EVALUATION OF THE 2014-2015 PIMA COUNTY CLEAN AIR PROGRAM CAMPAIGN AND CLEAN STORMWATER CAMPAIGN SURVEY

(May 2015)

Prepared for:

PIMA COUNTY DEPARTMENT OF
ENVIRONMENTAL QUALITY

Tucson, Arizona

Prepared by:

FMR ASSOCIATES, INC.

Tucson, Arizona

6045 East Grant Road Tucson, Arizona 85712 Telephone: (520) 886-5548 Fax: (520) 886-9307

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(May 2015)

Digest of the Contents

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Appendix

EVALUATION OF THE 2014-2015 PIMA COUNTY CLEAN AIR PROGRAM CAMPAIGN AND CLEAN STORMWATER CAMPAIGN SURVEY

(May 2015)

Detailed Perceptual Tables

Explanation of Detailed Perceptual Table Format

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Detailed Perceptual Tables (Cont'd)

EVALUATION OF THE 2014-2015 PIMA COUNTY CLEAN AIR PROGRAM CAMPAIGN AND CLEAN STORMWATER PROGRAM CAMPAIGN SURVEY

(May 2015)

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 2014-2015 Clean Air and Clean Stormwater Program Campaigns.

This study is a continuation of the Pima County Department of Environmental Quality's long-term effort to raise the level of public awareness regarding air quality problems in the Tucson metropolitan area and reduce air pollution by encouraging use of alternative modes of transportation and other options. The Clean Air Program Campaign is the 25th annual installment of this long-term effort which began in January 1989. In addition, the study measured and tracked key issues related to stormwater management and hazardous waste disposal for PDEQ's Stormwater Program.

Areas of Investigation – The tracking survey was implemented and the results analyzed so as to determine the success of the Campaigns 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. Tracking the perception or awareness of the destination of stormwater, perceived seriousness of pollutants entering storm drains – as well as the degree to which specific pollutants contribute to the problem of stormwater pollution. Tracking the level of awareness of Low Impact Development (LID) practices in homes and businesses. Assessing the demographics of the people whose perceptions do not match the facts, namely that stormwater flows into washes and animal waste from household pets is a serious problem.

7. Tracking actions impacting stormwater quality, including disposal methods of household products, reporting dumping to a government entity and willingness to take selected actions to improve stormwater quality. Assessing the demographics of people pouring chemicals in the sink or drain, people unsure or unlikely to report dumping, and people unlikely to choose an activity that keeps stormwater clean. Determining government entity most likely to be contacted in the event of witnessing the dumping of trash or 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 (250) and online (250) during May 2015. 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 – Consistent with prior surveys, 98% of interviews were conducted in English. The remaining 2% (or 10 surveys overall) were Spanish-language interviews – including 7 Telephone (3%) and 2 Internet (1%). Each of the Spanish-language surveys were conducted among self-identified Hispanics who live in the Central or South zip code regions. (Turn to Table 4 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	**05/15 Total**	Sample	
										Telephone	Internet
English	98%	99%	96%	99%	99%	98%	98%	98%	**98%**	97%	99%
Spanish	2%	1%	4%	1%	1%	2%	2%	2%	**2%**	3%	1%
	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502	**N=500**	N=250	N=250

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

Method of Interview – Per the sampling plan for the 2015 study, interviews were conducted both online and via the telephone (250 each, for a combined in-tab of 500 respondents). All prior projects were 100% telephone interviews. Internet surveys were conducted utilizing a panel company which sent a link to randomly-selected panelists (who opt in to receive invitations and are provided an incentive of some sort to participate in surveys for which they qualify). Telephone survey respondents were randomly-selected for participation, with interviews conducted by the FMR field staff. The two methodologies utilized the same screening criteria (Pima County residents 16 or older who live in specific zip codes) and survey instrument. The only difference in the survey design relates to questions with unaided responses. Specifically, in the Telephone survey, unaided question response options are not read to respondents – whereas, in the Internet surveys, all response options are provided to respondents to choose from.

Table 2 Method of Interview

	05/15 Total
Telephone	**50%**
Internet	**50%**
	N=500

Self-Identified Ethnicity – Consistent with prior surveys, there were specific sampling quotas for the Telephone sub-sample in terms of self-identified ethnicity. The ethnicity composition of the 2015 Telephone sample breaks down as follows: 67% White, 26% Hispanic, 3% African-American, 2% Native American and 2% Asian/Pacific Islanders. These totals are consistent with Telephone sampling quotas – including the highest percentage of Hispanics compared to recent years. While the Internet sub-sample did not include an ethnicity quota, it did include 23% non-Whites (including 15% Hispanics). Among the total sample, the highest percentage of non-Whites live in the South zip code region (41%).

Table 3 Racial Background of Respondents

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
White	76%	77%	75%	76%	78%	74%	71%	67%	**72%**	67%	78%
Hispanic	19%	19%	20%	19%	17%	20%	24%	24%	**20%**	26%	15%
African-American	2%	2%	2%	2%	1%	2%	3%	5%	**3%**	3%	3%
Native American	2%	2%	1%	2%	2%	4%	2%	2%	**3%**	2%	3%
Asian, Pacific Islander	1%	1%	2%	2%	2%	1%	1%	2%	**2%**	2%	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 – Overall, the geographic distribution of the sample (regardless of interview method) is very consistent with the sampling plan: 31% Central, 27% Northwest, 27% South and 15% East. As in past surveys, sampling quotas for the telephone sub-sample were based on population density in Pima County. There were no geographic quotas for the Internet sub-sample.

Table 4 Area of Residence

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

	Air Quality Problem			Sample	
	Major	Moderate	Minor	Telephone	Internet
Central 85710 85711 85712 85716 85718 85719	28%	35%	23%	30%	32%
Northwest 85653 85654 85658 85704 85705 85737 85739 85741 85742 85743 85745 85755 85652 85738	28%	26%	30%	27%	28%
South 85321 85614 85622 85629 85634 85641 85701 85706 85707 85708 85713 85714 85735 85736 85746 85756 85757 85341 85601 85633 85639	24%	25%	31%	28%	25%
East 85619 85715 85730 85747 85748 85749 85750	20%	14%	16%	15%	15%
	N=71	N=285	N=122	N=250	N=250

Gender – The 2015 Telephone sub-sample is divided equally between men and women. This is consistent with last year. Again, there was only one telephone survey conducted per household and all respondents contacted to participate were further randomized by interviewing "the male or female in your household who is 16 or older and most recently celebrated a birthday." The Internet sub-sample skews female (65%), which is typical for most online surveys. As a result, the combined 2015 sample is comprised of 58% women and 42% men. This gender mix is consistent regardless of geographic area.

Table 5 Gender of Respondents

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
Men	45%	46%	46%	44%	47%	44%	45%	50%	**42%**	50%	35%
Women	55%	54%	54%	56%	53%	56%	55%	50%	**58%**	50%	65%

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 Distribution – In line with the last two surveys, one-half of the 2015 Telephone sub-sample is 26 to 55. Among the rest, more telephone respondents are older (56+) (40%) than younger (under 26) (10%). By comparison, the Internet sub-sample skews younger (with 22% under the age of 26) – with fewer 66+ (17% versus 24% in the Telephone sample). Consequently, the median age of the Internet sample is younger (45.7 years) than the Telephone sample (49.7 years). This finding is consistent with our other split-methodology studies.

Table 6 Age of Respondents

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
16 to 25	15%	15%	13%	14%	10%	10%	13%	10%	**16%**	10%	22%
26 to 35	13%	16%	18%	16%	17%	15%	19%	17%	**16%**	17%	16%
36 to 45	16%	19%	17%	17%	20%	19%	19%	18%	**15%**	18%	12%
46 to 55	14%	14%	13%	16%	17%	16%	14%	15%	**14%**	15%	12%
56 to 65	16%	13%	13%	14%	14%	15%	14%	16%	**18%**	16%	20%
66 to 75	16%	15%	16%	14%	15%	17%	15%	16%	**15%**	16%	14%
76 or over	9%	8%	9%	8%	6%	8%	6%	8%	**6%**	8%	3%

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

Length of Residence – More than six of ten indicate that they have lived in Pima County for 11 or more years (64%), including a similar share of Telephone (62%) and Internet (66%) survey respondents. Among the rest, one of four are 2-to-5 (11%) or 6-to-10 (13%) year residents. Up from recent surveys, 8% are "new" Pima County residents (for less than two years). The balance (4%) are part-year residents, who are more likely to live in the Northwest zips.

Table 7 Length of Residence in Pima County

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
Part year	6%	9%	5%	6%	2%	3%	8%	3%	**4%**	5%	3%
Less than 2 years	5%	9%	4%	6%	4%	2%	6%	6%	**8%**	6%	9%
2 to 5 years	10%	18%	10%	15%	16%	10%	9%	12%	**11%**	13%	10%
6 to 10 years	10%	14%	11%	13%	12%	12%	14%	14%	**13%**	14%	12%
11 or more years	69%	49%	70%	60%	65%	73%	62%	66%	**64%**	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 – Overall, 34% of survey respondents (regardless of interview method) indicate that someone in their household suffers from a breathing-related medical condition. This is down slightly from the last two years (37%-38%), but still higher than we found in 2011 (33%). Allowing for multiple mentions, 18% report that they themselves suffer from a breathing-related medical condition – while 22% indicate that children (9%) or other family members (13%) are similarly afflicted.

East region residents have the highest incidence of one or more household members being impacted by a breathing-related medical condition (46%). In line with prior surveys, there is a very strong correlation between the incidence of impacted household members and the perception of a progressively more serious air quality problem in the Tucson area.

Table 8 Household Member With Breathing-Related Medical Condition

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
Yes	36%	34%	40%	37%	37%	33%	37%	38%	**34%**	36%	34%
Respondent	(17%)	(16%)	(16%)	(15%)	(19%)	(14%)	(19%)	(20%)	**(18%)**	(17%)	(19%)
Children	(11%)	(11%)	(12%)	(14%)	(11%)	(12%)	(12%)	(10%)	**(9%)**	(10%)	(8%)
Other family member	(16%)	(14%)	(19%)	(19%)	(17%)	(15%)	(16%)	(16%)	**(13%)**	(12%)	(14%)
No	64%	65%	59%	62%	62%	66%	62%	59%	**64%**	63%	64%
Don't know/ Not sure	0%	1%	1%	1%	1%	1%	1%	3%	**2%**	1%	2%
	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502	**N=500**	N=250	N=250

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 – The percentage of households with three or more motor vehicles owned or leased has continued to progressively decline over the last three surveys, from 27% in 2013 to 17% now. At the same time, the share of single-vehicle households has climbed from 28% in 2013 to 36% in 2015. Four of ten households report having two motor vehicles (up from 38% last year). In line with 2014 findings, 8% (more often Central residents) say that no one in their household owns or rents a motor vehicle in working condition. There are generally few differences in vehicle ownership between Telephone and Internet respondents. Single vehicle households are more common in the Central region, while East residents are more apt to be multi-vehicle (3+) households.

Table 9 Number of Motor Vehicles Owned or Leased

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
No working cars	7%	3%	2%	4%	6%	5%	6%	9%	**8%**	6%	10%
One	34%	28%	30%	27%	30%	25%	28%	32%	**36%**	35%	36%
Two	36%	42%	43%	44%	40%	46%	40%	38%	**40%**	38%	41%
Three or more	23%	27%	24%	26%	24%	24%	27%	21%	**17%**	21%	12%

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

Education Level – Similar to last year (and regardless of sample methodology), three of four survey respondents have at some college level education. Telephone respondents are more likely to be college graduates (35% versus 21% of Internet panelists), while the largest share of Internet respondents have some college (but no degree) (36% versus 27% of Telephone). However, regardless of methodology, 17% have some graduate work or hold an advanced degree. East region residents are more apt to be college graduates or better.

Among the rest, more are high school graduates (16%) than have less than a high school diploma (7%). This is true regardless of sample methodology.

Table 10 Education Level of Respondents

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
Less than high school	12%	5%	10%	8%	8%	9%	8%	9%	**7%**	6%	7%
Completed high school/Trade school	24%	18%	24%	19%	19%	18%	19%	13%	**16%**	14%	18%
Some college	26%	28%	25%	25%	29%	26%	28%	28%	**31%**	27%	36%
College graduate	24%	29%	23%	31%	27%	28%	29%	29%	**28%**	35%	21%
Some graduate work or graduate degree	13%	20%	16%	16%	15%	18%	14%	18%	**17%**	17%	18%

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

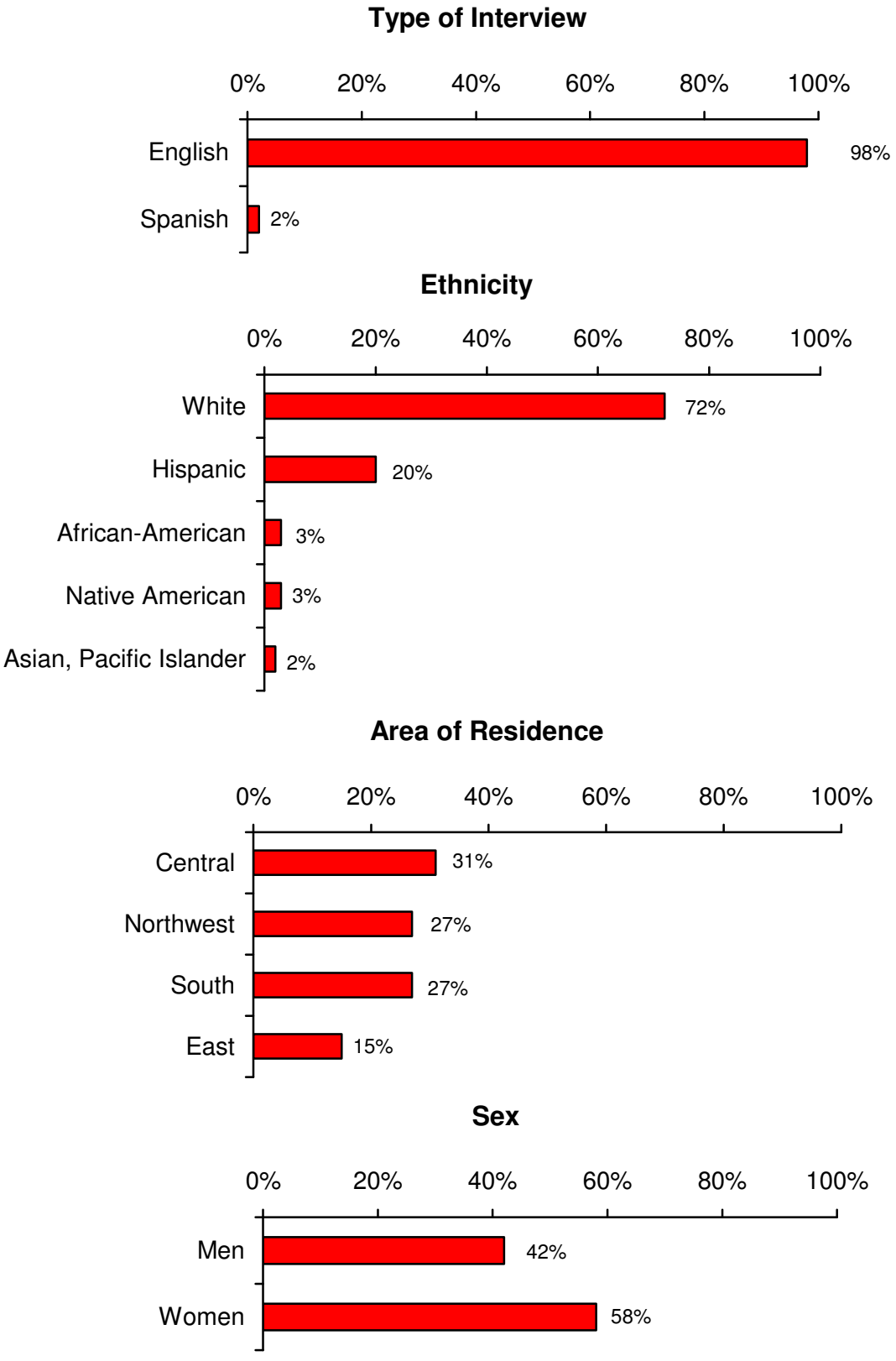
Annual Household Income – Overall, 13% refused to divulge their broad annual household income category (down from 20% in 2014). These tend to be Telephone respondents (18% versus 7% of Internet panelists). The median household income of Telephone respondents is $52,671 (off slightly from $57,419 in 2014) – much higher than Internet panelists ($37,991). Among all 2015 respondents, median household income is $43,827. Those in the $80,000+ household income category tend to reside in the East zips.

