
5 days/week	1%	1%	0%	1%	1%	1%	0%	0%	2%	0%	0%	1%	
6+ days/week	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Ride a bike													
Not at all	94%	91%	92%	93%	91%	99%	98%	100%	98%	100%	100%	98%	
1-4 days/week	5%	6%	5%	6%	8%	1%	2%	0%	2%	0%	0%	2%	
5 days/week	1%	3%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	
6+ days/week	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	
Walk													
Not at all	91%	86%	86%	85%	88%	94%	98%	98%	87%	100%	95%	95%	
1-4 days/week	6%	11%	9%	9%	7%	6%	2%	2%	13%	0%	5%	5%	
5 days/week	2%	0%	3%	1%	3%	0%	0%	0%	0%	0%	0%	0%	
6+ days/week	1%	4%	2%	4%	1%	0%	0%	0%	0%	0%	0%	0%	
Work at home instead of driving to work													
Not at all	94%	90%	88%	91%	85%	93%	94%	95%	91%	95%	96%	91%	
1-4 days/week	4%	8%	8%	5%	9%	4%	4%	2%	6%	0%	3%	5%	
5 days/week	1%	1%	2%	3%	4%	2%	2%	2%	4%	0%	1%	4%	
6+ days/week	1%	0%	1%	1%	1%	1%	0%	0%	0%	5%	0%	1%	
	N=219	N=229	N=159	N=171	N=205	N=162	N=46	N=42	N=53	N=21	N=74	N=85	

-Table 27-D continued on next page-

Table 27-D (Cont'd)

	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	Area				Awareness of "Clean Air" Program	
							North- west	Central	South	East	Yes	No
Drive or ride with people age 16 or older in a carpool												
Not at all	76%	70%	78%	72%	74%	90%	89%	88%	91%	90%	89%	89%
1 day/week	2%	4%	2%	2%	1%	1%	2%	0%	2%	0%	1%	1%
2 days/week	3%	7%	3%	4%	4%	4%	0%	10%	4%	5%	5%	4%
3 days/week	2%	4%	2%	3%	4%	1%	0%	0%	2%	0%	0%	1%
4 days/week	5%	6%	3%	5%	5%	1%	2%	0%	0%	0%	0%	1%
5 days/week	7%	9%	11%	12%	10%	4%	6%	2%	2%	5%	4%	4%
6+ days/week	6%	0%	1%	2%	2%	0%	0%	0%	0%	0%	0%	0%
Drive alone												
Not at all	19%	22%	26%	16%	21%	17%	13%	21%	19%	10%	14%	20%
1 day/week	6%	5%	2%	4%	6%	4%	9%	2%	2%	0%	4%	4%
2 days/week	6%	6%	4%	7%	5%	2%	0%	0%	8%	0%	1%	2%
3 days/week	8%	11%	8%	6%	10%	11%	9%	10%	9%	24%	12%	11%
4 days/week	10%	17%	12%	15%	10%	11%	15%	7%	11%	10%	14%	9%
5 days/week	39%	31%	38%	41%	33%	47%	46%	48%	45%	52%	47%	47%
6+days/week	12%	7%	11%	12%	16%	8%	9%	12%	6%	5%	8%	7%
	N=219	N=229	N=159	N=171	N=205	N=162	N=46	N=42	N=53	N=21	N=74	N=85

Question: During a typical week, how many days do you typically use each of the following travel methods to get to and from work or school?

2014 Estimated Number of Daily Commuter Miles Saved Through Alternate Modes

– Tables 27-T and 27-1 reflect the combination of results related to modes of commuter travel and distances traveled with employment estimates (Source: Department of Commerce) to provide an estimate of the number of vehicle miles saved daily through the use of alternative methods of transportation. The specific computations and data sources are described in the footnotes included with Table 27-1. As shown in Table 27-1's column "I" (on the far right), **we estimate that the reduction of single-occupant vehicles commuting through the use of alternative methods of travel saves 1,780,430 vehicle miles per day – or 16% of total miles driven/not driven.** As summarized in the tracking display below, the percentage of miles saved has decreased from 32% in 2013 to 16% in 2014.

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.

Table 27-T Tracking Summary of Estimated Number of Daily Commuter Miles Saved Through Alternate Modes

Year	Total Employed (Non-Home-Based)/ Students	% Who Single-Passenger Commute 1+ Days/Week	Average Single Occupant Auto Commute Distance	# of Commute Miles Driven/ Not Driven	# of Vehicle Miles Saved Daily	% of Miles Saved Through Alternate Mode Use
2014	401,281	83%	15.0	11,461,091	1,780,430	16%
2013	449,057	79%	11.6	9,977,822	3,195,589	32%
2011	419,555	84%	14.8	10,915,750	2,739,932	25%
2008	439,394	74%	11.9	9,695,554	2,864,682	30%
2007	437,911	78%	11.4	9,162,668	2,796,391	30%
2006	423,986	81%	11.2	9,276,739	2,477,921	27%
2005	422,141	77%	13.3	9,448,097	2,317,878	25%
2004	429,532*	84%	14.9	11,560,391	2,483,773	21%

* Based on May, 2004 DES estimates to allow for direct year-to-year tracking.

Table 27-1

2014 Estimated Number of Daily Commuter Miles Saved Through Alternative Modes
(Among Employed Persons and Students)

Pima Air Quality/Stormwater, June, 2014

	(A) # of Non-Home-Based Employed Persons/ Students	(B) # One-Way Commute Trips Per Week	(C) Estimated # of One- Way Trips Each Week	(D) Average Days/Week Commute Using Any Mode	(E) # of One-Way Commute Trips/Day	(F) Average Commute Distance	(G) Estimated # Commute Miles Driven/Not Driven	(H) Vehicle Miles Traveled Daily	(I) Vehicle Miles Saved Daily
<u>Travel Mode</u>									
Single Occupant (auto)	(83%) 333,063	4.47x2=8.94	2,977,583	5.0	595,517	15.0	8,932,755	8,932,755	-0-
Motorcycle	(7%) 28,090	2.33x2=4.66	130,899	5.0	26,180	16.2	424,116	424,116	-0-
<u>Alternative Modes:</u>									
Carpool	(10%) 40,128	3.12x2=6.24	250,399	5.0	50,080	13.7	686,096	311,862	374,234
Bus	(10%) 40,128	3.06x2=6.12	245,583	5.0	49,117	8.5	417,495	11,928	405,567
Bike	(1%) 4,013	1.50x2=3.00	12,039	5.0	2,408	5.0	12,040	-0-	12,040
Walk	(6%) 24,077	2.33x2=4.66	112,199	5.0	22,440	5.3	118,932	-0-	118,932
Telecommute	(7%) 28,090	3.55x2=7.10	199,439	5.0	39,888	13.6	542,477	-0-	542,477
Compressed workweek	(14%) 56,179	1.04x2=2.08	116,852	5.0	23,370	14.0	327,180	-0-	327,180
					809,000		11,461,091		1,780,430

(A) # employed persons in Pima County (est. @ 367,900 as of April, 2014 by Arizona Department of Commerce) x % non-home-based employees (78%)(Table 21) + # students 16+ (est. 114,319 in 2012 Census Bureau American Community Survey) x % of work/school commuters reported using each mode (Table 27).