Table 11 Household Income

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
Less than $15,000	13%	8%	7%	5%	8%	5%	9%	8%	**12%**	12%	11%
$15,000 to $24,999	14%	10%	12%	8%	9%	7%	9%	10%	**14%**	10%	17%
$25,000 to $39,999	18%	18%	12%	15%	16%	15%	16%	9%	**16%**	10%	21%
$40,000 or more*	32%	48%	49%	50%	49%	47%	46%	53%	**46%**	49%	43%
No answer/Refused	23%	16%	20%	21%	18%	25%	21%	20%	**13%**	18%	7%
* $40,000 to $59,999	14%	19%	20%	16%	19%	13%	15%	15%	**14%**	13%	15%
$60,000 to $79,999	9%	10%	11%	12%	12%	12%	10%	11%	**11%**	11%	11%
$80,000 or more	9%	19%	18%	22%	18%	22%	21%	27%	**21%**	25%	17%

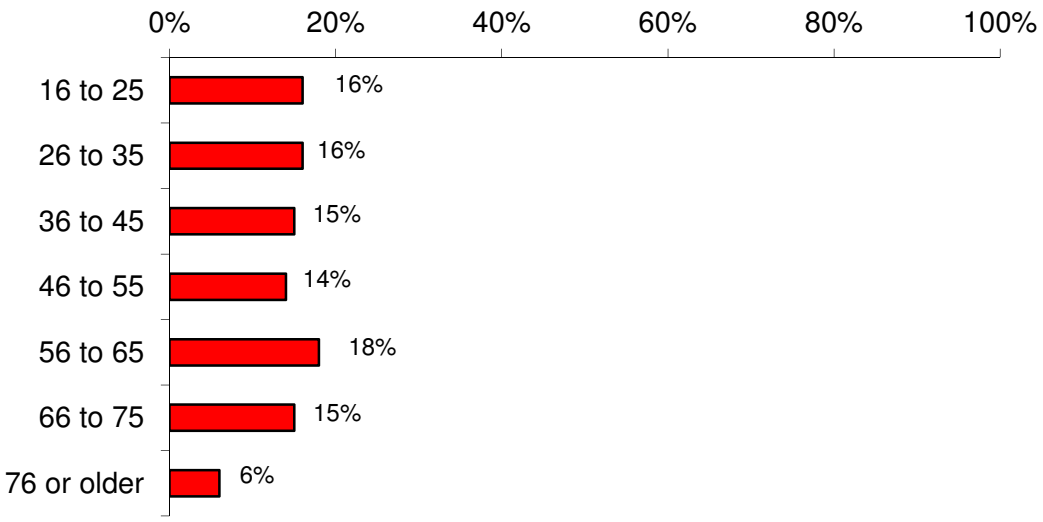
Question: As I read the following categories, please tell me into which group your total annual household income falls. We are not interested in your exact income, just your household income category...from all sources before taxes.

Display 1 **Demographic Profile of Respondents**
(Among the Total Sample)

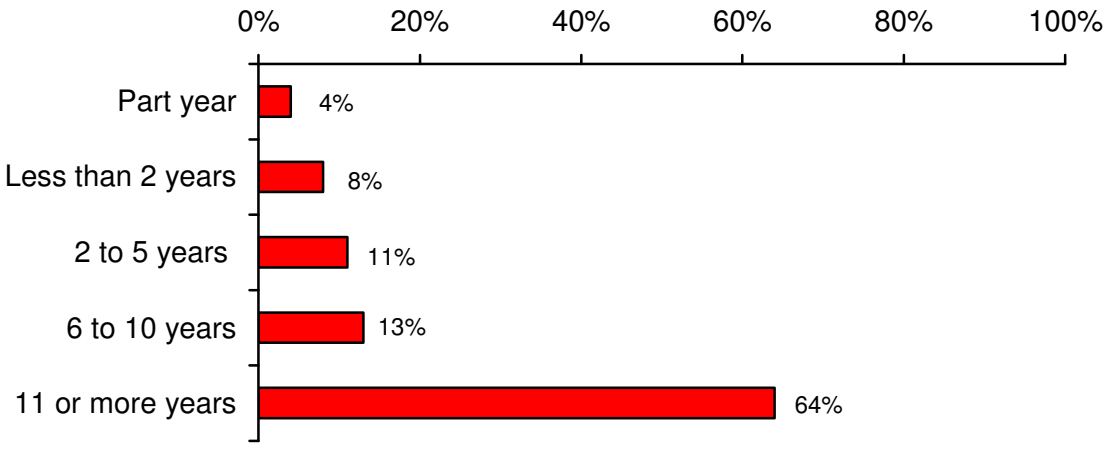


Display 1 (Cont'd) **Demographic Profile of Respondents**
(Among the Total Sample)

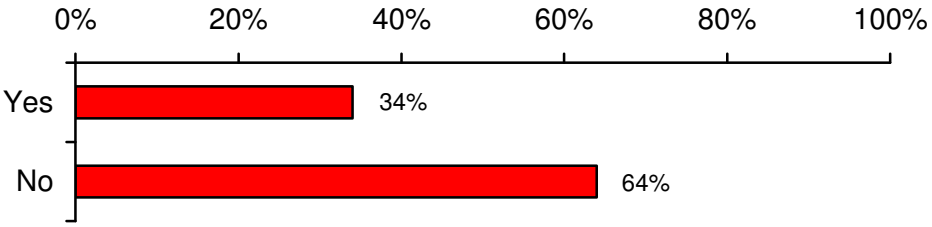
Age



Length of Pima County Residence

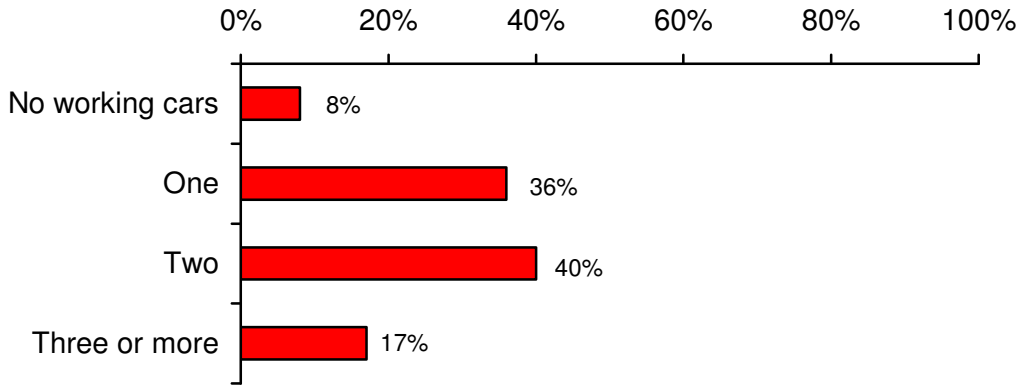


Household Member With Breathing-Related Medical Condition

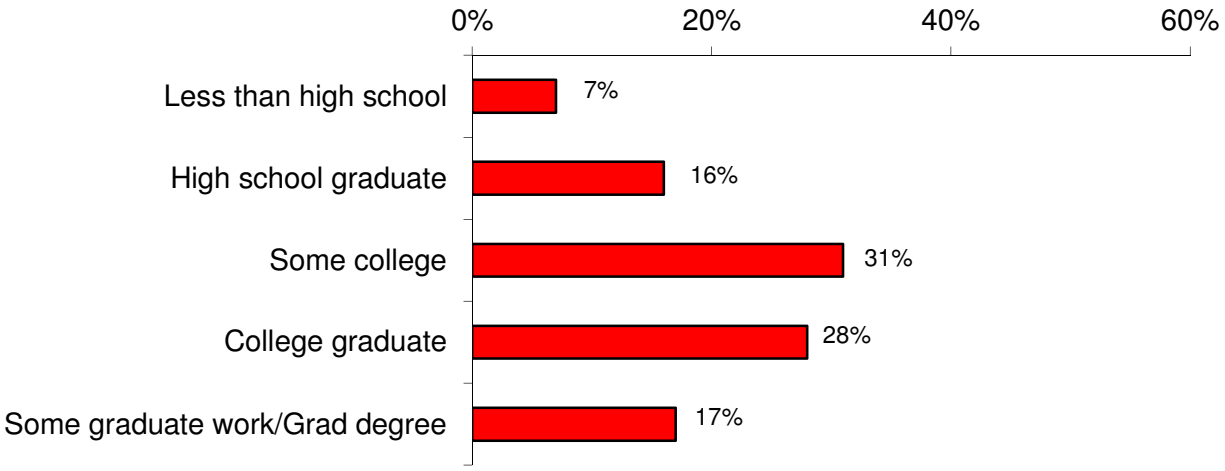


Display 1 (Cont'd) **Demographic Profile of Respondents**
(Among the Total Sample)

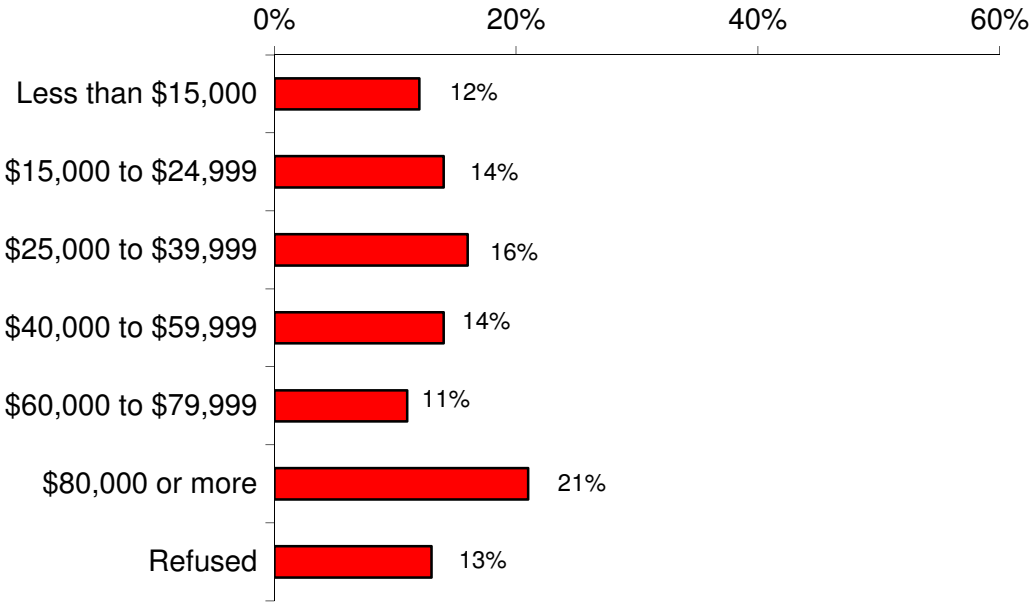
Number of Vehicles



Education Level



Household Income



Awareness of Information About Air Quality/Pollution

Awareness of the Pima County "Clean Air" Program – Overall, 45% are familiar with the Pima County "Clean Air" Program, with few differences between Telephone (46%) and Internet (44%) respondents. This is down from 2014 awareness levels (52%), but still higher than we found in 2013 (43%).

Awareness is highest in the Northwest (52%) and South (48%) zip codes, as well as among those who perceive that the Tucson area has a progressively more severe air quality or stormwater pollution problem. Program awareness is higher among Whites (47%) as compared to Hispanics (38%) and non-Hispanic minorities (36%). There are fewer differences in awareness with respect to gender or education, and among those 26 or older.

Table 12 Awareness of the Pima County "Clean Air" Program

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
Yes	48%	53%	59%	59%	46%	52%	43%	52%	**45%**
No	49%	41%	37%	36%	46%	43%	52%	45%	**49%**
Don't know	3%	6%	4%	5%	7%	5%	5%	3%	**6%**
	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502	**N=500**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Yes	40%	52%	48%	35%	62%	45%	38%	46%	44%
No	54%	44%	43%	58%	32%	48%	57%	53%	45%
Don't know	6%	4%	9%	7%	6%	7%	4%	2%	11%
	N=156	N=137	N=133	N=74	N=71	N=285	N=122	N=250	N=250

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 – Among the Telephone sub-sample, 92% are familiar with at least one "Clean Air" event or activity. This is highly consistent with the last two Telephone-only studies. In general, there is a lower degree of familiarity among the Internet sub-sample (78% are aware of at least one event/activity) – particularly for the three most familiar events. However, as we have found in the past, awareness of specific events or activities continues to be significantly higher among respondents familiar with the "Clean Air" Program.

Consistent with prior surveys, the three "Clean Air" events with the highest degree of familiarity include:

- **"Bike to Work Day"** (62% awareness [65% Telephone versus 58% Internet], basically unchanged since 2014 [63%]. Recall is highest in the South or East zips – as well as among women, those 36 or older and residents who perceive a "moderate" or "minor" air quality problem.)

- **"Earth Day Festival and Parade"** (59% awareness [70% Telephone versus 48% Internet], down from 68% in 2014. There are few differences in awareness based on geography, gender, ethnicity or age [somewhat lower only among those 66+]. Familiarity is highest among those who think that Tucson has a "major" air quality problem.)

- **"Bike Fest"** (52% awareness [66% Telephone versus 39% Internet], up from 45% in 2014. Awareness is somewhat lower only in Central region, and higher among Hispanics and those who perceive a progressively more severe air quality problem. Recall is generally consistent regardless of gender and among those 26 to 65.)

For the remaining events, there is no difference in awareness based on interview method. One of four or more are familiar with the following:

- **"Walk and Roll to School Day"** (29% awareness, down progressively from 32% in 2014 and 36% in 2013. Northwest or South zip residents, women, 26 to 45 year-olds and non-Hispanic minorities indicate the highest degree of awareness – as do those who think Tucson has a "major" air quality problem.)

- **"Car-Free Day"** (27% awareness, down slightly from 2015 [30%]. Awareness is elevated among Northwest or South residents, men, Whites and those who perceive a "major" air quality problem.)

- **"Cyclovia"** (24%, up from 21% in 2015. There are few differences in familiarity based on geography or gender. Instead, awareness is higher among Whites and residents who think that Tucson has a "moderate" or "minor" air quality problem.)

Table 13 Awareness of Various Clean Air Events or Activities

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
"Bike to Work Day"	53%	50%	56%	55%	61%	57%	54%	63%	**62%**
"Earth Day Festival and Parade"	71%	70%	66%	74%	72%	68%	66%	68%	**59%**
"Bike Fest"	–	–	–	–	30%	53%	48%	45%	**52%**
"Walk and Roll to School Day"*	28%	29%	38%	22%	33%	34%	36%	32%	**29%**
"Car-Free Day"	–	–	–	–	–	–	–	30%	**27%**
"Cyclovia"	–	–	–	–	–	13%	11%	21%	**24%**
None of these	13%	11%	12%	10%	7%	12%	10%	10%	**15%**
	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502	**N=500**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
"Bike to Work Day"	57%	60%	68%	65%	59%	64%	62%	65%	58%
"Earth Day Festival and Parade"	60%	61%	56%	61%	76%	58%	57%	70%	48%
"Bike Fest"	47%	56%	54%	54%	65%	55%	43%	66%	39%
"Walk and Roll to School Day"*	19%	36%	33%	28%	37%	29%	26%	29%	29%
"Car-Free Day"	20%	34%	32%	20%	38%	27%	25%	28%	26%
"Cyclovia"	24%	24%	22%	24%	21%	26%	24%	24%	23%
None of these	13%	15%	17%	15%	7%	14%	16%	8%	22%
	N=156	N=137	N=133	N=74	N=71	N=285	N=122	N=250	N=250

* Was "Walk Our Children to School Day" (5/04-5/06).

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" Campaign Event – Among the 85% familiar with at least one "Clean Air" event or activity, two of ten (regardless of interview method) indicate that they or someone in their household participated in at least one of these events. This is the highest level of participation reported to-date, up from the previous high of 17% in 2011 and 2013. Event participation was 12% in 2014.

Who is more likely to indicate participation in a "Clean Air" event? Northwest or South zip residents, men, 16 to 35 year-olds, non-Hispanic minorities and households with two or more vehicles. Past participation is directly related to the perceived seriousness of the air quality problem, and continues to be much higher among residents aware of the "Clean Air" Program (24% versus 14% unaware). There are few differences based on education.

Table 13a Participation of Anyone in Household in a Clean Air Campaign Event
(Among Those Aware of at Least One Event)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	**06/13 Total**	06/14 Total	**05/15 Total**
Yes	12%	10%	9%	11%	10%	17%	**17%**	12%	**20%**
No	86%	86%	88%	86%	88%	82%	**83%**	84%	**79%**
Don't know	2%	4%	4%	3%	2%	1%	**1%**	3%	**2%**
	N=434	N=447	N=444	N=455	N=374	N=354	**N=452**	N=450	**N=425**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Yes	12%	24%	26%	16%	32%	20%	11%	19%	21%
No	87%	73%	73%	82%	67%	78%	87%	81%	76%
Don't know	1%	3%	2%	2%	2%	2%	2%	0%	4%
	N=136	N=116	N=110	N=63	N=66	N=245	N=102	N=231	N=194

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 record high two of ten who report participation in a "Clean Air" event, 69% indicate that they have changed (or are considering actions to change) their daily routines or behaviors to help improve air quality. This is up from 55% last year, but somewhat lower than we found in 2013 (76%). This willingness to change is higher among Internet (72%) than Telephone (65%) respondents.

Among the total sample, this means that 11% report a change in their behavior after participating in a "Clean Air" event. This ties the all-time high recorded in 2013, and is up from 6% in 2014. Willingness to change in the 2015 study is highest among Central residents, men, non-Hispanic minorities and households impacted by a breathing-related medical condition.

Table 13b 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	**05/15 Total**	Area			
							Central	North-west	South	East
Yes	65%	81%	57%	76%	55%	**69%**	88%	75%	61%	40%
No	27%	11%	41%	23%	39%	**23%**	6%	21%	29%	40%
Don't know	8%	8%	2%	1%	5%	**8%**	6%	4%	11%	20%
	N=52	N=36	N=61	N=75	N=56	**N=83**	N=17	N=28	N=28	N=10

	Air Quality Problem			Sample	
	Major	Moderate	Minor	Telephone	Internet
Yes	90%	68%	27%	65%	72%
No	10%	24%	46%	33%	12%
Don't know	0%	8%	27%	2%	15%
	N=21	N=50	N=11	N=43	N=40

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 – Fully 85% of residents familiar with at least one "Clean Air" event (regardless of interview method) have a positive opinion of "events and activities that encourage people to use other modes of transportation or work from home instead of driving alone." This is up from 73% in 2014, but consistent with 2011 and 2013 findings.

Significantly, 47% are "very favorable" of such events in the 2015 survey – the highest percentage recorded to-date. Those "very favorable" of activities and events to encourage use of other modes of transportation include South residents, Hispanics and residents who perceive a progressively more severe air quality problem.

In line with recent surveys, only one of ten have a negative opinion (to any extent) of air quality events and activities.

Table 14

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

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
Very favorable	31%	39%	43%	45%	46%	42%	45%	38%	**47%**
Somewhat favorable	50%	39%	40%	39%	36%	44%	40%	35%	**38%**
Not very favorable	9%	7%	4%	5%	5%	7%	6%	5%	**7%**
Not at all favorable	5%	3%	3%	3%	3%	6%	4%	6%	**3%**
Don't know/No answer	6%	11%	10%	8%	9%	1%	5%	15%	**5%**
	N=434	N=447	N=444	N=455	N=374	N=354	N=452	N=450	**N=425**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Very favorable	51%	41%	53%	38%	68%	46%	39%	46%	47%
Somewhat favorable	40%	43%	31%	40%	20%	42%	40%	39%	37%
Not very favorable	7%	5%	8%	6%	3%	8%	6%	6%	7%
Not at all favorable	0%	3%	4%	6%	2%	2%	7%	3%	3%
Don't know/No answer	3%	7%	4%	10%	8%	2%	8%	6%	5%
	N=136	N=116	N=110	N=63	N=66	N=245	N=102	N=231	N=194

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 – Allowing for multiple mentions (unaided in the Telephone survey and aided in the Internet survey), the four steps most often taken by residents (especially those aware of the "Clean Air" Program) to help reduce air pollution in the Tucson area include:

- **Keep tires inflated properly** (39%, up significantly from the previous record mention in 2014 [22%]. East residents, 56 to 65 year-olds, Whites and those who perceive a "minor" air quality problem are apt to indicate they are keeping tires inflated properly. Internet respondents [59% versus 18% Telephone] are also especially more apt to take this action.)

- **Keep car tuned** (35%, up from 25% in 2014. Most likely to keep their car tuned are East residents, Whites and Internet respondents [45% versus 25% Telephone]. There are fewer differences based on air quality problem perception.)

- **Generally reduced driving** (35%, down from 44% in 2014 [when it was the top mention]. These tend to be Northwest region residents, women, 16 to 25 year-olds and Internet respondents [41% versus 28% Telephone] – along with those who perceive a "moderate" air quality problem.)

- **Carpool/Less driving alone** (32%, up from 28% in the past two surveys. There is little difference based on interview method, gender or ethnicity. Instead, Central or Northwest residents, 16 to 25 year-olds, single car households and those who perceive a "major" or "moderate" air quality problem tend to be carpooling more.)

Another 17% say that they have **planted trees** to help reduce air pollution – up from just 5% just two years ago. Other significant actions taken include: **bought a more fuel efficient car** (13%, unchanged since 2014), **bought bicycles** (12%, up from 6%), **avoid excessive idling** (unchanged at 12%), **choose one day a week not to drive** (10%, up from 6%), **moved closer to work** (8%, up from 2%), **adjusted vehicle's emission control equipment** (basically unchanged at 11%) and/or **use BBQ grill less** (6%, up from 2%).

Consistent with last year, 16% overall indicate that they have done **nothing** to reduce air pollution. These tend to be residents unaware of the "Clean Air" Program (19% versus 11% familiar).

Table 15 Steps Taken to Reduce Air Pollution

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/13 Total	05/14 Total	**05/15 Total**
Keep tires properly inflated	4%	5%	13%	14%	7%	22%	**39%**
Keep car tuned	25%	20%	31%	28%	12%	25%	**35%**
Generally reduced driving/Driven less	31%	33%	39%	39%	37%	44%	**35%**
Carpool/Less driving alone	28%	19%	32%	40%	28%	28%	**32%**
Planted trees	4%	5%	10%	12%	5%	12%	**17%**
Bought more fuel efficient car	6%	5%	8%	11%	7%	13%	**13%**
Bought bicycles	6%	6%	8%	5%	8%	6%	**12%**
Avoid excessive idling	3%	4%	6%	6%	4%	12%	**12%**
Chosen once a week not to drive	5%	3%	2%	4%	5%	6%	**10%**
Adjusted vehicle's emission control equipment	10%	8%	12%	7%	3%	11%	**10%**
Moved closer to work	2%	1%	4%	2%	2%	2%	**8%**
Using BBQ grill less	3%	1%	2%	6%	1%	2%	**6%**
Using fireplace/Wood stove less	4%	2%	4%	6%	3%	3%	**5%**
Bought alternative-fueled car	–	–	2%	3%	4%	3%	**4%**
Advocated alternative to cars	2%	1%	1%	1%	1%	1%	**4%**
Challenged friends/Co-workers to change	–	–	0%	3%	1%	2%	**3%**
Ride the bus/Public transportation	2%	1%	1%	0%	1%	2%	**1%**
Walk	3%	3%	3%	1%	2%	2%	**1%**
Other	8%	8%	7%	5%	7%	4%	**3%**
Nothing	20%	29%	15%	14%	21%	15%	**16%**
	N=500	N=502	N=502	N=503	N=504	N=502	**N=500**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Keep tires properly inflated	38%	37%	36%	50%	38%	37%	45%	19%	59%
Keep car tuned	31%	37%	29%	51%	32%	35%	37%	25%	45%
Generally reduced driving/Driven less	36%	39%	29%	32%	35%	39%	29%	28%	41%
Carpool/Less driving alone	36%	34%	29%	26%	35%	34%	24%	34%	30%
Planted trees	15%	20%	16%	16%	16%	16%	18%	9%	25%
Bought more fuel efficient car	10%	11%	12%	23%	10%	12%	16%	7%	19%
Bought bicycles	14%	10%	14%	8%	22%	12%	10%	10%	14%
Avoid excessive idling	13%	11%	14%	8%	18%	11%	12%	5%	18%
Chosen once a week not to drive	10%	10%	16%	4%	10%	12%	9%	3%	18%
Adjusted vehicle's emission control equipment	10%	8%	10%	12%	17%	9%	7%	8%	12%
Moved closer to work	12%	4%	8%	7%	16%	6%	8%	3%	12%
Using BBQ grill less	6%	2%	8%	10%	6%	5%	8%	2%	10%
Using fireplace/Wood stove less	6%	5%	3%	8%	6%	4%	7%	2%	9%
Bought alternative-fueled car	1%	6%	4%	7%	7%	4%	4%	4%	4%
Advocated alternative to cars	5%	2%	5%	3%	6%	4%	3%	2%	6%
Challenged friends/Co-workers to change	3%	4%	2%	3%	4%	2%	4%	2%	4%
Ride the bus/Public transportation	1%	2%	1%	0%	1%	1%	2%	1%	1%
Walk	0%	1%	1%	1%	0%	1%	1%	1%	0%
Other	2%	4%	5%	3%	4%	3%	4%	5%	2%
Nothing	15%	17%	16%	14%	21%	12%	20%	22%	9%
	N=156	N=137	N=133	N=74	N=71	N=285	N=122	N=250	N=250

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

Presence of Children 5-18 in Household – Overall, 26% report that they have children between the ages of 5 and 18 living in their household. This is up from 22% last year, but lower than we found in 2013 (33%). These are more apt to be South or East residents, 16 to 45 year-olds and Hispanics.

Table 16 Presence of Children Ages 5-18 in Household

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
Yes	29%	28%	30%	30%	30%	27%	33%	22%	**26%**
No	71%	72%	70%	70%	70%	73%	67%	78%	**74%**
	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502	**N=500**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Yes	21%	21%	32%	35%	45%	25%	16%	24%	28%
No	79%	79%	68%	65%	55%	75%	84%	76%	72%
	N=156	N=137	N=133	N=74	N=71	N=285	N=122	N=250	N=250

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 – Among households with young children (26% of the total sample), 45% indicate that these 5 to 18 year-olds have "talked about or brought home materials from school about improving air quality." This is down from last year's record mention (54%), but higher than we found in 2013 (40%). School material recall in the current study is highest among Northwest zips, Whites, 6-to-10 year Pima County residents, those who perceive a "major" air quality problem and residents aware of the "Clean Air" Program (61% versus 34% unfamiliar).

Table 16a

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

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
Yes	32%	34%	36%	36%	29%	36%	40%	54%	**45%**
No	62%	61%	59%	50%	64%	59%	51%	34%	**47%**
Don't know	6%	4%	5%	14%	7%	6%	9%	11%	**8%**
	N=143	N=139	N=149	N=153	N=119	N=109	N=168	N=110	**N=131**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Yes	46%	59%	42%	35%	69%	37%	45%	44%	46%
No	54%	28%	54%	46%	31%	54%	35%	48%	46%
Don't know	0%	14%	5%	19%	0%	10%	20%	8%	9%
	N=33	N=29	N=43	N=26	N=32	N=71	N=20	N=61	N=70

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?

Agreement With Various Statements Regarding PDEQ Programs and Air Pollution – All survey respondents were asked to agree or disagree with a series of statements related to various PDEQ programs and air pollution.

PDEQ and Rideshare Awareness –

- **You are aware of the Pima County Department of Environmental Quality** (60% agree, down from 2014 [68%] and 2013 [64%] levels. Telephone respondents [67% versus 54% Internet], Northwest residents, men and those who perceive a "major" air quality or "serious" stormwater pollution problem are most apt to agree. Fully 85% of those familiar with the "Clean Air" Program are aware of PDEQ [versus just 39% unaware].)

- **You are aware of the services provided by Sun Rideshare** (55% agree, up from 49% in 2014 and 45% in 2013. Awareness is higher in the Northwest region, as well as among 26 to 35 year-olds, Whites, the most formally educated [with some graduate work or an advanced degree] and those familiar with the "Clean Air" Program [66% versus 44% unfamiliar].)

PDEQ Program and Campaign Awareness –

- **You have seen or heard information about the importance of keeping your tires properly inflated** (88% agree, essentially unchanged since last year [90%] – with few differences based on geography.)

- **You are aware of the "Clean Water Starts With Me" campaign** (47% agree, identical to the 2014 survey. South zip residents, women, 16 to 25 year-olds and those who perceive that Tucson has a "moderate" or "serious" stormwater pollution problem are most likely to indicate awareness. Campaign awareness is also significantly higher among residents aware of the "Clean Air" Program [67% versus 30% unfamiliar].)

- **You have seen or heard the phrase "Keep Our Blue Skies Blue"** (New to the current study, 43% recall this phrase – more often South region residents, 26 to 35 year-olds, Hispanics and those who think that Tucson has a progressively more severe air quality problem. Awareness is higher among those familiar with the "Clean Air" Program than not [53% versus 35%, respectively].)

- **You have seen or heard the phrase "Healthy Air Is in Our Hands"** (A new statement included in the 2015 survey, 26% are familiar with this phrase. Recall is marginally higher in the Northwest zips and among those familiar with the "Clean Air" Program [43% versus 12% unaware].)

Air Pollution Evaluations –

- **You are aware that air pollution causes health problems** (95% agree, up slightly from last year [94%].)

- **You understand what an air pollution advisory means** (85% agree, just slightly lower that recent surveys [87%-89%]. Agreement is marginally higher in the Northwest zips [90% versus 81%-85% elsewhere].)

- **You are aware that the majority of our air pollution comes from motor vehicle use** (82%, unchanged over the past two years [81%-82%] – with few differences based on geography, perceived severity of the air quality problem or "Clean Air" Program awareness.)

- **You have seen or heard commercials on TV or radio regarding clean air or air pollution** (66% indicate agreement. This is down from last year [80%], but generally consistent with 2013 findings [68%]. Recall is higher among Telephone respondents [72% versus 60% Internet] and residents aware of the Pima County "Clean Air" Program [82% versus 54% unfamiliar] – as well as South residents, those 66+ and Hispanics.)

- **You are aware of air pollution advisories in Pima County** (64% agreement, down from 78% in 2014 [when the statement referenced Tucson, not Pima County]. Agreement is slightly lower only in the East region [60% versus 64%-68% elsewhere]. Most apt to agree are respondents 56 or older, progressively more long-term Pima County residents and those aware of the "Clean Air" Program [80% versus 50% unfamiliar] – along with residents who perceive a progressively worse air quality problem.)

- ***Because you want to reduce air pollution*, you are generally driving less** (58% agree, representing incremental growth from 2014 [55%] and 2013 [53%]. Geographically, only East residents are less likely to agree [46% versus 57%-63% elsewhere]. Agreement skews younger [16 to 35] and is higher among Hispanics, Telephone respondents [63% versus 53% Internet] and those aware of the "Clean Air" Program [70% versus 49% unfamiliar].)

Table 17 Agreement With Various Statements Regarding PDEQ Programs and Air Pollution

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
You are aware that air pollution causes health problems.*	–	–	–	98%	96%	98%	99%	94%	**95%**
You have seen or heard information about the importance of keeping your tires properly inflated.	–	–	–	–	–	–	–	90%	**88%**
You understand what an air pollution advisory means.**	86%	88%	83%	83%	79%	87%	89%	87%	**85%**
You are aware that the majority of our air pollution comes from motor vehicle use.	–	–	–	–	–	79%	81%	82%	**82%**
You have seen or heard commercials on TV or radio regarding clean air or air pollution.	–	74%	75%	76%	69%	74%	68%	80%	**66%**
You are aware of air pollution advisories in Pima County.***	78%	74%	70%	74%	79%	75%	75%	78%	**64%**
You are aware of the Pima County Department of Environmental Quality (PDEQ).****	48%	45%	48%	65%	70%	69%	64%	68%	**60%**
Because you want to *reduce air pollution*, you are generally driving less	–	–	–	–	55%	48%	53%	55%	**58%**
You are aware of the services provided by Sun Rideshare.	–	–	–	–	–	48%	45%	49%	**55%**
You are aware of the "Clean Water Starts With Me" campaign.	–	–	–	–	–	–	–	47%	**47%**
You have seen or heard the phrase "Keep Our Blue Skies Blue."	–	–	–	–	–	–	–	–	**43%**
You have seen or heard the phrase "Healthy Air Is in Our Hands."	–	–	–	–	–	–	–	–	**26%**
	N=500	N=502	N=502	N=503	N=402	N=403	N=504	N=502	**N=500**

	Area				Air Quality Problem			Sample	
	Central	North-west	South	East	Major	Moderate	Minor	Telephone	Internet
You are aware that air pollution causes health problems.*	97%	94%	92%	95%	96%	96%	93%	95%	94%
You have seen or heard information about the importance of keeping your tires properly inflated.	86%	90%	85%	89%	90%	87%	90%	90%	85%
You understand what an air pollution advisory means.**	81%	90%	83%	85%	84%	85%	88%	88%	81%
You are aware that the majority of our air pollution comes from motor vehicle use.	81%	81%	85%	78%	82%	83%	81%	80%	83%
You have seen or heard commercials on TV or radio regarding clean air or air pollution.	60%	69%	72%	64%	76%	67%	66%	73%	60%
You are aware of air pollution advisories in Pima County.***	64%	65%	68%	60%	82%	67%	57%	68%	60%
You are aware of the Pima County Department of Environmental Quality (PDEQ).****	48%	72%	62%	62%	70%	60%	61%	67%	54%
Because you want to *reduce air pollution*, you are generally driving less	63%	59%	57%	46%	65%	65%	41%	63%	53%
You are aware of the services provided by Sun Rideshare.	55%	61%	50%	54%	54%	61%	50%	54%	56%
You are aware of the "Clean Water Starts With Me" campaign.	44%	50%	54%	39%	55%	50%	42%	45%	50%
You have seen or heard the phrase "Keep Our Blue Skies Blue."	40%	40%	50%	39%	54%	46%	33%	46%	40%
You have seen or heard the phrase "Healthy Air Is in Our Hands."	23%	31%	29%	20%	31%	28%	17%	23%	30%
	N=156	N=137	N=133	N=74	N=71	N=285	N=122	N=250	N=250

* 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 "in Tucson" (6/03-6/14).
**** 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 to Reduce Air Pollution – Among the 58% who indicate that they are driving less to reduce air pollution, most (regardless of air quality problem perception) indicate (on an unaided basis in the Telephone survey and aided on the Internet) that they **reducing or combining trips** (53%). These tend to be South or East region residents, women, 56 to 65 year-olds and college graduates or better.