(B) Average # of days/week mode used (Table 27) x 2 ways = estimate of average # of 1-way trips made each week per work/school commuter.

(C) (A) x (B)

(D) # of work/school commuters in survey x % using each mode x average # days/week mode used = Total days/week all modes ÷ # of work/school commuters in survey = average # days/week work/school commuters use any mode.

(E) (C) ÷ (D)

(F) From Table 27c. Reported commute miles ranged from 1 to 60 miles.

(G) (E) x (F)

(H) Vehicle miles/day:

Driving alone: Estimated # miles commuted

Bus: # miles/day ÷ average # rides/bus (peak hours) - (estimated at 35)

Carpool: # miles/day ÷ average # persons (2.2) in each carpool (Table 27b)

Bike/Walk/Telecommute/Compressed: -0- (no polluting vehicles used)

(I) (G) - (H)

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%). This is also true among one-third of 16 to 25 year-olds.

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%).

Table 27a **Most Used Mode of Transportation for Work/School Commute**
(Among Those Working Outside the Home or Going to School)

	5/05 Total	5/06 Total	5/07 Total	5/08 Total	6/11 Total	6/13 Total	6/14 Total
Drive alone	64%	66%	66%	70%	71%	66%	80%
Take the bus	7%	6%	4%	6%	2%	6%	6%
Drive or ride in a carpool	14%	16%	17%	11%	10%	12%	5%
Work at home instead of driving to work	2%	3%	3%	6%	4%	8%	4%
Walk	7%	4%	5%	4%	8%	5%	2%
Ride a motorcycle	1%	3%	2%	–	1%	2%	2%
Ride a bike	5%	2%	4%	3%	4%	1%	1%
	N=210	N=219	N=229	N=159	N=171	N=205	N=162

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
Drive alone	85%	79%	74%	86%	75%	77%	84%
Take the bus	4%	12%	4%	5%	6%	7%	6%
Drive or ride in a carpool	6%	2%	6%	5%	0%	7%	4%
Work at home instead of driving to work	2%	2%	8%	5%	6%	4%	4%
Walk	2%	2%	4%	0%	6%	3%	0%
Ride a motorcycle	0%	0%	6%	0%	6%	1%	2%
Ride a bike	0%	2%	0%	0%	0%	1%	0%
	N=46	N=42	N=53	N=21	N=16	N=90	N=51

Question: During a typical week, how many days do you typically use each of the following travel methods to get to and from work or school? (Record most used mode based on number of days.)

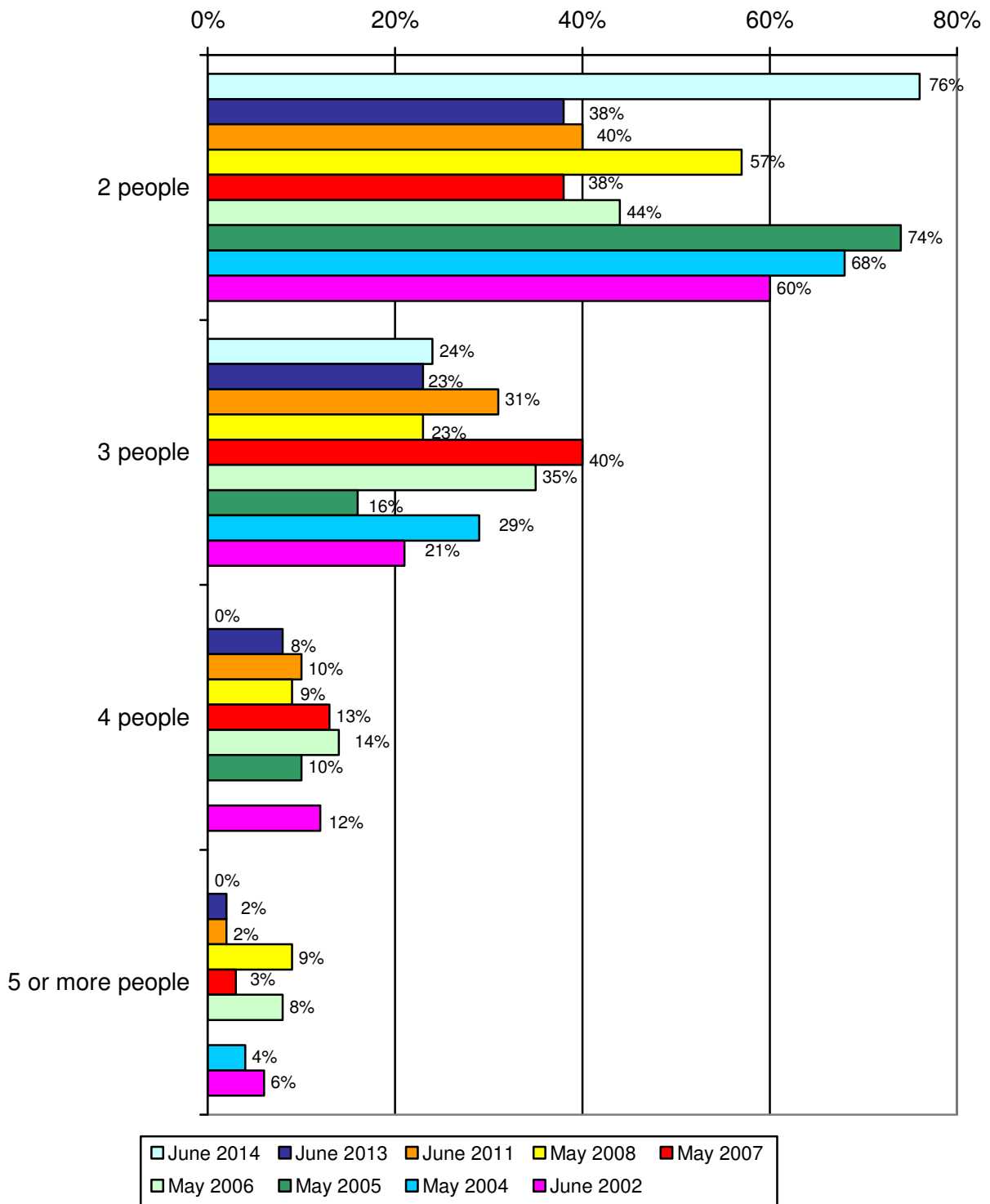
Size of Work or School Commute Carpool – Relative to 2013, the percentage who carpool to work or school in a two-person carpool has increased significantly (from 38% to 76%), while the remaining 24% are in 3 person carpools. Consequently, the average carpool size has decreased from 2.6 to 2.2 people.