Other actions taken to drive less to reduce air pollution include:

- **Walking for short trips or errands** (29%, most often 16 to 55 year-olds, non-Hispanic minorities and Internet respondents [46% versus 15% Telephone]. Those who perceive a progressively less severe air quality problem are also more likely to be walking more.)

- **Carpooling/Van pooling** (21%, lower only in the Central zips [15% versus 22%-26% elsewhere]. Men and 26 to 45 year-olds are most apt to be carpooling.)

- **Riding the bus** (20%, more often Northwest residents, 46 to 55 year-olds and less highly educated respondents.)

Among the rest, others are **riding a bicycle for short trips/errands** (9%), **walking to work or school** (8%), **riding a bicycle to work or school** (7%), **telecommuting** (5%) **working a compressed workweek** (5%) and/or **driving less in general** (5%).

Table 17a Actions Taken to Drive Less to Reduce Air Pollution
(Among Those Driving Less)

	05/15 Total	Area			
		Central	Northwest	South	East
Reducing/Combining trips	**53%**	50%	51%	58%	59%
Walking for short trips or errands	**29%**	32%	28%	26%	32%
Carpooling/Van pooling	**21%**	15%	26%	22%	24%
Riding the bus	**20%**	30%	12%	18%	15%
Riding a bicycle for short trips/Errands	**9%**	13%	6%	9%	3%
Walking to work or school	**8%**	12%	6%	7%	6%
Riding a bicycle to work or school	**7%**	10%	4%	9%	0%
Telecommuting	**5%**	2%	11%	4%	0%
Compressed work week	**5%**	3%	6%	4%	9%
Driving less in general	**5%**	4%	5%	5%	6%
	N=289	N=98	N=81	N=76	N=34

	Air Quality Problem			Sample	
	Major	Moderate	Minor	Telephone	Internet
Reducing/Combining trips	52%	53%	54%	55%	52%
Walking for short trips or errands	22%	30%	32%	15%	46%
Carpooling/Van pooling	28%	20%	20%	26%	16%
Riding the bus	26%	19%	22%	16%	25%
Riding a bicycle for short trips/Errands	6%	10%	10%	6%	12%
Walking to work or school	11%	8%	10%	6%	11%
Riding a bicycle to work or school	11%	6%	6%	5%	9%
Telecommuting	4%	6%	2%	2%	8%
Compressed work week	6%	5%	2%	3%	7%
Driving less in general	2%	3%	14%	8%	1%
	N=46	N=184	N=50	N=157	N=132

Question: What actions are you taking to drive less?

Travel Behavior for Shopping – One-half say they generally **drive alone** for shopping. Three of ten **carpool with 1 to 4 other adults**, while others take the **bus** (9%), **walk** (4%), **bicycle** (3%) or **vanpool with 5 or more other adults** (2%). Results are generally consistent regardless of sample.

Compared to 2007 – the last time this question was asked – significantly fewer are driving alone for shopping purposes (from 77% to 50%). Instead, many more are using alternative modes of transportation, particularly carpooling (from 18% to 29%) and taking the bus (from 1% to 9%).

Carpooling for shopping is consistent regardless of geography, and is elevated among men, 16 to 25 year-olds and newer Pima County residents (for less than six years). Central residents, Hispanics and those who perceive a "major" air quality problem are more apt to take the bus. Meanwhile, South or East residents, those 46 or older and higher income households are more apt to drive alone for shopping.

Table 18 Travel Behavior for Shopping

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	**05/15 Total**	Sample	
						Telephone	Internet
Drive alone	74%	73%	77%	77%	**50%**	49%	52%
Carpool with 1 to 4 other adults	18%	20%	19%	18%	**29%**	30%	29%
Bus	2%	1%	1%	1%	**9%**	11%	7%
Walk	2%	3%	1%	1%	**4%**	3%	5%
Bicycle	1%	2%	1%	1%	**3%**	3%	2%
Vanpool with 5 or more other adults	2%	0%	0%	1%	**2%**	2%	1%
Motorcycle	0%	0%	0%	1%	**1%**	1%	1%
Take the streetcar	–	–	–	–	**1%**	1%	0%
Other	0%	1%	–	0%	**1%**	1%	2%

Question: What type of transportation do you generally use to go shopping?

Travel Behavior for Leisure Purposes – For leisure purposes ("such as dining out, meeting with friends, going to the movies, going to the gym, etc."), more respondents indicate that generally **carpool with 1 to 4 other adults** (43%) than **drive alone** (39%). Internet respondents are especially apt to carpool (48% versus 34% drive alone), while more in the Telephone sample drive alone (44%) than carpool (38%). In lesser numbers (and regardless of sample), others say they take the **bus** (6%), **walk** (4%) or **bicycle** (2%) for leisure purposes.

Consistent with shopping travel behavior (Table 18), there has been a marked decrease in driving alone for leisure purposes (from 60% to 39%) – while use of alternative modes has increased. Specifically, carpooling has increased from 30% in 2007 to 43% now, while bus ridership has increased from 2% to 6%.

Carpooling for leisure purposes is highest in the East zips, as well as among 16 to 25 year-olds and non-Hispanic minorities. Central residents and lower income-types are more apt to take the bus or walk. The incidence of driving solo for leisure travel is relatively consistent regardless of geography. Single passenger leisure travel is more common among 56 to 65 year-olds, Hispanics and those who perceive a "minor" air quality problem.

Table 18a Travel Behavior for Leisure Purposes

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	**05/15 Total**	Sample	
						Telephone	Internet
Carpool with 1 to 4 other adults	25%	32%	30%	30%	**43%**	38%	48%
Drive alone	59%	56%	60%	60%	**39%**	44%	34%
Bus	2%	2%	1%	2%	**6%**	6%	6%
Walk	3%	2%	3%	2%	**4%**	4%	5%
Bicycle	4%	4%	2%	2%	**2%**	2%	2%
Vanpool with 5 or more other adults	2%	1%	0%	1%	**1%**	1%	1%
Motorcycle	2%	0%	1%	1%	**1%**	1%	1%
Take the streetcar	–	–	–	–	**1%**	1%	1%
Other	2%	3%	–	–	**2%**	1%	3%

Question: What type of transportation do you generally use for leisure purposes, such as dining out, meeting with friends, going to the movies, going to the gym, etc.?

Perceived Seriousness of Air Quality Problem in Tucson Area – Among the Telephone sub-sample, 17% indicate that Tucson has a "major" air quality problem. This is consistent with the last two Telephone-only samples in 2013 and 2014 (17%-18%). However, among the 2015 Internet sub-sample, just 11% perceive a "major problem." Among the combined Internet-Telephone sample, this results in an overall 14% "major problem" response (down from 17%-24% in recent surveys). Instead, more overall now indicate that a "moderate problem" exists (from 52% in 2014 to 57% now) – while slightly fewer think it is a "minor" issue (from 27% to 24%).

East region residents, 26 to 45 year-olds, Hispanics and households impacted by a breathing-related medical condition are more likely to think that Tucson has a "major" air quality problem. This is also true among those aware of the "Clean Air" Program (20% versus 9% unfamiliar) – as well as residents who perceive there to be a "serious" stormwater pollution problem.

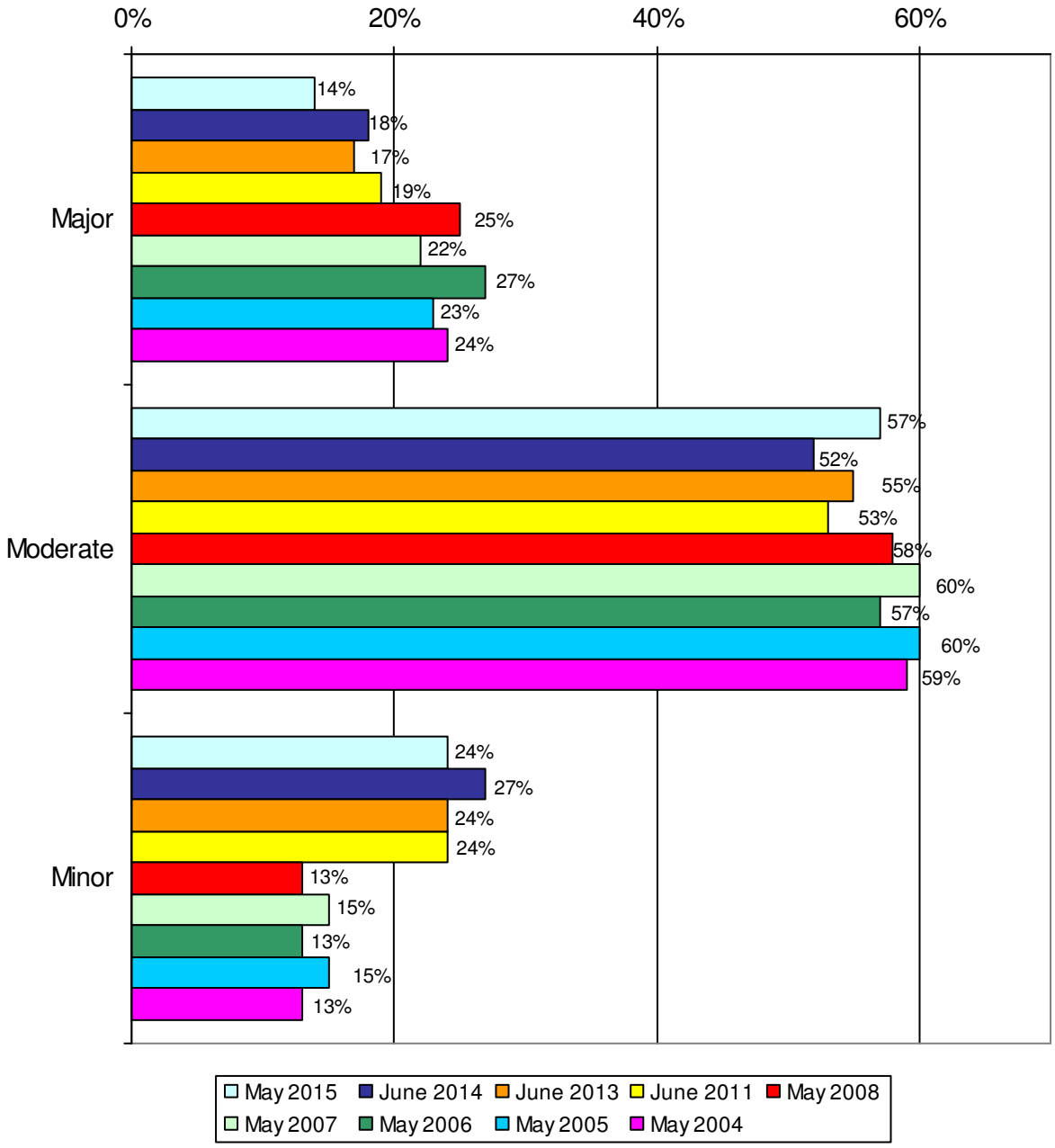
The perception of a "minor" air quality problem is lower only in the Central zips (18% versus 26%-29% elsewhere), and elevated among men, the oldest (66+) respondents and those with some college or more.

Table 19 Perceived Seriousness of Air Quality Problem in Tucson Area

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
Major problem	24%	23%	27%	22%	25%	19%	17%	18%	**14%**	17%	11%
Moderate problem	59%	60%	57%	60%	58%	53%	55%	52%	**57%**	58%	56%
Minor problem	13%	15%	13%	15%	13%	24%	24%	27%	**24%**	22%	27%
Don't know	3%	2%	3%	2%	4%	4%	5%	4%	**4%**	3%	6%

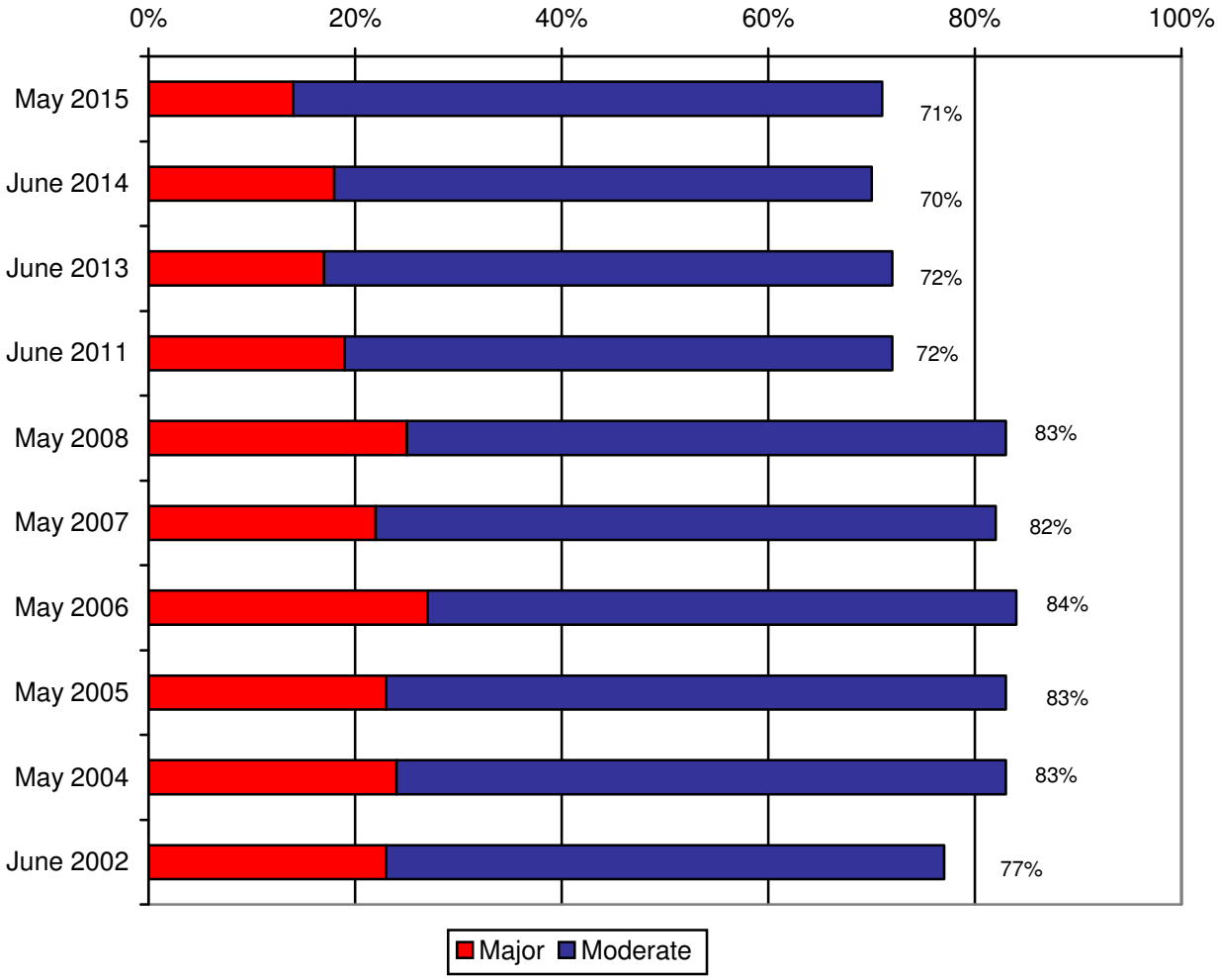
Question: How much of an air quality problem do you think exists in the Tucson area? Do you think this is a major problem, a moderate problem or a minor problem?

Display 19 Perceived Seriousness of Air Quality Problem in Tucson Area
(Among the Total Sample)



Display 19 **Perceived Seriousness of Air Quality Problem in Tucson Area**

Among the Total Sample – Sum of "Moderate" and "Major" Responses



Work Commuting Behavior

Employment Status – With respondents allowed to select more than one category of response, and consistent with 2014 (30%), 31% in the 2015 survey indicate they are employed full-time (30 hours or more each week). East zip code respondents are more apt to be employed full-time (43% versus 25%-31% in other areas), as are men, 26 to 55 year-olds and those with progressively higher levels of formal education. In addition, 13% are employed part-time (less than 30 hours a week), up from 8% in 2014 (but consistent with 11% in 2013). Part-time employees are distributed across the four geographic regions, and are more apt to be Internet respondents and women, with a younger skew. Similar to the past two years, one of ten report being currently unemployed (11%), more often Central or South area residents.

Down from last year (38%), 26% in the 2015 survey say they are retired, more often those 65+ and Telephone respondents, as well as residents of the Northwest or South regions. Another 12% are homemakers, up from 9% in 2014 but similar to 2013 findings (13%). Compared to last year, more report being students (11%) – although this is more in-line with 2013 (9%).

Table 20

Employment Status
(Multiple Mentions Allowed)

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

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Employed full-time (30 hours or more each week)	30%	31%	25%	43%	35%	31%	30%	30%	32%
Employed part-time (Less than 30 hours each week)	15%	12%	10%	14%	13%	10%	16%	10%	15%
A student	14%	12%	10%	8%	14%	11%	10%	6%	17%
Retired	20%	28%	32%	24%	17%	27%	33%	31%	21%
A homemaker	15%	12%	11%	8%	17%	13%	7%	8%	16%
Currently unemployed	14%	10%	13%	7%	10%	11%	11%	13%	10%
	N=156	N=137	N=133	N=74	N=71	N=285	N=122	N=250	N=250

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

Location of Place of Employment – Among those employed full-time or part-time (44% of the total sample), just 14% work exclusively for a home-based business. This is down from 2014 (22%), but consistent with 2013 (12%). The remaining employees work outside the home for another company exclusively (78%) or in conjunction with a home-based business (7%). South and East area residents are more apt to work outside the home, while those who perceive a "major" air quality problem are more likely to work at a home-based business.

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

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
Home-based business	12%	17%	18%	17%	15%	15%	12%	22%	**14%**
Another company	86%	79%	78%	78%	82%	82%	84%	78%	**78%**
Both	2%	4%	4%	5%	4%	3%	4%	0%	**7%**
	N=195	N=190	N=227	N=233	N=163	N=170	N=193	N=188	**N=218**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Home-based business	16%	22%	8%	7%	26%	11%	14%	17%	12%
Another company	76%	73%	85%	83%	68%	80%	80%	79%	79%
Both	9%	5%	6%	10%	6%	9%	5%	4%	10%
	N=70	N=59	N=47	N=42	N=34	N=118	N=56	N=101	N=117

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

Incidence of Telecommuting – Similar to the two previous surveys (17%-19%), 18% of those who work outside the home indicate that they telecommute ("working from home as an alternative to going in to your office or place of business during regular business hours"). Northwest residents and 26 to 45 year-olds are most apt to telecommute.

Table 22 Incidence of Telecommuting
(Among Those Who Work Outside the Home)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
Yes	8%	8%	4%	14%	9%	19%	19%	17%	**18%**
No/Employer does not offer telecommuting/ Don't know/Not sure	92%	92%	96%	86%	91%	81%	81%	83%	**82%**
	N=172	N=157	N=185	N=193	N=139	N=144	N=170	N=146	**N=187**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Yes	15%	26%	16%	13%	20%	22%	10%	17%	18%
No/Employer does not offer telecommuting/ Don't know/Not sure	85%	74%	84%	87%	80%	78%	90%	83%	82%
	N=59	N=46	N=43	N=39	N=25	N=105	N=48	N=84	N=103

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 – Compared to 2014 (64%), fewer indicate they telecommute more than once a week (39%). Instead, more telecommute about once a week (39%, up from 8% in 2014). Another 15% now report telecommuting 2-3 times a month (unchanged at 12%) or once a month (3%, down from 16%).

Table 23 Frequency of Telecommuting
(Among Those Who Telecommute)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Sample	
										Telephone	Internet
More than once a week	50%	46%	62%	52%	31%	26%	52%	64%	**39%**	36%	42%
About once a week	7%	23%	25%	15%	23%	33%	12%	8%	**39%**	43%	37%
2 to 3 times a month	21%	23%	12%	15%	31%	15%	21%	12%	**12%**	14%	10%
Once a month	21%	8%	0%	18%	15%	26%	15%	16%	**3%**	0%	5%
	N=14	N=13	N=8	N=27	N=13	N=27	N=33	N=25	**N=33**	N=14	N=19

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 – Among those who work outside the home, 27% say they have the option of a compressed workweek program. This is up from 2014 (23%), but still lower than 2013 findings (32%). Northwest or South area residents and men are more apt to indicate they have a compressed workweek available to them.

Table 24 Availability of "Compressed Workweek" Programs
(Among Those Who Work Outside the Home)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
Yes	25%	31%	35%	31%	27%	33%	32%	23%	**27%**
No	75%	69%	65%	69%	73%	67%	68%	77%	**73%**
	N=172	N=157	N=185	N=193	N=139	N=144	N=170	N=146	**N=187**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Yes	25%	30%	30%	20%	28%	33%	17%	25%	28%
No	75%	70%	70%	80%	72%	67%	83%	75%	72%
	N=59	N=46	N=43	N=39	N=25	N=105	N=48	N=84	N=103

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 – Similar to last year, most full-time employees report working a "standard" schedule (8 hour days, five days a week) (unchanged at 56%). Another 14% work a 10 hour day, 4 days a week (up from 10% in 2014), while 6% indicate working a 12 hour day, 3 or 4 days a week (6%, up slightly from 5% in 2014). As in 2014, 4% report working 80 hours over 9 days, with the 10th day off. Overall, two of ten report some "other" workweek options or say their workweek varies – down from 2014 (26%), but consistent with 2013 (19%). South or East area residents are more apt to utilize compressed workweek options.

Table 25 Current Work Schedule
(Among Those Employed Full-Time)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
8 hour day, 5 days a week	70%	68%	62%	68%	64%	72%	67%	56%	**56%**
10 hour day, 4 days a week	5%	6%	6%	6%	11%	10%	9%	10%	**14%**
12 hour day, 3 or 4 days a week	8%	2%	10%	7%	6%	5%	2%	5%	**6%**
80 hours over 9 days with the 10th day off	8%	3%	1%	3%	3%	2%	3%	4%	**4%**
Varies/Other	8%	21%	20%	17%	16%	11%	19%	26%	**20%**
	N=129	N=121	N=138	N=146	N=100	N=118	N=125	N=115	**N=133**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
8 hour day, 5 days a week	62%	64%	39%	59%	57%	53%	63%	56%	56%
10 hour day, 4 days a week	10%	18%	16%	14%	24%	16%	3%	12%	16%
12 hour day, 3 or 4 days a week	2%	0%	16%	7%	5%	4%	13%	6%	6%
80 hours over 9 days with the 10th day off	5%	0%	0%	10%	0%	5%	0%	3%	4%
Varies/Other	20%	18%	29%	10%	14%	21%	20%	22%	17%
	N=40	N=33	N=31	N=29	N=21	N=79	N=30	N=64	N=69

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 26-S, with detailed daily usage in Table 26-D.

Seven of ten use **single passenger commuting to work or school** (70%). This is down significantly from 2014 (83%) and is the lowest total to-date. While Internet respondents were even less apt to use single passenger commuting (66%), Telephone respondent usage of this mode is still tied with the lowest levels from previous surveys (74%, tied with 2008). The average frequency of use is 4.3, down slightly from 2011-2014 levels (4.5 each). East area residents are most apt to drive alone at least one day a week (79%), while Northwest area residents are *least* apt to drive alone 5+ days a week (25% versus 42%-50% in other regions).

Returning to 2013 levels (26%) after a dip in 2014 (10%), 24% say they **carpool or vanpool** at least one day per week. Compared to 2014, average frequency has increased (from 3.1 to 3.6 days) – although this is still lower than 2013 (3.9 days). The incidence of carpooling is greater in the Northwest and South areas.

Other commute travel methods measured by this survey include:

- **Walk to work or school** (The share who walk to work or school has increased significantly [from 6% to 21%], with an increase in average days as well [from 2.3 days to 3.5]. Internet respondents are particularly apt to use this mode [27%], although a significant share of Telephone respondents do as well [12%]. Most likely to walk to work or school are Central or South area residents.)

- **Ride the bus to work or school** (Bus ridership has increased from 10% in 2014 to 14% now, typically due to higher Internet respondent usage of this method. The average days using this method has returned to 2013 levels [3.8, up from 3.1 in 2014]. Similar to last year, Central or South region residents are more likely to take the bus to work or school.)

- **Work at home instead of driving to work** (While telecommuting has returned to 2013 levels [14%, up from 7% in 2014], the frequency of usage has declined from 3.5 days to 2.5.)

- **Ride a bike to work or school** (More are riding bikes to work or school [12%, compared to 1% in 2014 and 9% in 2013], and are doing so more often [from 1.5 days to 2.8 days]. Central area residents and 16 to 25 year-olds are more apt to be riding a bike to work or school.)

- **Take the streetcar to work or school** (New to this survey, 5% report using this mode of transportation at least one day a week, and do so 2.2 days a week on average.)

- **Ride a motorcycle to work or school** (Compared to 2014, fewer are riding a motorcycle to work or school [from 7% to 4%], with no change in frequency [2.3 days].)

Table 26-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	2004 Usage* (N=172)	2004 Average Frequency	2005 Usage* (N=210)	2005 Average Frequency	2006 Usage* (N=219)	2006 Average Frequency
Drive alone	84%	4.4 days	77%	4.3 days	81%	4.4 days
Carpool/Vanpool	17%	3.9 days	24%	3.6 days	24%	4.4 days
Walk to work	10%	4.1 days	15%	3.9 days	9%	3.2 days
Ride a bike	10%	3.6 days	13%	3.3 days	6%	2.8 days
Work at home instead of driving to work	7%	2.7 days	8%	3.2 days	6%	3.5 days
Take the bus	4%	3.8 days	8%	4.0 days	6%	3.9 days
Ride a motorcycle	3%	2.6 days	3%	2.8 days	3%	4.2 days

Travel Method	2007 Usage* (N=229)	2007 Average Frequency	2008 Usage* (N=159)	2008 Average Frequency	2011 Usage* (N=171)	2011 Average Frequency
Drive alone	78%	4.1 days	74%	4.7 days	84%	4.5 days
Carpool/Vanpool	30%	3.4 days	22%	3.9 days	28%	4.0 days
Walk to work	14%	3.6 days	14%	3.4 days	15%	4.0 days
Ride a bike	9%	2.8 days	8%	3.5 days	7%	3.7 days
Work at home instead of driving to work	10%	2.7 days	12%	3.2 days	9%	3.3 days
Take the bus	7%	3.8 days	11%	3.7 days	5%	3.1 days
Ride a motorcycle	2%	3.6 days	1%	1.0 days	2%	2.7 days

Travel Method	2013 Usage* (N=205)	2013 Average Frequency	2014 Usage* (N=162)	2014 Average Frequency	**2015 Usage* (N=226)**	**2015 Average Frequency**
Drive alone	79%	4.5 days	83%	4.5 days	**70%**	**4.3 days**
Carpool/Vanpool	26%	3.9 days	10%	3.1 days	**24%**	**3.6 days**
Walk to work	12%	3.7 days	6%	2.3 days	**21%**	**3.5 days**
Ride a bike	9%	2.1 days	1%	1.5 days	**12%**	**2.8 days**
Work at home instead of driving to work	15%	3.5 days	7%	3.5 days	**14%**	**2.5 days**
Take the bus	9%	3.8 days	10%	3.1 days	**14%**	**3.8 days**
Ride a motorcycle	5%	2.6 days	7%	2.3 days	**4%**	**2.3 days**
Take the streetcar	–	–	–	–	**5%**	**2.2 days**

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

Table 26-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)

	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Area				Awareness of "Clean Air" Program	
							Central	North-west	South	East	Yes	No
Take the bus												
Not at all	93%	89%	95%	91%	90%	**86%**	82%	90%	85%	88%	82%	89%
1-4 days/week	4%	6%	4%	5%	8%	**7%**	6%	10%	10%	5%	12%	3%
5 days/week	3%	3%	2%	2%	1%	**4%**	7%	0%	6%	2%	6%	2%
6+ days/week	1%	2%	0%	2%	1%	**3%**	6%	0%	0%	5%	0%	5%
Ride a motorcycle												
Not at all	98%	99%	98%	95%	93%	**96%**	99%	88%	98%	98%	95%	96%
1-4 days/week	1%	1%	1%	4%	7%	**3%**	1%	8%	2%	2%	4%	3%
5 days/week	1%	0%	1%	1%	1%	**0%**	0%	2%	0%	0%	1%	0%
6+ days/week	0%	0%	0%	0%	0%	**0%**	0%	2%	0%	0%	0%	1%
Ride a bike												
Not at all	91%	92%	93%	91%	99%	**88%**	83%	88%	91%	95%	81%	95%
1-4 days/week	6%	5%	6%	8%	1%	**8%**	10%	8%	10%	5%	16%	3%
5 days/week	3%	2%	0%	1%	0%	**1%**	4%	0%	0%	0%	4%	0%
6+ days/week	0%	1%	1%	0%	0%	**2%**	3%	3%	0%	0%	0%	2%
Walk												
Not at all	86%	86%	85%	88%	94%	**79%**	76%	80%	77%	86%	73%	87%
1-4 days/week	11%	9%	9%	7%	6%	**14%**	11%	19%	17%	7%	20%	6%
5 days/week	0%	3%	1%	3%	0%	**4%**	10%	2%	0%	0%	6%	2%
6+ days/week	4%	2%	4%	1%	0%	**4%**	3%	0%	6%	7%	1%	4%
Work at home instead of driving to work												
Not at all	90%	88%	91%	85%	93%	**86%**	83%	85%	87%	90%	80%	90%
1-4 days/week	8%	8%	5%	9%	4%	**11%**	10%	15%	10%	10%	17%	6%
5 days/week	1%	2%	3%	4%	2%	**1%**	4%	0%	0%	0%	1%	2%
6+ days/week	0%	1%	1%	1%	1%	**2%**	3%	0%	4%	0%	2%	2%
Take the streetcar												
Not at all	–	–	–	–	–	**95%**	99%	92%	92%	95%	89%	98%
1-4 days/week	–	–	–	–	–	**5%**	1%	8%	6%	5%	10%	2%
5 days/week	–	–	–	–	–	**0%**	0%	0%	0%	0%	0%	0%
6+ days/week	–	–	–	–	–	**0%**	0%	0%	2%	0%	1%	0%
	N=229	N=159	N=171	N=205	N=162	**N=226**	N=72	N=59	N=53	N=42	N=84	N=122

-Table 26-D continued on next page-

Table 26-D (Cont'd)

	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**	Area				Awareness of "Clean Air" Program	
							Central	North-west	South	East	Yes	No
Drive or ride with people age 16 or older in a carpool												
Not at all	70%	78%	72%	74%	90%	**76%**	81%	73%	74%	79%	76%	77%
1 day/week	4%	2%	2%	1%	1%	**5%**	7%	8%	4%	0%	7%	4%
2 days/week	7%	3%	4%	4%	4%	**2%**	3%	2%	2%	0%	4%	1%
3 days/week	4%	2%	3%	4%	1%	**4%**	1%	2%	11%	5%	2%	4%
4 days/week	6%	3%	5%	5%	1%	**2%**	3%	0%	2%	5%	0%	4%
5 days/week	9%	11%	12%	10%	4%	**7%**	1%	12%	4%	12%	8%	7%
6+ days/week	0%	1%	2%	2%	0%	**3%**	4%	3%	4%	0%	2%	3%
Drive alone												
Not at all	22%	26%	16%	21%	17%	**30%**	32%	34%	32%	21%	29%	30%
1 day/week	5%	2%	4%	6%	4%	**6%**	7%	10%	0%	5%	11%	2%
2 days/week	6%	4%	7%	5%	2%	**5%**	4%	8%	8%	0%	8%	3%
3 days/week	11%	8%	6%	10%	11%	**8%**	8%	10%	6%	5%	10%	7%
4 days/week	17%	12%	15%	10%	11%	**10%**	7%	12%	6%	19%	13%	8%
5 days/week	31%	38%	41%	33%	47%	**30%**	31%	22%	34%	36%	23%	35%
6+days/week	7%	11%	12%	16%	8%	**11%**	11%	3%	15%	14%	7%	13%
	N=229	N=159	N=171	N=205	N=162	**N=226**	N=72	N=59	N=53	N=42	N=84	N=122

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?

2015 Estimated Number of Daily Commuter Miles Saved Through Alternate Modes – Tables 26-T and 26-1 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 26-1. As shown in Table 26-1'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 3,840,196 vehicle miles per day – or 34% of total miles driven/not driven.** As summarized in the tracking display below, the percentage of miles saved has increased from 16% in 2014 to 34% in 2015 – which is consistent with our 32% finding in 2013.

While the percentage of miles saved through the use of alternate modes has increased to 34%, the actual number of vehicle miles saved daily has increased by 115% (from 1,780,430 to 3,840,196) – primarily due to the decrease in single-passenger commuters (from 83% to 70%). In fact, current levels of single-passenger commuting are the lowest recorded (70%). The second lowest occurrence of single-passenger commuting occurred in 2008 (74%).