Table 27b Size of Work or School Commute Carpool
(Among Those Who Carpool)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
2 people	60%	n/a	68%	74%	44%	38%	57%	40%	38%	76%
3 people	21%	n/a	29%	16%	35%	40%	23%	31%	23%	24%
4 people	12%	n/a	–	10%	14%	13%	9%	10%	8%	0%
5 or more people	6%	n/a	4%	–	8%	3%	9%	2%	2%	0%
Varies	1%	n/a	–	–	–	6%	3%	17%	30%	0%
	N=52	n/a	N=28	N=51	N=52	N=68	N=35	N=48	N=53	N=17

Question: Including yourself, how many people are typically in your carpool?

**Display 27b Size of Work or School Commute Carpool
(Among Those Who Carpool)**



Miles Traveled to Work or School – Compared to 2013, work or school commute distances tend to be longer. As indicated in Table 27c, 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%).

Table 27c Miles Traveled to Work or School
(Among Those Working Outside the Home or Going to School)

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total
5 miles or less	40%	n/a	30%	33%	35%	36%	34%	27%	29%	14%
6 to 10 miles	23%	n/a	21%	20%	24%	25%	26%	28%	32%	26%
11 to 14 miles	9%	n/a	16%	3%	10%	5%	4%	6%	10%	9%
15 or more miles	24%	n/a	28%	32%	29%	28%	24%	38%	23%	41%
Don't know/Not sure	4%	n/a	5%	12%	4%	6%	11%	2%	5%	9%
	N=269	n/a	N=172	N=210	N=219	N=229	N=159	N=169	N=203	N=162

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
5 miles or less	17%	15%	13%	5%	38%	13%	8%
6 to 10 miles	28%	39%	13%	33%	31%	24%	33%
11 to 14 miles	6%	5%	11%	14%	0%	8%	14%
15 or more miles	39%	34%	51%	38%	25%	47%	33%
Don't know/Not sure	9%	7%	11%	10%	6%	8%	12%
	n=46	N=42	N=53	N=21	N=16	N=90	N=51

Question: Approximately how many miles do you travel one-way from your home to the place where you work or go to school?

Reasons for Driving Alone To and From Work or School – As in prior projects, single occupant vehicle commuters who drive alone to and from work or school were asked to explain why.

Up slightly from last year, 27% of single-occupant vehicle commuters each indicate 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%). This is the case regardless of area of residence, and particularly among those with two or more working vehicles in their household.

Fewer indicate that “**convenience**” is the reason they drive alone to and from work or school (20%, down from 33% last year). Geographically, only East residents are *less* likely to cite convenience (5% versus 21%-24% elsewhere). Convenience is mentioned most often by workers at small (<50 employees) or medium (50-100 employees) jobsites.

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 and respondents with the highest annual incomes (\$60,000+).

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.

**Table 27d Reasons For Driving Alone To and From Work or School
(Among Single-Car Commuters)**

	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	06/13 Total	06/14 Total
Irregular work hours	27%	n/a	31%	18%	19%	23%	25%	27%
No one to carpool with	39%	n/a	21%	27%	24%	24%	24%	27%
Like to drive alone	4%	n/a	7%	5%	12%	7%	9%	25%
Convenience	19%	n/a	25%	32%	30%	32%	33%	20%
No bus service in area	4%	n/a	6%	11%	6%	8%	4%	13%
Need car for business	9%	n/a	12%	6%	15%	15%	12%	9%
Personal errands	1%	n/a	3%	7%	3%	7%	7%	2%
Child drop off	3%	n/a	–	4%	1%	4%	6%	2%
Other	5%	n/a	11%	8%	7%	6%	4%	2%
	N=210	n/a	N=145	N=161	N=177	N=178	N=162	N=135

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
Irregular work hours	20%	33%	30%	26%	20%	26%	35%
No one to carpool with	38%	21%	21%	26%	13%	32%	21%
Like to drive alone	25%	27%	23%	26%	33%	25%	21%
Convenience	22%	24%	21%	5%	20%	15%	28%
No bus service in area	12%	6%	21%	10%	13%	8%	21%
Need car for business	8%	9%	7%	16%	7%	11%	5%
Personal errands	2%	0%	5%	0%	0%	4%	0%
Child drop off	2%	0%	2%	0%	0%	3%	0%
Other	0%	6%	2%	0%	0%	4%	0%
	N=40	N=33	N=43	N=19	N=15	N=72	N=43

Question: What is the main reason you drive alone?

Stormwater Perceptions and Practices

Perception of Where Stormwater That Flows Into Tucson Storm Drains Ends Up – Identical to last year, respondents were told that streets in the Tucson area are equipped with storm drains. When asked (to the best of their knowledge) where water that flows into these drains ends up, 49% say a **river or wash** – up from 44% last year. This is especially true in the East zip codes (55% versus 44%-49% elsewhere), as well as among men and those who think that stormwater pollution in Tucson is “not a problem.”

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], with a higher mention 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, women and those who have lived in Pima County for less than five years.