Table 26-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
2015	**434,601**	**70%**	**15.6**	**11,382,426**	**3,840,196**	**34%**
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 26-1 2015 Estimated Number of Daily Commuter Miles Saved Through Alternative Modes (Among Employed Persons and Students)

	(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
Travel Mode									
Single Occupant (auto)	(70%) 304,221	4.34x2=8.68	2,640,638	6.3	419,149	15.6	6,538,724	6,538,724	-0-
Motorcycle	(4%) 17,384	2.30x2=4.60	79,966	6.3	12,693	19.2	243,706	243,706	-0-
Alternative Modes:									
Carpool	(24%) 104,304	3.64x2=7.28	759,333	6.3	120,529	16.0	1,928,464	741,717	1,186,747
Bus	(14%) 60,844	3.81x2=7.62	463,631	6.3	73,592	8.6	632,891	18,083	614,808
Bike	(12%) 52,152	2.81x2=5.62	293,094	6.3	46,523	8.5	395,446	-0-	395,446
Walk	(21%) 91,266	3.51x2=7.02	640,687	6.3	101,696	5.8	589,837	-0-	589,837
Streetcar	(5%) 21,730	2.17x2=4.34	94,308	6.3	14,970	10.5	157,185	-0-	157,185
Telecommute	(14%) 60,844	2.47x2=4.94	300,569	6.3	47,709	11.6	553,424	-0-	553,424
Compressed workweek	(14%) 60,844	1.05x2=2.10	127,772	6.3	20,281	16.9	342,749	-0-	342,749
					857,142		11,382,426		3,840,196

(A) # employed persons in Pima County (est. @ 367,900 as of March, 2015 by Arizona Department of Commerce) x % non-home-based employees (86%) (Table 21) + # students 16+ (est. 118,207 in 2013 Census Bureau American Community Survey) x % of work/school commuters reported using each mode (Table 26).

(B) Average # of days/week mode used (Table 26) 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 26c. Reported commute miles ranged from 1 to 125 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 (2.6) in each carpool (Table 26b)
Bike/Walk/Telecommute/Streetcar/Compressed: -0- (no polluting vehicles used)

(I) (G) - (H)

Most Used Mode of Transportation for Work/School Commute – Consistent with the lowest incidence of **single-passenger vehicle commuting**, the share who say it is their ***most-used*** method of commuting has decreased (from 80% in 2014 to 58% now). Primary use of single-passenger commuting is lower among Internet respondents (52%) than Telephone respondents (65%). East area respondents are particularly reliant on driving alone (76%), as are those 36 to 65 and those with a college degree or better. Meanwhile, more apt to primarily use an alternate mode are Northwest area residents and 16 to 25 year-olds.

Compared to last year, more are **carpooling** most often (from 5% to 12%), although this is consistent with 2013 (12%). Northwest area residents are more apt to carpool. More are also **walking** as their most-used mode of transportation (from 2% to 9%, especially Internet respondents (13% versus 3% of Telephone respondents) and South or Central area residents. **Bus riding** has increased slightly (from 6% to 8%), with greater primary usage among Central area residents. Another 5% report **telecommuting** most often (up slightly from 4%), especially Central zip code residents. In lesser numbers, others indicate that **riding a bike** (3%, up from 1%) or **riding a motorcycle** (unchanged at 2%) or **taking the streetcar** (2%) are their primary mode of commuting to work or school.

Table 26a 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	**5/15 Total**
Drive alone	64%	66%	66%	70%	71%	66%	80%	**58%**
Drive or ride in a carpool	14%	16%	17%	11%	10%	12%	5%	**12%**
Walk	7%	4%	5%	4%	8%	5%	2%	**9%**
Take the bus	7%	6%	4%	6%	2%	6%	6%	**8%**
Work at home instead of driving to work	2%	3%	3%	6%	4%	8%	4%	**5%**
Ride a bike	5%	2%	4%	3%	4%	1%	1%	**3%**
Ride a motorcycle	1%	3%	2%	–	1%	2%	2%	**2%**
Take the streetcar	–	–	–	–	–	–	–	**2%**
	N=210	N=219	N=229	N=159	N=171	N=205	N=162	**N=226**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Drive alone	54%	49%	57%	76%	41%	62%	57%	65%	52%
Drive or ride in a carpool	4%	19%	15%	12%	25%	8%	13%	12%	12%
Walk	10%	8%	11%	5%	9%	10%	6%	3%	13%
Take the bus	14%	3%	8%	7%	9%	8%	9%	8%	9%
Work at home instead of driving to work	10%	3%	4%	0%	0%	6%	6%	6%	4%
Ride a bike	4%	3%	2%	0%	6%	3%	0%	2%	3%
Ride a motorcycle	0%	8%	0%	0%	0%	2%	6%	2%	2%
Take the streetcar	1%	3%	2%	0%	3%	2%	2%	0%	3%
	N=72	N=59	N=53	N=42	N=32	N=130	N=53	N=98	N=128

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.)

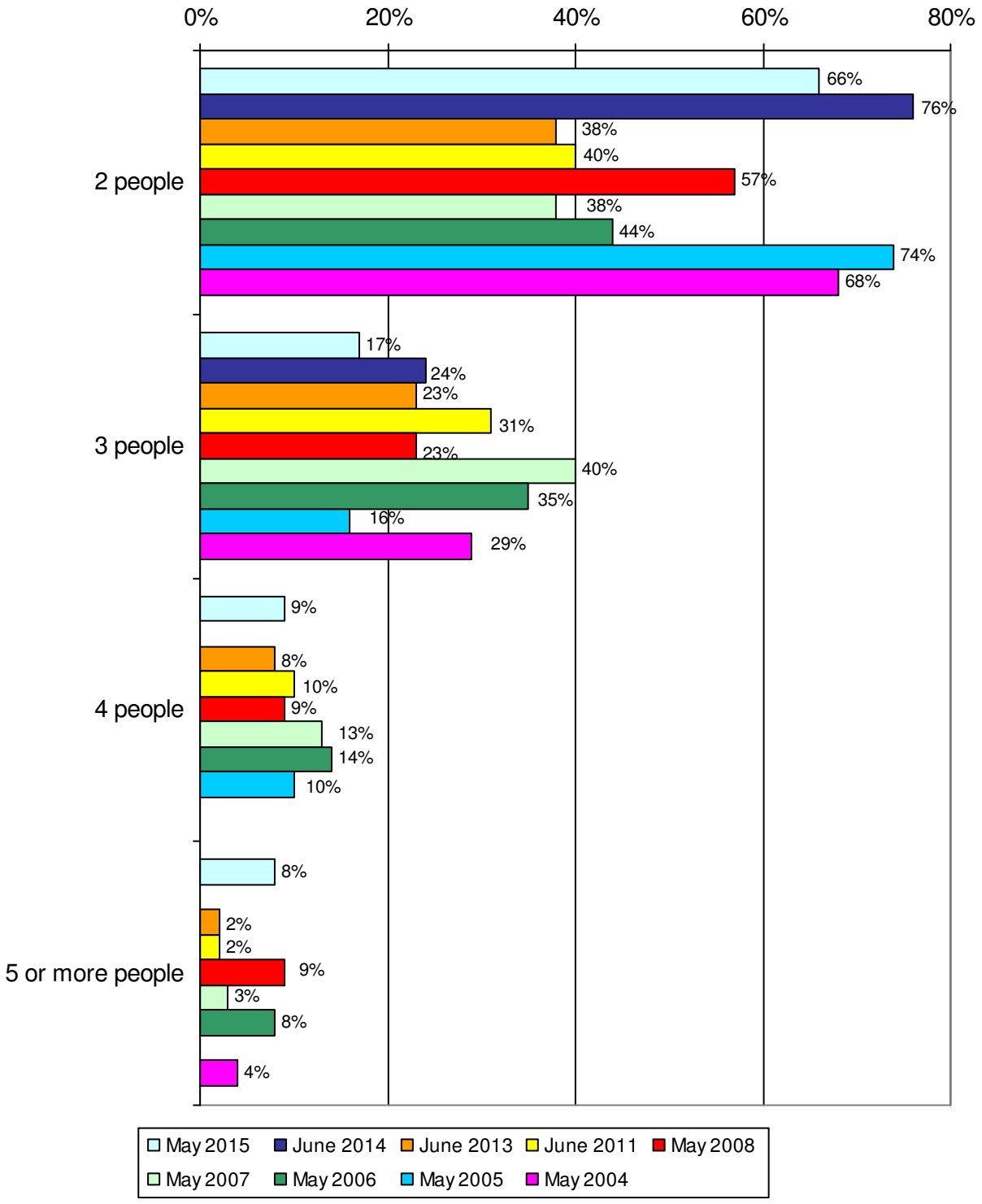
Size of Work or School Commute Carpool – Among carpoolers, compared to 2014, fewer are travelling to work or school in a 2-person carpool (from 76% to 66%). However, this is still greater than in 2013 (38%). The remaining carpoolers are commuting in carpools of 3 people (17%, down from 24%), 4 people (9%, up from 0%) or 5 or more people (8%, up from 0%). Consequently, the average carpool size has increased from 2.2 to 2.6 people (which is consistent with 2013 findings).

Table 26b Size of Work or School Commute Carpool
(Among Those Who Carpool)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
2 people	68%	74%	44%	38%	57%	40%	38%	76%	**66%**
3 people	29%	16%	35%	40%	23%	31%	23%	24%	**17%**
4 people	–	10%	14%	13%	9%	10%	8%	0%	**9%**
5 or more people	4%	–	8%	3%	9%	2%	2%	0%	**8%**
Varies	–	–	–	6%	3%	17%	30%	0%	**0%**
	N=28	N=51	N=52	N=68	N=35	N=48	N=53	N=17	**N=53**

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

Display 26b Size of Work or School Commute Carpool
(Among Those Who Carpool)



Miles Traveled to Work or School – Overall, work commute distances skew shorter than in 2014, and are more consistent with 2013 distances. As reflected in Table 26c, three of ten report a commute of 5 miles or less (down from 14% in 2014, but consistent with 29% in 2013), while another one of four say their commute is between 6 and 10 miles (unchanged at 26%). Another 7% report travelling 11 to 14 miles (down slightly from 9%). One-third say they travel 15 miles or more (33%, down from 41%). Overall, Telephone respondents report longer commute distances than Internet respondents. Geographically, South area residents are more apt to say their commute is 15+ miles (46%), while seven of ten Central residents travel 10 miles or less.

Table 26c Miles Traveled to Work or School
(Among Those Working Outside the Home or Going to School)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	06/13 Total	06/14 Total	**05/15 Total**
5 miles or less	30%	33%	35%	36%	34%	27%	29%	14%	**31%**
6 to 10 miles	21%	20%	24%	25%	26%	28%	32%	26%	**26%**
11 to 14 miles	16%	3%	10%	5%	4%	6%	10%	9%	**7%**
15 or more miles	28%	32%	29%	28%	24%	38%	23%	41%	**33%**
Don't know/Not sure	5%	12%	4%	6%	11%	2%	5%	9%	**3%**
	N=172	N=210	N=219	N=229	N=159	N=169	N=203	N=162	**N=222**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
5 miles or less	36%	33%	29%	24%	23%	30%	35%	25%	36%
6 to 10 miles	34%	29%	19%	17%	20%	27%	29%	25%	27%
11 to 14 miles	3%	5%	4%	22%	3%	9%	6%	5%	9%
15 or more miles	20%	33%	46%	36%	53%	30%	29%	40%	26%
Don't know/Not sure	7%	0%	1%	2%	0%	5%	2%	5%	2%
	N=70	N=58	N=52	N=42	N=30	N=129	N=52	N=97	N=125

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 previous surveys, respondents who commute in a single occupant vehicle at least one day a week were asked to explain why. For Telephone respondents this was an unaided question, while Internet respondents were provided a list of responses to choose from.

Down from 2014 (20%), but consistent with 2013 (33%), one-third indicate that **"convenience"** is the reason they drive alone. This is especially true among Internet respondents (who were offered an aided list to choose from), with little difference based on geography. A close second, **"irregular work hours"** is cited by three of ten (up from 27%). Central area residents and Internet respondents are more apt to offer this reason. Another one of four say that **"no one to carpool with"** is the reason they drive alone (26%, down slightly from 27%), more often Telephone respondents and Northwest area residents.

Down from one of four last year, 16% say that they **"like to drive alone"** – with a lower share only among East area residents. Internet respondents are also more apt to offer this reason.

Another 15% indicate they **"need their car for business"** (up from 9%), while 11% (up from 2%) cite **"personal errands"** as the reason they drive alone. Using their car for business is greater among Central area residents, while personal errands are cited less only among South respondents. Internet respondents are more apt to mention personal errands.

Less than one of ten say there is **"no bus service in the area"** (8%, down from 13%) or cite a **"child drop off"** (7%, up from 2%). East area residents are more apt to cite both of these reasons.

Table 26d Reasons for Driving Alone To and From Work or School
(Among Single-Car Commuters)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	06/13 Total	06/14 Total	**05/15 Total**
Convenience	25%	32%	30%	32%	33%	20%	**32%**
Irregular work hours	31%	18%	19%	23%	25%	27%	**30%**
No one to carpool with	21%	27%	24%	24%	24%	27%	**26%**
Like to drive alone	7%	5%	12%	7%	9%	25%	**16%**
Need car for business	12%	6%	15%	15%	12%	9%	**15%**
Personal errands	3%	7%	3%	7%	7%	2%	**11%**
No bus service in area	6%	11%	6%	8%	4%	13%	**8%**
Child drop off	–	4%	1%	4%	6%	2%	**7%**
Other	11%	8%	7%	6%	4%	2%	**6%**
	N=145	N=161	N=177	N=178	N=162	N=135	**N=157**

	Area				Air Quality Problem			Sample	
	Central	Northwest	South	East	Major	Moderate	Minor	Telephone	Internet
Convenience	29%	33%	36%	30%	42%	30%	38%	18%	44%
Irregular work hours	39%	23%	28%	27%	37%	26%	32%	22%	36%
No one to carpool with	14%	41%	25%	27%	26%	28%	24%	31%	22%
Like to drive alone	20%	18%	17%	6%	5%	15%	16%	10%	21%
Need car for business	22%	8%	14%	12%	16%	16%	8%	14%	15%
Personal errands	10%	13%	8%	12%	10%	13%	5%	6%	15%
No bus service in area	0%	10%	6%	18%	0%	5%	19%	10%	6%
Child drop off	4%	5%	8%	12%	5%	9%	5%	4%	9%
Other	8%	8%	3%	3%	5%	4%	5%	4%	7%
	N=49	N=39	N=36	N=33	N=19	N=93	N=37	N=72	N=85

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 – After being informed that streets in the Tucson area are equipped with storm drains, survey respondents were asked (to the best of their knowledge) where water that flows into these storm drains end up. Allowing for multiple answers, a summary of responses (unaided for the Telephone sample and aided for the Internet) include:

- **River or wash** (45%, down slightly from 49% last year, but consistent with 2013 findings [44%]. Central or Northwest residents, along with Internet respondents [48% versus 41% Telephone], are most likely to think that water that flows into a storm drain ends up in a river or wash.)

- **Groundwater** (15%, up from 7%-8% in previous surveys. These are more apt to be Northwest or East zip residents and Internet respondents [22% versus 8% Telephone].)

- **Sewage plants** (11%, unchanged over the last two years. There are few differences with respect to sample or geography.)

- **Canals** (7%, up from 3%-4% in 2013-2014. These tend to be Internet respondents [10% versus 4% Telephone], with fewer differences based on geography.)

- **Water plants** (7%, up slightly from 5%-6% in the last two years. Again, these are more likely to be Internet respondents [9% versus 4% Telephone].)

Consistent with the last two surveys, one-third **do not know** where stormwater that flows into storm drains end up. This includes a larger percentage of Telephone respondents (37% versus 28% Internet) – as well as South residents, women, those 66+ and newer (for less than six years) or part-year Pima County residents.

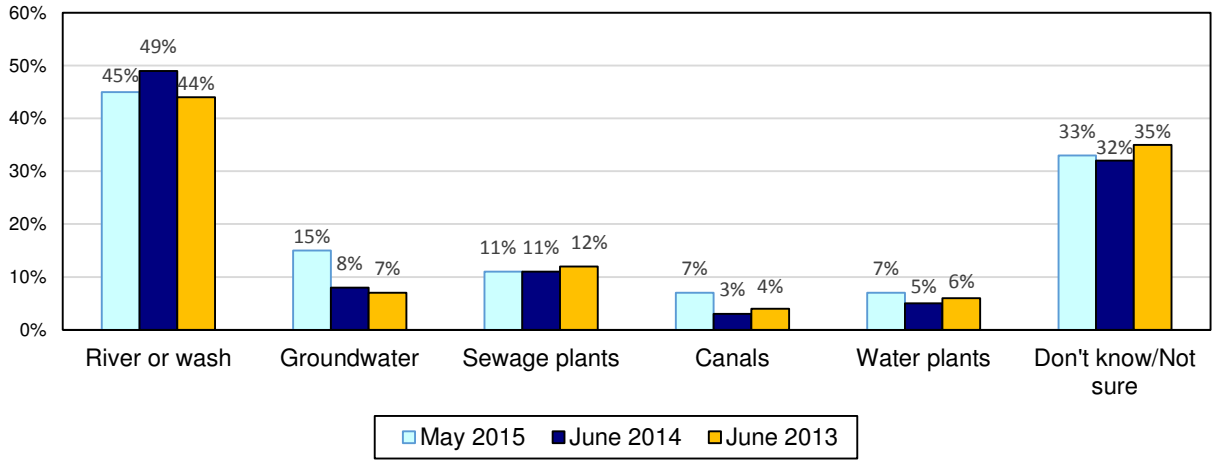
Table 27 Perception of Where Stormwater That Flows Into Tucson Storm Drains Ends Up

	06/13 Total	06/14 Total	**05/15 Total**	Area			
				Central	North-west	South	East
River or wash	44%	49%	**45%**	47%	47%	42%	39%
Groundwater	7%	8%	**15%**	14%	18%	11%	19%
Sewage plants	12%	11%	**11%**	14%	9%	10%	12%
Canals	4%	3%	**7%**	6%	6%	8%	10%
Water plants	6%	5%	**7%**	6%	5%	8%	8%
Don't know/Not sure	35%	32%	**33%**	28%	33%	38%	32%
	N=504	N=502	**N=500**	N=156	N=137	N=133	N=74

	Stormwater Pollution Problem			Sample	
	Not a Problem	Moderate Problem	Serious Problem	Telephone	Internet
River or wash	47%	44%	45%	41%	48%
Groundwater	12%	16%	14%	8%	22%
Sewage plants	8%	11%	13%	10%	13%
Canals	2%	7%	9%	4%	10%
Water plants	9%	5%	8%	4%	9%
Don't know/Not sure	41%	33%	29%	37%	28%
	N=66	N=250	N=184	N=250	N=250

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



Low Impact Development Practices Implemented/Installed at Home or Business – As in prior years, respondents were provided a list of seven specific Low Impact Development (LID) practices and asked if each has been implemented or installed at their home or business. Compared to last year, response is generally lower for each, primarily related to lower implementation among the Internet sample. However, as indicated below, the rank order position of the seven LID practices is generally unchanged:

- **Landscaping with native plants** (52% [57% Telephone/47% Internet], down from 59% in 2014. East region residents and progressively older respondents are more likely to landscape with native plants.)