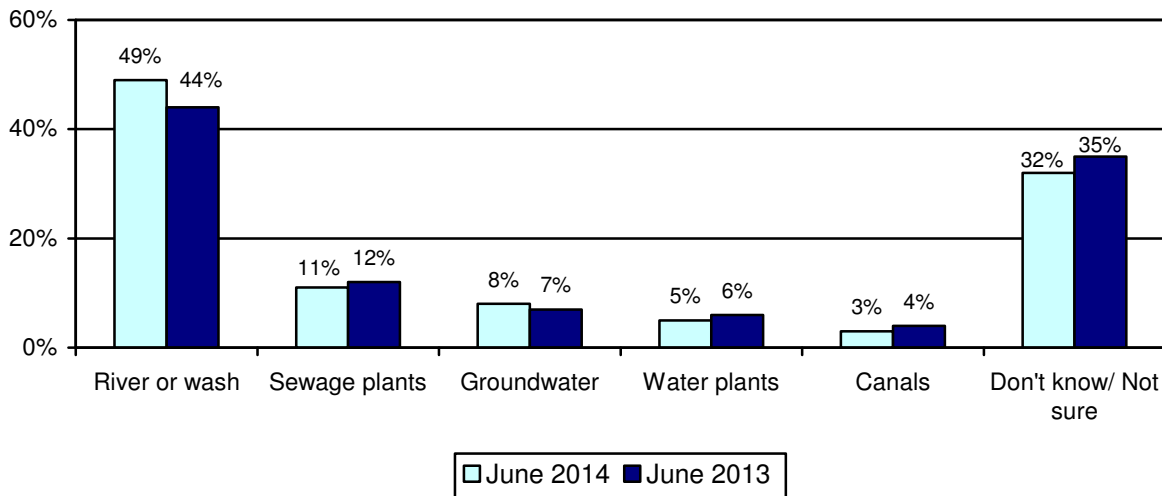
Table 28

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

	06/13 Total	06/14 Total	Area				Stormwater Pollution Problem		
			North- west	Central	South	East	Not a Problem	Moderate Problem	Serious Problem
River or wash	44%	49%	49%	48%	44%	55%	61%	45%	50%
Sewage plants	12%	11%	9%	16%	9%	7%	5%	12%	10%
Groundwater	7%	8%	6%	8%	12%	7%	9%	10%	6%
Water plants	6%	5%	5%	4%	6%	5%	9%	4%	5%
Canals	4%	3%	1%	2%	4%	4%	5%	2%	4%
Don't know/Not sure	35%	32%	33%	28%	36%	28%	20%	33%	33%
	N=504	N=502	N=140	N=141	N=138	N=83	N=56	N=256	N=190

Question: Streets in the Tucson area are equipped with storm drains. To the best of your knowledge, where does the stormwater that flows into these drains end up?

Display 28 Perception of Where Stormwater That Flows Into Tucson Storm Drains Ends Up



Low Impact Development Practices Implemented/Installed at Home or Business – 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, 6-to-10 year Pima County residents, Whites and those with at least some graduate level coursework.)
- **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]. Those who think that stormwater pollution is a “serious” problem are more likely to implement this LID method.)
- **Porous pavements or bricks** (30%, up from 10%. Usage is higher among Northwest residents, non-Hispanic minorities and high income households.)
- **Natural areas protected from clearing and grading** (26%, up from 12%. Increased implementation among Northwest zip residents, progressively higher income households and the newest Pima County denizens [for less than two years].)
- **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 and 6-to-10 year Pima County residents are more likely to have implemented this LID practice.)

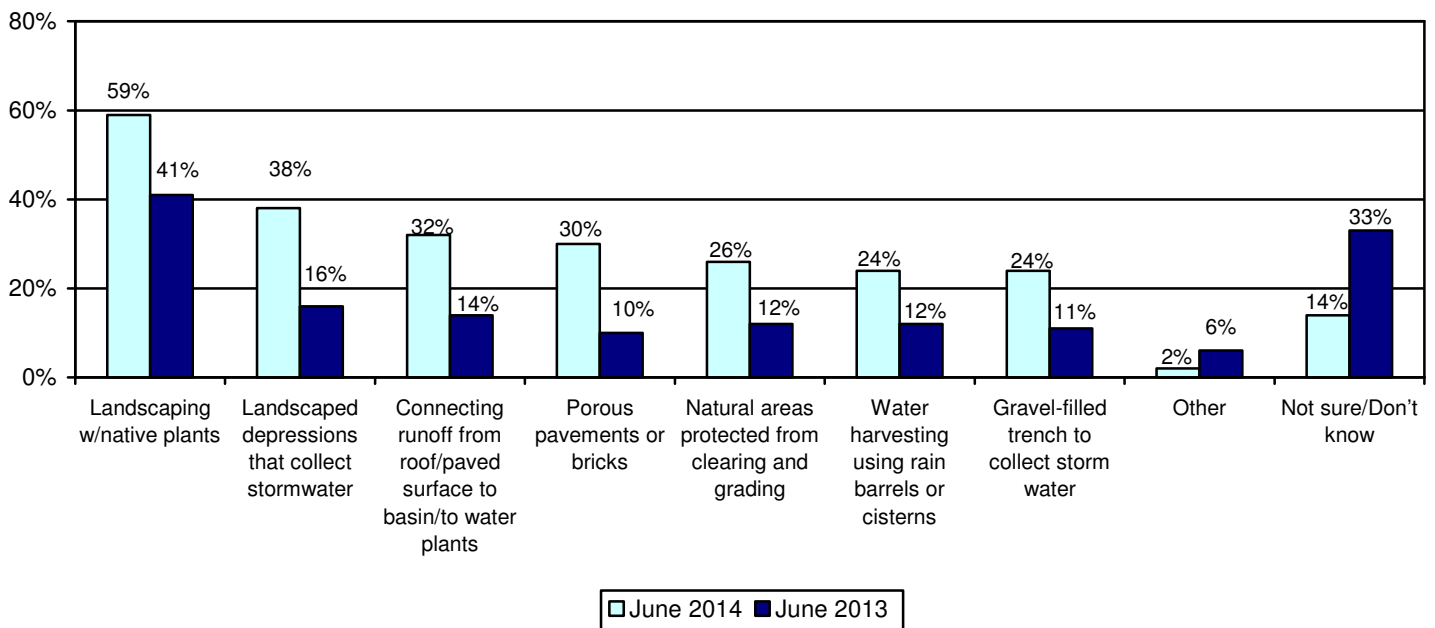
Table 29

**Low Impact Development Practices
Implemented/Installed at Home or Business**

	06/13 Total	06/14 Total	Area				Stormwater Pollution Problem		
			North- west	Central	South	East	Not a Problem	Moderate Problem	Serious Problem
Landscaping with native plants	41%	59%	61%	62%	54%	58%	61%	56%	62%
Landscaped depressions that collect storm water	16%	38%	40%	36%	34%	48%	45%	36%	40%
Connecting runoff from a roof or paved surface to a basin or to water plants	14%	32%	26%	36%	33%	36%	29%	29%	38%
Porous pavements or bricks	10%	30%	37%	30%	23%	26%	29%	30%	30%
Natural areas protected from clearing and grading	12%	26%	33%	21%	25%	25%	36%	25%	24%
Water harvesting using rain barrels or cisterns	12%	24%	25%	21%	28%	24%	18%	22%	30%
A trench that is filled with gravel to collect stormwater	11%	24%	20%	24%	20%	37%	20%	24%	25%
Other	6%	2%	2%	3%	0%	4%	4%	3%	1%
Not sure/Don't know	33%	14%	10%	16%	20%	11%	11%	16%	13%
	N=504	N=502	N=140	N=141	N=138	N=83	N=56	N=256	N=190

Question: I am now going to read you a list of Low Impact Development practices. After each, simply tell me if this practice has been implemented or installed at your home or business.

**Display 29 Low Impact Development Practices
Implemented/Installed at Home or Business**



Perceived Seriousness of Stormwater 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. There are few differences with respect to education level.

As we found last year, residents who perceive that Tucson has a progressively more serious air quality problem are also more apt to think it also has a progressively more severe stormwater pollution problem.

Table 30 Perceived Seriousness of Stormwater Pollution Problem in Tucson Area

	06/13 Total	06/14 Total	Area			
			North- west	Central	South	East
Serious problem (7-9)	41%	38%	33%	34%	46%	40%
Moderate problem (4-6)	43%	51%	56%	57%	41%	49%
Not a problem (1-3)	16%	11%	11%	9%	13%	11%
Average score on 1-9 scale	5.7	5.8	5.6	5.8	6.0	5.7
	N=504	N=502	N=140	N=141	N=138	N=83

Question: On a scale of “1-to-9” where “9” means “a serious problem” and “1” means “not a problem,” how much of a problem do you think there is in the Tucson area with polluting materials entering storm drains? You can give me any number between “1” and “9.”

Rating of Various Contributors to Stormwater Pollution in the Tucson Area – Like the 2013 study, survey respondents used a “1-to-9” scale to rate various contributors to the stormwater pollution problem in the Tucson area. Overall, for each item evaluated, the degree of perceived seriousness was directly related to the severity of the stormwater pollution problem in the Tucson area.

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]. Women and newer Pima County residents [for less than five years] are more likely to consider lawn/garden waste a contributor to stormwater pollution.)
- **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, women, 16 to 25 year-olds and non-Whites 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, women, Hispanics and households with progressively lower incomes.)
- **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], and higher among women, non-Whites and Pima County residents for less than five years.)
- **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 and women 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%) – resulting in a 4.9 average score. South residents and non-Whites are more apt to perceive that household trash contributes to stormwater pollution.

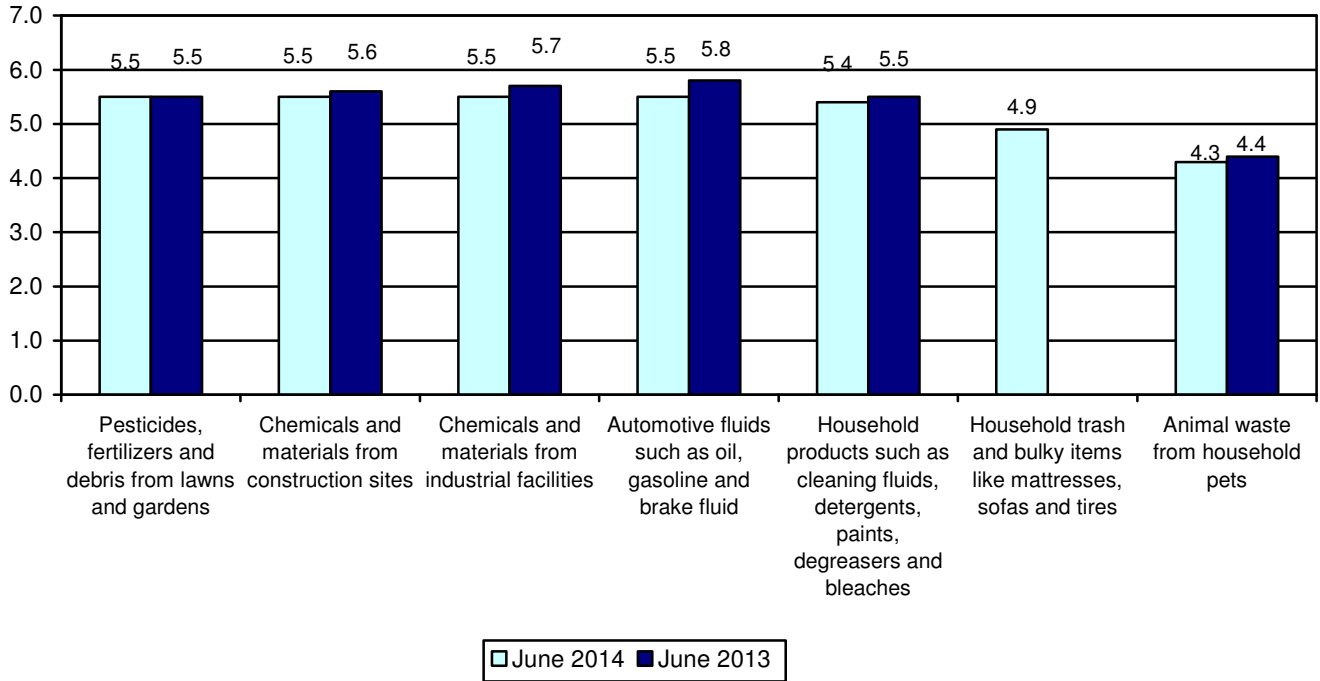
Consistent with last year, more than four of ten do not believe that **animal waste from household pets** contributes to stormwater pollution (43%). Among those who do, 23% continue to say it is a “serious problem” (4.3 average score, down slightly from 4.4).

Table 31 Rating of Various Contributors to Stormwater Pollution Problem in Tucson Area

(6/14 N=502) (6/13 N=504)	Serious Problem	Moderate Problem	Not a Problem	Average Score on 1-9 Scale
Pesticides, fertilizers and debris from lawns and gardens				
6/14	39%	38%	22%	5.5
6/13	37%	42%	22%	5.5
Chemicals and materials from construction sites				
6/14	38%	39%	23%	5.5
6/13	39%	42%	19%	5.6
Chemicals and materials from industrial facilities				
6/14	38%	38%	24%	5.5
6/13	40%	38%	21%	5.7
Automotive fluids such as oil, gasoline and brake fluid				
6/14	38%	37%	24%	5.5
6/13	45%	34%	21%	5.8
Household products such as cleaning fluids, detergents, paints, degreasers and bleaches				
6/14	34%	43%	23%	5.4
6/13	38%	39%	23%	5.5
Household trash and bulky items like mattresses, sofas and tires				
6/14	29%	40%	31%	4.9
Animal waste from household pets				
6/14	23%	35%	43%	4.3
6/13	23%	36%	41%	4.4

Question: Using same “1-to-9” scale – where “9” means “a serious problem” and “1” means “not a problem” - how much do you think each of the following contributes to the problem of stormwater pollution in the Tucson area? You can give me any number between “1” and “9.”