- **Landscaped depressions that collect stormwater** (26% [32% Telephone/20% Internet], down from 38%. There are few differences with respect to geography, with increased implementation among men, 46 to 65 year-olds, Whites and high income households.)

- **Water harvesting with rain barrels or cisterns** (20% [24% Telephone/15% Internet], down from 24%. Implementation is directly related to perceived seriousness of the stormwater pollution problem, and is higher among men and 46 to 55 year-olds.)

- **Porous pavements or bricks** (20% [26% Telephone/14% Internet], down from 30%. East zip residents, 46 to 55 year-olds and higher income households are more likely to have installed porous pavements or bricks.)

- **Connecting runoff from a roof or paved surface to a basin or to water plants** (20% [24% Telephone/15% Internet], down from 32%. These tend to be Northwest residents, 56 to 65 year-olds and those who think Tucson has a progressively more severe stormwater pollution problem.)

- **Natural areas protected from clearing and grading** (16% [22% Telephone/9% Internet], down from 26%. Implementation is higher in the East zips, and among 26 to 35 year-olds, non-Hispanic minorities and high income households.)

- **A trench that is filled with gravel to collect stormwater** (14% [17% Telephone/11% Internet], down from 24%. Usage of this LID is relatively consistent regardless of geographic area. It is elevated among 46 to 55 year-olds, the most formally educated respondents and high income households.)

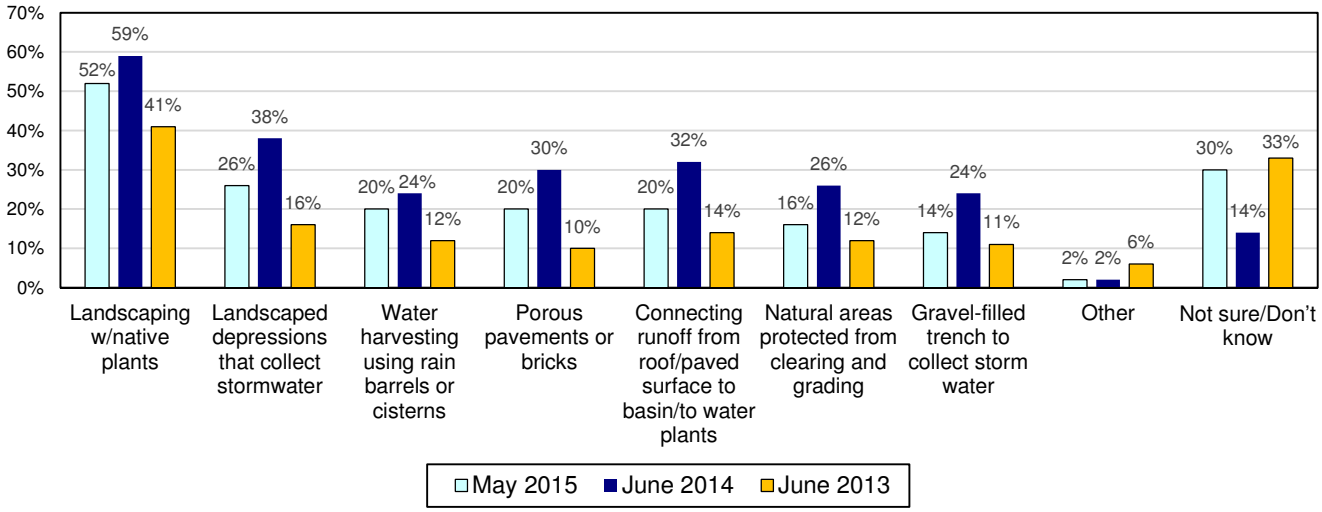
Table 28 Low Impact Development Practices
Implemented/Installed at Home or Business

	06/13 Total	06/14 Total	**05/15 Total**	Area			
				Central	North-west	South	East
Landscaping with native plants	41%	59%	**52%**	48%	53%	52%	60%
Landscaped depressions that collect storm water	16%	38%	**26%**	25%	26%	25%	28%
Water harvesting using rain barrels or cisterns	12%	24%	**20%**	19%	20%	21%	19%
Porous pavements or bricks	10%	30%	**20%**	15%	22%	17%	30%
Connecting runoff from a roof or paved surface to a basin or to water plants	14%	32%	**20%**	14%	27%	20%	16%
Natural areas protected from clearing and grading	12%	26%	**16%**	14%	14%	16%	22%
A trench that is filled with gravel to collect storm water	11%	24%	**14%**	12%	16%	15%	15%
Other	6%	2%	**2%**	1%	2%	2%	4%
Not sure/Don't know	33%	14%	**30%**	40%	23%	32%	22%
	N=504	N=502	**N=500**	N=156	N=137	N=133	N=74

	Stormwater Pollution Problem			Sample	
	Not a Problem	Moderate Problem	Serious Problem	Telephone	Internet
Landscaping with native plants	48%	54%	51%	57%	47%
Landscaped depressions that collect storm water	20%	28%	24%	32%	20%
Water harvesting using rain barrels or cisterns	14%	19%	23%	24%	15%
Porous pavements or bricks	11%	20%	23%	26%	14%
Connecting runoff from a roof or paved surface to a basin or to water plants	11%	19%	23%	24%	15%
Natural areas protected from clearing and grading	20%	17%	12%	22%	9%
A trench that is filled with gravel to collect storm water	12%	14%	16%	17%	11%
Other	0%	0%	4%	2%	1%
Not sure/Don't know	33%	32%	27%	21%	39%
	N=66	N=250	N=184	N=250	N=250

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



Perceived Seriousness of Stormwater Pollution Problem in Tucson Area – As we have found in prior surveys, the overwhelming majority (87%) perceive that there is a "moderate" (50%) or "serious" (37%) problem in the Tucson area "with polluting materials entering storm drains." The balance (13%) perceive that there is "minor" problem, resulting in a 5.7 average score on the "1-to-9" scale (down slightly from 5.8 in 2014).

Who is most apt to perceive a "serious" stormwater pollution problem? Central residents, women, 26 to 35 year-olds, non-Whites and Telephone respondents (42% versus 32% Internet).

In line with the last two years, those who perceive that Tucson has a progressively more serious air quality problem are also more likely to think it also has an increasingly more severe stormwater pollution problem.

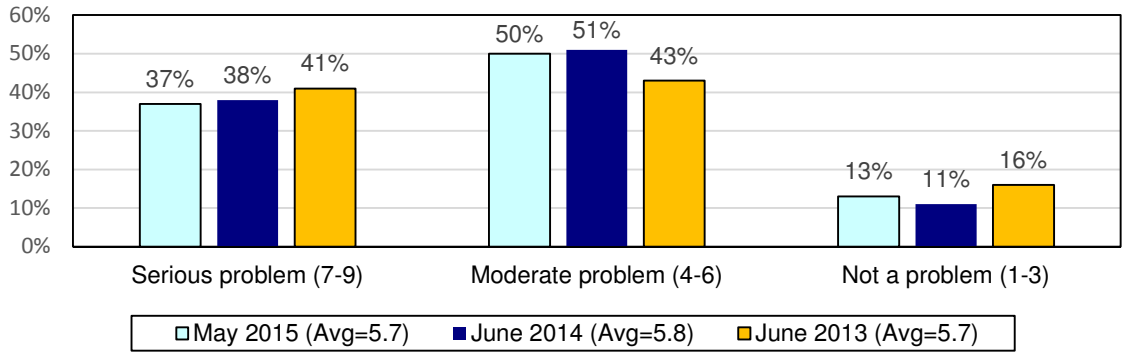
Table 29 Perceived Seriousness of Stormwater Pollution Problem in Tucson Area

	06/13 Total	06/14 Total	**05/15 Total**	Area			
				Central	North-west	South	East
Serious problem (7-9)	41%	38%	**37%**	43%	34%	33%	35%
Moderate problem (4-6)	43%	51%	**50%**	44%	50%	56%	53%
Not a problem (1-3)	16%	11%	**13%**	13%	16%	11%	12%
Average score on 1-9 scale	5.7	5.8	**5.7**	5.9	5.7	5.6	5.6
	N=504	N=502	**N=500**	N=156	N=137	N=133	N=74

	Sample	
	Telephone	Internet
Serious problem (7-9)	42%	32%
Moderate problem (4-6)	42%	58%
Not a problem (1-3)	16%	10%
Average score on 1-9 scale	5.8	5.7
	N=250	N=250

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."

Display 29 Perceived Seriousness of Stormwater Pollution Problem in Tucson Area



Rating of Various Contributors to Stormwater Pollution in the Tucson Area – Respondents were asked to rate various contributors to stormwater pollution on a "1-to-9" scale, where "1" means "not a problem" and "9" denotes a "serious problem." In each case, the degree of perceived seriousness was again directly related to the severity of the stormwater pollution problem in the Tucson area. On average, results were generally similar regardless of interview method.

About eight of ten overall report that these causes are "serious" or "moderate" contributors to the stormwater pollution problem:

- **Automotive fluids such as oil, gasoline and brake fluid** (41% "serious" contributor, 81% to some degree [5.7 average score, up from 5.5. in 2014]. Northwest residents, 16 to 25 year-olds, 2-to-10 year Pima County residents and households with 2+ vehicles are more apt to believe that automotive fluids contribute to stormwater pollution.)

- **Chemicals and materials from construction sites** (40% "serious" contributor, 83% to some degree [5.7 average score, up from 5.5 in 2014]. These tend to be Central region residents, 36 to 45 year-olds and lower income households.)

- **Chemicals and materials from industrial facilities** (39% "serious" contributor, 81% to some degree [5.7 average score, up from 5.5 in 2014]. Central residents, 16 to 25 year-olds and non-Hispanic minorities are more likely to think that industrial facilities are a "serious" contributor to stormwater pollution.)

- **Household products such as cleaning fluids, detergents, paints, degreasers and bleaches** (37% "serious" contributor, 79% to some degree [5.5 average score, up slightly from 5.4 in 2014]. Household products are considered more of a significant contributor to stormwater pollution among Central residents, 26 to 35 year-olds and non-Hispanic minorities.)

- **Household trash and bulky items like mattresses, sofas and tires** (35% "serious" contributor, 78% to some degree [5.5 average score, up significantly from 4.9 in 2014]. Slightly lower only in the South zips [5.2 versus 5.4-5.6 elsewhere], with higher scores among women, progressively younger residents and Internet respondents [5.8 versus 5.1 Telephone].)

- **Pesticides, fertilizers and debris from lawns and gardens** (36% "serious" contributor, 78% to some degree [5.4 average score, down slightly from 5.5 in 2014]. These tend to be Central residents, 2-to-5 year Pima County residents and higher income households.)

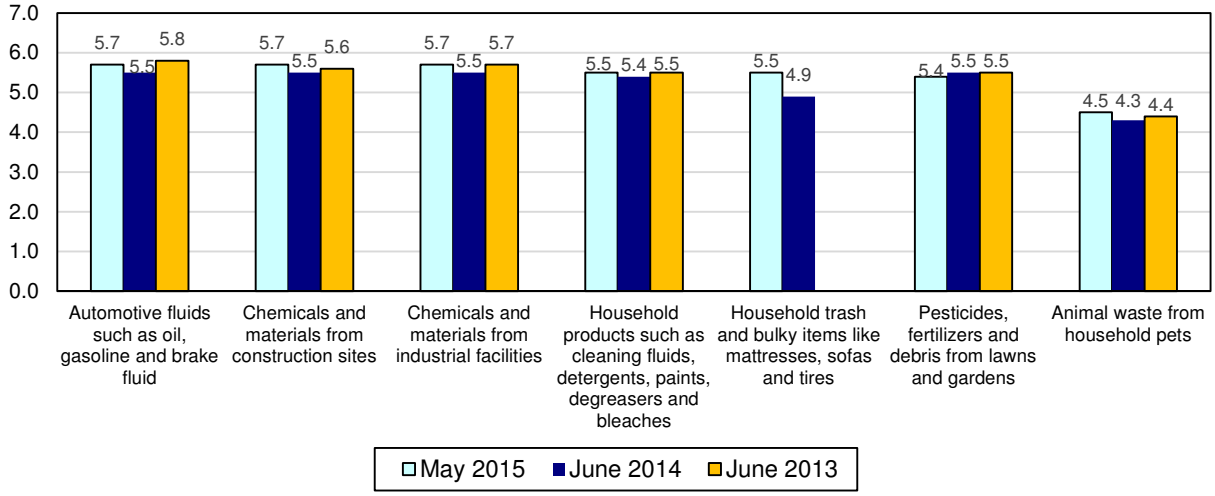
Similar to prior surveys, about four of ten do not think that **animal waste from household pets** contributes to the stormwater pollution problem (39%, down from 43% last year). Just 22% continue to identify household pet animal waste as a "serious" contributor (4.5 average score, up slightly from 4.3).

Table 30 Rating of Various Contributors to Stormwater Pollution Problem in Tucson Area

(5/15 N=500) (6/14 N=502) (6/13 N=504)	Serious Problem	Moderate Problem	Not a Problem	Average Score on 1-9 Scale
Automotive fluids such as oil, gasoline and brake fluid				
5/15	**41%**	**40%**	**19%**	**5.7**
6/14	38%	37%	24%	5.5
6/13	45%	34%	21%	5.8
Chemicals and materials from construction sites				
5/15	**40%**	**43%**	**17%**	**5.7**
6/14	38%	39%	23%	5.5
6/13	39%	42%	19%	5.6
Chemicals and materials from industrial facilities				
5/15	**39%**	**42%**	**19%**	**5.7**
6/14	38%	38%	24%	5.5
6/13	40%	38%	21%	5.7
Household products such as cleaning fluids, detergents, paints, degreasers and bleaches				
5/15	**37%**	**42%**	**20%**	**5.5**
6/14	34%	43%	23%	5.4
6/13	38%	39%	23%	5.5
Household trash and bulky items like mattresses, sofas and tires				
5/15	**35%**	**43%**	**22%**	**5.5**
6/14	29%	40%	31%	4.9
Pesticides, fertilizers and debris from lawns and gardens				
5/15	**36%**	**42%**	**23%**	**5.4**
6/14	39%	38%	22%	5.5
6/13	37%	42%	22%	5.5
Animal waste from household pets				
5/15	**22%**	**39%**	**39%**	**4.5**
6/14	23%	35%	43%	4.3
6/13	23%	36%	41%	4.4

Question: Using the 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 30 **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 – The most used methods to dispose of household wastes (such as household chemicals, automotive fluids and lawn & garden chemicals) include:

- **Hazardous waste collection site** (47%, down from 59% in 2014 – but consistent with 2013 findings. Usage is lower only in the Central zips [44% versus 47%-51% elsewhere]. Men, those 46 or older, Whites and households with progressively higher incomes are more likely to dispose of household wastes at a hazardous waste collection site.)

- **Auto parts store** (38%, down from previous surveys [46%-50%]. These tend to be East region residents, men, 26 to 55 year-olds and Hispanics.)

- **Put in the garbage** (28%, up slightly from last year [26%], but short of the 2013 mention [30%]. Usage of this method is generally consistent regardless of geography or gender, and higher among younger respondents.)

- **Service station** (22%, returning to 2013 levels after an increase in 2014 [32%]. East zip residents, part-year residents and non-Hispanic minorities are more apt to take household waste to a service station.)

- **Landfill** (19%, identical to 2013, but down from last year [30%]. Landfill users are more likely to be South residents, men, 26 to 35 year-olds and Hispanics.)