Display 31 Rating of Various Contributors to Stormwater Pollution Problem in Tucson Area (By Average Score on 1-9 Scale)



Methods Used to Dispose of Various Types of Household Hazardous Wastes –
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, 56 to 65 year-olds, Whites and those progressively more formally educated 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], and highest among 36 to 65 year-olds, Whites and college graduates or better.)
- **Service station** (32%, up from 21% in 2013. East residents and men 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, and 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).

Regardless of the perception of the severity of the stormwater pollution problem, the largest share claim to dispose of household hazardous waste by visiting a collection site – followed by taking them to an auto parts store. Waste disposal by putting them in the garbage is similar regardless of stormwater pollution perception.

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%).

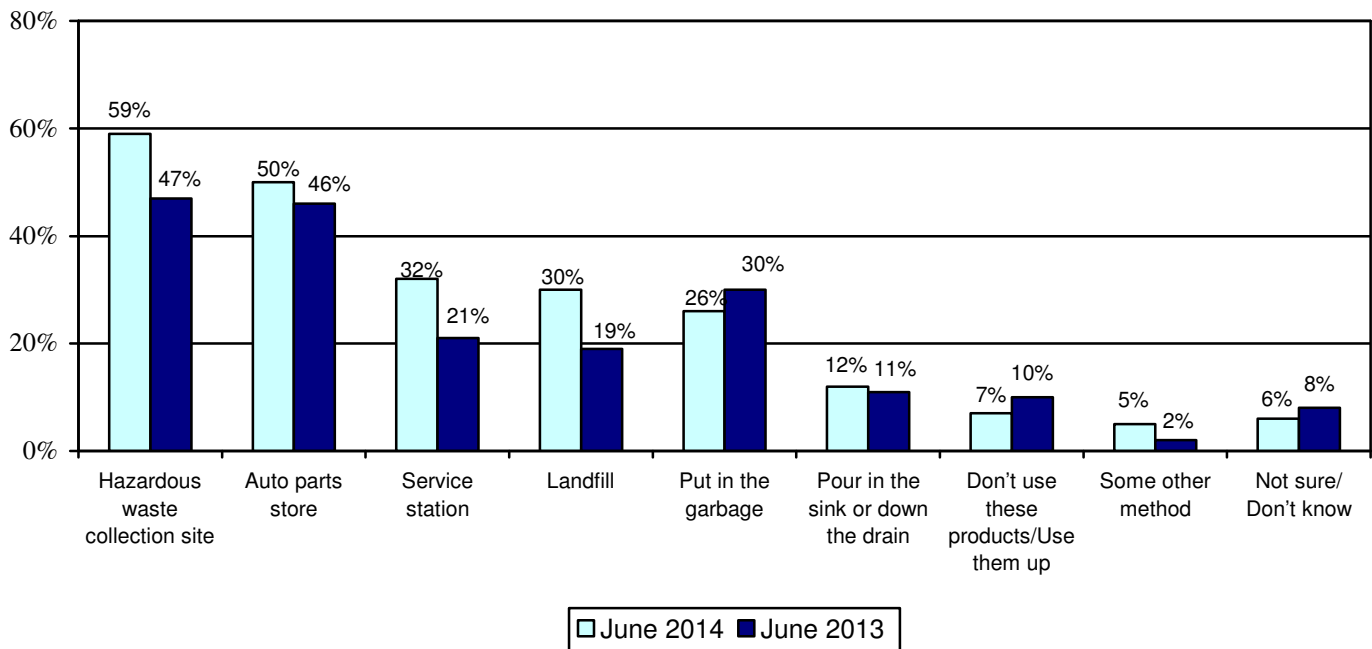
Table 32

**Methods Used to Dispose of
Various Types of Household Hazardous Waste**

	06/13 Total	06/14 Total	Area				Stormwater Pollution Problem		
			North- west	Central	South	East	Not a Problem	Moderate Problem	Serious Problem
Hazardous waste collection site	47%	59%	64%	54%	56%	65%	59%	58%	61%
Auto parts store	46%	50%	54%	45%	49%	52%	54%	51%	46%
Service station	21%	32%	30%	34%	30%	37%	29%	35%	30%
Landfill	19%	30%	31%	24%	40%	22%	34%	27%	33%
Put in the garbage	30%	26%	31%	27%	22%	22%	29%	25%	26%
Pour in the sink or down the drain	11%	12%	9%	15%	12%	11%	2%	13%	13%
Don't use these products/Use them up	10%	7%	6%	8%	7%	7%	5%	6%	8%
Some other method	2%	5%	6%	4%	4%	5%	4%	5%	5%
Not sure/Don't know	8%	6%	6%	5%	6%	5%	4%	6%	6%
	N=504	N=502	N=140	N=141	N=138	N=83	N=56	N=256	N=190

Question: I am now going to read you a list of different methods that people use to dispose of items such as household chemicals, automotive fluids and lawn & garden chemicals. After each, simply tell me if you or someone in your household use this method to dispose of these items.

Display 32 Methods Used to Dispose of Various Types of Household Hazardous Waste



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%), as well as among the youngest or oldest respondents.

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%).

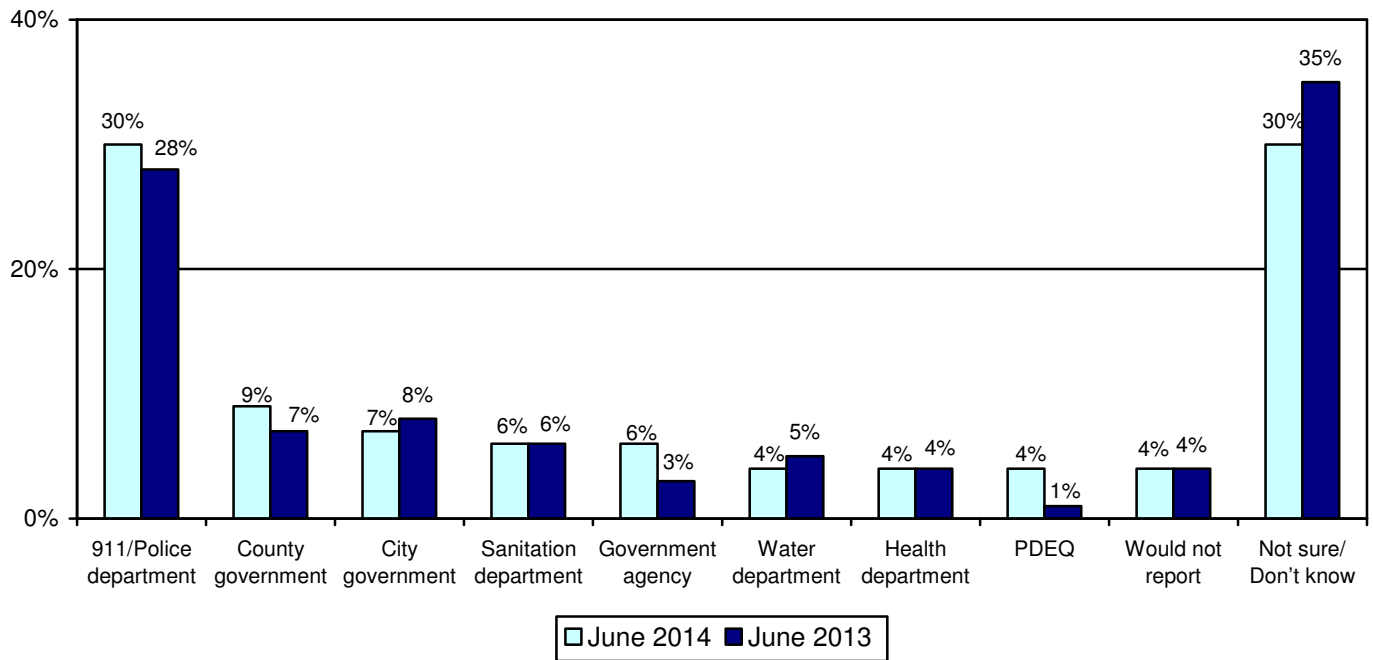
Unchanged since 2013, only 4% say they would *not* report illegal disposal or dumping.

Table 33 Government Entity to Call If Witness Someone Dumping Trash or Chemicals in a Storm Drain

	06/13 Total	06/14 Total	Area				Stormwater Pollution Problem		
			North- west	Central	South	East	Not a Problem	Moderate Problem	Serious Problem
911/Police department	28%	30%	26%	27%	38%	30%	30%	32%	29%
County government	7%	9%	8%	8%	9%	8%	11%	6%	12%
City government	8%	7%	5%	11%	4%	7%	5%	6%	8%
Sanitation department	6%	6%	7%	6%	4%	7%	7%	6%	6%
Government agency	3%	6%	6%	7%	4%	6%	2%	6%	6%
Water department	5%	4%	3%	6%	4%	6%	2%	4%	5%
Health department	4%	4%	2%	6%	1%	6%	5%	4%	3%
PDEQ	1%	4%	4%	5%	2%	4%	2%	4%	4%
EPA	2%	3%	4%	2%	3%	4%	2%	4%	3%
Would not report	4%	4%	2%	6%	5%	0%	5%	3%	4%
Not sure/Don't know	35%	30%	39%	25%	24%	34%	23%	33%	27%
	N=504	N=502	N=140	N=141	N=138	N=83	N=56	N=256	N=190

Question: If you saw someone dumping trash or chemicals into a storm drain or a wash and wanted to report them, who would you call to report the incident?

Display 33 Government Entity to Call If Witness Someone Dumping Trash or Chemicals in a Storm Drain



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:

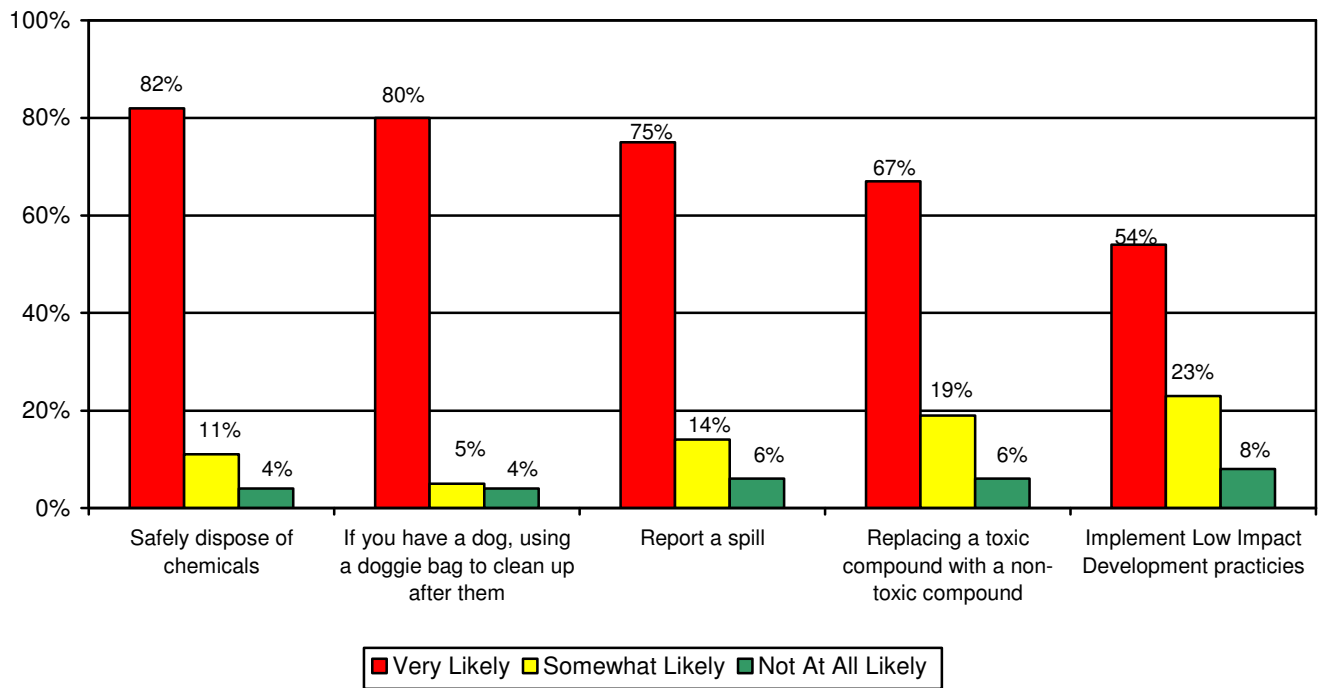
- **Safely dispose of chemicals** (82% “very likely” versus 4% “not at all likely.” This is the case regardless of geography.)
- **If you have a dog, using a doggie bag to clean up after them** (80% “very likely” versus 4% “not at all likely.” The percentage of “very likely” participation is slightly 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].)