Of these most mentioned methods of disposal, Telephone sample respondents (compared to Internet) are more apt to use each – especially a hazardous waste collection site (55% Telephone versus 40% Internet) and service station (30% Telephone versus 13% Internet).

In lesser numbers, fewer (regardless of sample) indicate that they dispose of household hazardous waste by **pouring it in the sink or down the drain** (from 11%-12% to 8% now).

As we have found in prior studies, less than one of ten are not sure how they dispose of household hazardous wastes (9% versus 6%-8%). However, up from 7%-10% in prior years, 17% say they never use these types of products or finish them all up when used – more often South residents and Internet respondents (24% versus 10% Telephone).

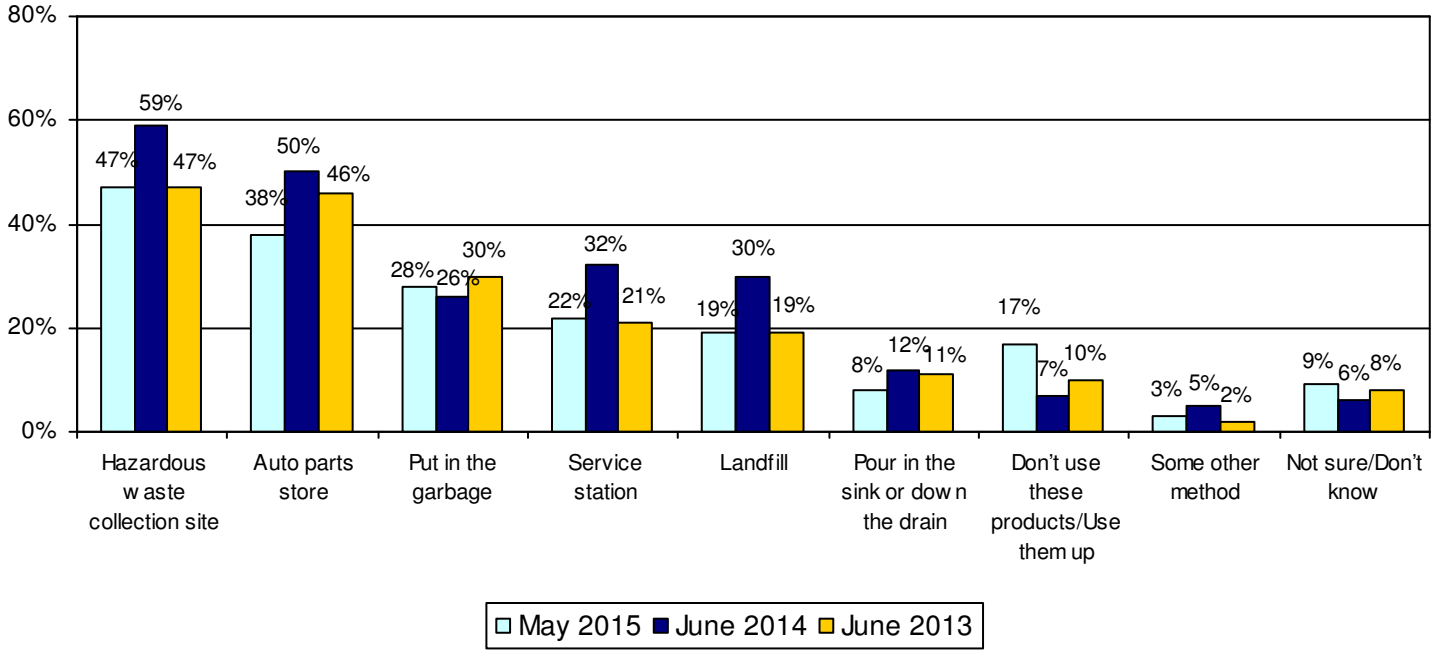
Table 31 Methods Used to Dispose of Various Types of Household Hazardous Waste

	06/13 Total	06/14 Total	**05/15 Total**	Area			
				Central	North-west	South	East
Hazardous waste collection site	47%	59%	**47%**	44%	51%	47%	49%
Auto parts store	46%	50%	**38%**	36%	42%	34%	46%
Put in the garbage	30%	26%	**28%**	28%	29%	26%	27%
Service station	21%	32%	**22%**	20%	20%	21%	28%
Landfill	19%	30%	**19%**	15%	18%	23%	19%
Pour in the sink or down the drain	11%	12%	**8%**	7%	12%	7%	8%
Some other method	2%	5%	**3%**	4%	3%	2%	4%
Don't use these products/Use them up	10%	7%	**17%**	18%	15%	20%	12%
Not sure/Don't know	8%	6%	**9%**	10%	7%	8%	14%
	N=504	N=502	**N=500**	N=156	N=137	N=133	N=74

	Stormwater Pollution Problem			Sample	
	Not a Problem	Moderate Problem	Serious Problem	Telephone	Internet
Hazardous waste collection site	38%	48%	50%	55%	40%
Auto parts store	29%	38%	43%	44%	32%
Put in the garbage	17%	28%	31%	29%	26%
Service station	17%	20%	25%	30%	13%
Landfill	23%	18%	19%	20%	18%
Pour in the sink or down the drain	8%	8%	9%	8%	9%
Some other method	2%	1%	6%	4%	2%
Don't use these products/Use them up	23%	16%	16%	10%	24%
Not sure/Don't know	15%	11%	4%	7%	11%
	N=66	N=250	N=184	N=250	N=250

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 31 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 – Generally consistent with prior years, one-third in the 2015 study are **not sure** who they would contact if they saw someone dumping trash or chemicals into a storm drain and wanted to report it. These tend to be East region residents and Internet respondents (37% versus 30% Telephone).

Among those who specify a particular entity (on an unaided basis in the Telephone survey and aided on the Internet), three of ten would call **911 or the police department**. This is highly consistent with the last two surveys. East zip residents, men and 46 to 55 year-olds are most apt to say they would contact 911.

Another 13% would contact the **water department** (up from just 4%-5% in past surveys) – most often South residents and Internet respondents (22% versus 4% Telephone).

About one of ten overall indicate that they would contact the **sanitation department** (11%, up from 6% in 2014), **city government** (10%, up from 7%), **health department** (10%, up from 4%) or **county government** (unchanged at 9%).

Once again, just 4% specify that they would *not* report illegal waste disposal or dumping.

Table 32 Government Entity to Call If Witness Someone Dumping Trash or Chemicals in a Storm Drain

	06/13 Total	06/14 Total	**05/15 Total**	Area			
				Central	North-west	South	East
911/Police department	28%	30%	**30%**	28%	26%	32%	40%
Water department	5%	4%	**13%**	13%	12%	18%	7%
Sanitation department	6%	6%	**11%**	12%	11%	11%	8%
City government	8%	7%	**10%**	10%	11%	8%	8%
Health department	4%	4%	**10%**	10%	7%	15%	4%
County government	7%	9%	**9%**	10%	8%	10%	8%
Government agency	3%	6%	**5%**	4%	5%	6%	4%
Would not report	4%	4%	**4%**	2%	7%	6%	1%
Not sure/Don't know	35%	30%	**33%**	36%	31%	29%	40%
	N=504	N=502	**N=500**	N=156	N=137	N=133	N=74

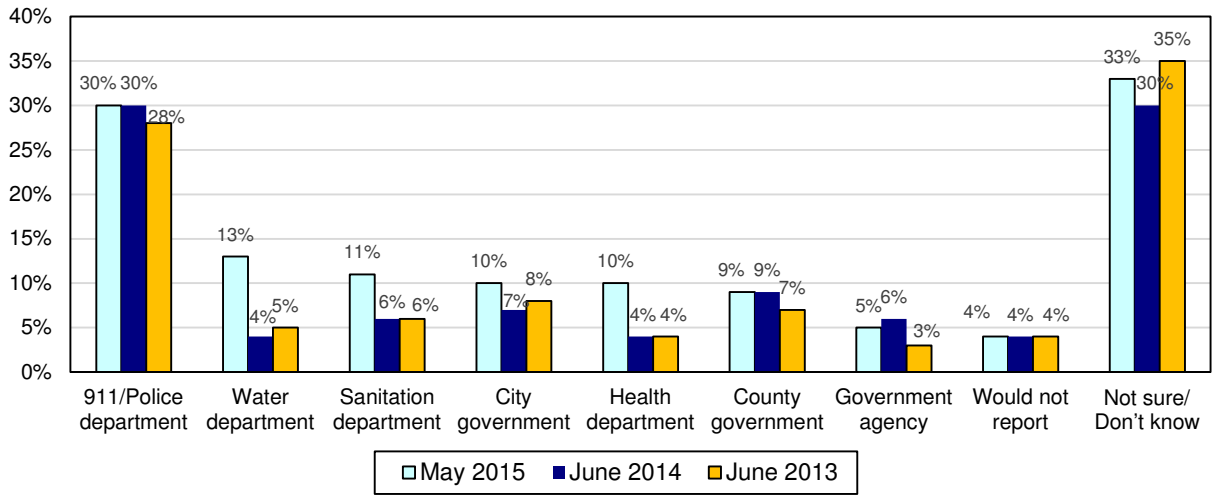
-Table 32 continued on next page-

Table 32 (Cont'd)

	Stormwater Pollution Problem			Sample	
	Not a Problem	Moderate Problem	Serious Problem	Telephone	Internet
911/Police department	27%	31%	30%	31%	29%
Water department	6%	14%	14%	4%	22%
Sanitation department	3%	11%	14%	3%	18%
City government	12%	8%	11%	9%	10%
Health department	6%	10%	10%	5%	14%
County government	6%	8%	12%	10%	9%
Government agency	3%	4%	6%	4%	5%
Would not report	14%	4%	2%	6%	3%
Not sure/Don't know	44%	35%	28%	30%	37%
	N=66	N=250	N=184	N=250	N=250

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 32 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 – Most report that they would be "very likely" (with few "not at all likely") to participate in these activities to help keep stormwater clean:

- **Safely dispose of chemicals** (76% "very likely" to participate, down somewhat from 82% last year. East region are especially apt to indicate likely participation [85% versus 72%-77% elsewhere].)

- **If you have a dog, using a doggie bag to clean up after them** (76% "very likely" to participate, down just slightly from 80%. Women and Central or East residents are most apt to indicate a high likelihood of participation.)

- **Report a spill** (58% "very likely," down from 75% in 2014. Still, less than one of ten are "not at all likely" to report a spill. Northwest or East residents, 26 to 35 year-olds and Telephone respondents [66% versus 50% Internet] are especially willing to report a spill.)

- **Replacing a toxic compound with a non-toxic compound** (56% "very likely," down from 67% last year. These tend to be South or East zip residents, 26 to 35 year-olds and Telephone respondents [64% versus 48% Internet].)

- **Gathering stormwater to use for watering plants** (New to the current survey, 53% are "very likely" to participate – most often Northwest or East residents and women. Just 13% are "not at all likely" to gather stormwater to use for watering plants.)

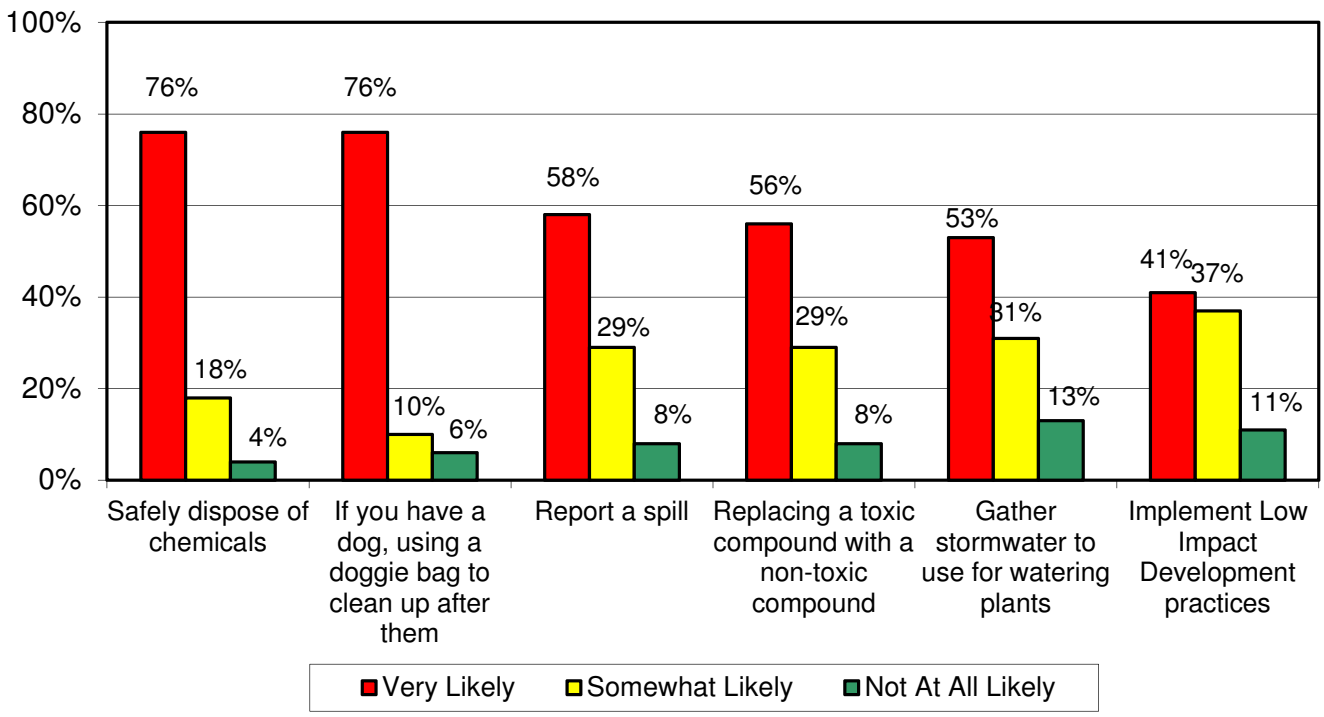
Compared to last year, fewer are "very likely" to **implement Low Impact Development practices** (from 54% to 41%). However, just one of ten remain "not at all likely." Who is "very likely" to potentially implement LIDs? Northwest region residents, the newest Pima County residents and Telephone respondents (46% versus 36% Internet).

Table 33 Likelihood of Taking Part in Various Activities To Help Keep Stormwater Clean

(5/15 N=500) (6/14 N=502)	Very Likely	Somewhat Likely	Not At All Likely	Don't Know/ Not Sure
Safely dispose of chemicals				
05/15	**76%**	**18%**	**4%**	**2%**
06/14	82%	11%	4%	3%
If you have a dog, using a doggie bag to clean up after them				
05/15	**76%**	**10%**	**6%**	**9%**
06/14	80%	5%	4%	11%
Report a spill				
05/15	**58%**	**29%**	**8%**	**5%**
06/14	75%	14%	6%	5%
Replacing a toxic compound with a non-toxic compound				
05/15	**56%**	**29%**	**8%**	**7%**
06/14	67%	19%	6%	8%
Gathering stormwater to use for watering plants				
05/15	**53%**	**31%**	**13%**	**3%**
Implement Low Impact Development practices				
05/15	**41%**	**37%**	**11%**	**11%**
06/14	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 33 Likelihood of Taking Part in Various Activities to Help Keep Stormwater Clean



EVALUATION OF THE 2014-2015
PIMA COUNTY CLEAN AIR PROGRAM CAMPAIGN AND
CLEAN STORMWATER PROGRAM CAMPAIGN SURVEY
(May 2015)

Appendix

Survey Methodology and Sample Selection

This survey consists of a 500-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. This study utilized a dual-methodology sampling plan, with Telephone and Internet interviews (250 each). Prior surveys in this tracking study series were all conducted via telephone.

All Telephone and Internet interviews were conducted during May 2015. Regardless of the sample source, the survey instrument and screening criteria were identical. Neither the interviewer nor the interviewee had any knowledge of the study sponsor.

Telephone Interviews – The Telephone 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.

Telephone 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. All interviews were conducted and validated by the FMR Field staff. 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.).

Internet Interviews – Online surveys were conducted via the Internet utilizing a questionnaire administered by FMR Associates and hosted on the sgizmo.com website (with completed surveys downloaded directly to FMR for data processing and analysis). Respondents were contacted through a third party database Internet panel company that emailed invitations to their "opt in" panelists who reside in Pima County. Each Internet interview lasted approximately 13 minutes.

Spanish-Language Interviews – Where relevant, respondents were asked if they preferred their interview to be conducted in English or Spanish. A Spanish-language version of the survey was developed by FMR Associates, and made available to both Telephone and Internet respondents. A total of 138 non-White respondents were interviewed in the project, including 102 Hispanics. Overall, 10 respondents (2%) requested that their survey be conducted in Spanish by a bilingual interviewer. This is identical to the 2014 survey (2%).

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 ±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, ±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	Reported Percentage				
(Base for %)	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 Internet respondents have a positive attitude toward a category of response, and that 25% of Telephone respondents 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 (250+250)/2=250. 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 Internet and Telephone respondents.

2015 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
	85341
	85601
	85633
	85639
East:	85619
	85715
	85730
	85747
	85748
	85749
	85750