Table 34 Likelihood of Taking Part in Various Activities
To Help Keep Stormwater Clean

(6/14 N=502)	Very Likely	Somewhat Likely	Not At All Likely	Don't Know/ Not Sure
Safely dispose of chemicals	82%	11%	4%	3%
If you have a dog, using a doggie bag to clean up after them	80%	5%	4%	11%
Report a spill	75%	14%	6%	5%
Replacing a toxic compound with a non-toxic compound	67%	19%	6%	8%
Implement Low Impact Development practices	54%	23%	8%	15%

Question: I am now going to read you a list of activities that people can do to help keep stormwater clean. As I read each activity, simply tell me how likely you would be to take part – very likely, somewhat likely or not at all.

Display 34 Likelihood of Taking Part in Various Activities to Help Keep Stormwater Clean



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

Appendix

**Survey
Methodology
and Sample
Selection**

This survey consists of a 502-person, randomly-selected and statistically-projectable sample of the 16 years and older male and female target audience in designated Pima County zip code areas. The interviews were distributed on the basis of geographic population density in the market – with specific steps taken to ensure a proportionate number of interviews in each survey “region.” The sample distribution in each region was developed using recent population estimate projections. The final in-tab geographic proportions are reflective of these actual population estimates. A similar sampling plan (based on household distribution) was also developed to ensure the ethnic composition of the final sample was as close as possible to actual proportions in Pima County.

All interviews were conducted by telephone, during early June 2014. Respondents included in this survey were selected through a random sampling procedure that allows equal probability of selection. This technique ensures that area residents who are not yet listed in a telephone directory (or choose not to be listed) are still eligible for selection. Neither the interviewer nor the interviewee had any knowledge of the study sponsor. All interviews were conducted and validated by the FMR Field staff.

Where relevant, respondents were asked if they preferred the interview to be conducted in English or Spanish. A Spanish-language version of the survey was developed by FMR Associates. A total of 164 non-White respondents were interviewed in the project, including 121 Hispanics. Overall, 9 respondents (2%) requested that their survey be conducted in Spanish by a bilingual interviewer. This is consistent with the 2013 survey (2%). Each telephone interview lasted approximately 16 minutes.

Cell Phone Only Households – To address “cell phone only” households (households without a land line that utilize a cell phone exclusively), FMR interviewers manually dialed randomly-generated cell phone numbers (based on known cell phone exchanges) and attempted to interview these households. Potential respondents reached through manual dialing were given three options: to proceed with the interview using their cell

phone provider's calling plan minute allocations; allow for a call-back at a mutually arranged time on a land line; or to call the cell phone back when minutes are "free" (i.e., weekends, evenings, etc.).

Statistical Reliability

The statistics in this report are subject to a degree of variation that is determined by sample (or sub-sample) size. All research data are subject to a certain amount of variation for this reason. This does not mean that the figures represented in the various tables are wrong. It means that each percentage represents a possible "range" of response. This is because the random sampling process, as well as human behavior itself, can never be perfect. For this sample, at N=500, the statistical variation is $\pm 4.5\%$ under the most extreme circumstances – with a 95% confidence level. That is, when the percentages shown in the tables are near 50% (the most conservative situation), the actual behavior or attitude may range from 45.5% to 54.5%. The 95% confidence level means that if the survey were repeated 100 times, in 95 cases the same range of response would result. Those percentages that occur at either extreme (for example, 10% or 90%) are subject to a smaller degree of statistical fluctuation (in this case, $\pm 2.7\%$).

Sub-samples, such as age groups or sex, have a higher degree of statistical fluctuation due to the smaller number of respondents in those groupings.

Confidence Intervals for a Given Percent
(at the 95% confidence level)

N (Base for %)	Reported Percentage				
	10 or 90%	20 or 80%	30 or 70%	40 or 60%	50%
500	2.7%	3.6%	4.1%	4.4%	4.5%
400	2.9%	3.9%	4.5%	4.8%	4.9%
300	3.3%	4.5%	5.1%	5.5%	5.7%
200	4.2%	5.5%	6.4%	6.8%	6.9%
100	5.9%	7.8%	9.0%	9.6%	9.8%
50	8.3%	11.1%	12.7%	13.6%	13.9%
25	11.8%	15.7%	18.0%	19.2%	19.6%

Example: If the table shows that 20% of all respondents (when N=500) have a positive or negative attitude about a question category, the chances are 95 out of 100 that the true value is 20% ± 3.6 percentage points; that is, the range of response would be 16.4% to 23.6%.

Significance of Difference Between Percentages
(at the 95% confidence level)

Average of the Bases of Percentages Being Compared	Reported Percentage				
	10 or 90%	20 or 80%	30 or 70%	40 or 60%	50%
400	4.4%	5.6%	6.5%	7.1%	7.2%
250	5.2%	7.1%	8.1%	8.6%	8.8%
200	5.9%	7.8%	8.9%	9.6%	9.8%
150	6.8%	9.1%	10.3%	11.0%	11.3%
100	8.3%	11.0%	12.7%	13.6%	13.9%
50	11.7%	15.7%	18.0%	19.2%	19.7%
25	16.7%	22.2%	25.5%	27.2%	27.7%

Example:
(Within Survey)

If a table indicates that 34% of women have a positive attitude toward a category of response, and that 25% of men have the same attitude, the following procedure should be used to determine if this attitude is due to chance:

The average base is 250 for the reported percentages $(253+249)/2=251$. The average of the percentages is 30.0% – $(34+25)/2=29.5\%$. The difference between the percentages is 9%. Since 9% is greater than 8.1% (the figure in the table for this base and this percentage), the chances are 95 out of 100 that the attitude is significantly different between women and men.

2014 PIMA AIR QUALITY/STORMWATER REGION DEFINITIONS

Northwest: 85653
85654
85658
85704
85705
85737
85739
85741
85742
85743
85745
85755
85652
85738

Central: 85710
85711
85712
85716
85718
85719

South: 85321
85614
85622
85629
85634
85641
85701
85706
85707
85708
85713
85714
85735
85736
85746
85756
85757
85601
85633
85639

East: 85619
85715
85730
85747
85748
85749
85750