



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

(June, 2011)

Prepared for:

PIMA COUNTY DEPARTMENT OF
ENVIRONMENTAL QUALITY

Tucson, Arizona

Prepared by:

FMR ASSOCIATES, INC.

Tucson, Arizona

Copyright, FMR Associates, Inc., 2011

EVALUATION OF THE 2010-2011 PIMA COUNTY CLEAN AIR CAMPAIGN
(June, 2011)

Digest of the Contents

<u>Introduction and Goals</u>	I-1
<u>Details of the Findings</u>	1
I. <u>Profile of Respondents</u>	1
<u>Table 1.</u> Type of Interview	1
<u>Table 2.</u> Racial Background of Respondents	2
<u>Table 3.</u> Area of Residence	3
<u>Table 4.</u> Gender of Respondents	4
<u>Table 5.</u> Age of Respondents	4
<u>Table 6.</u> Length of Residence in Pima County	5
<u>Table 7.</u> Household Member With Breathing- Related Medical Condition	6
<u>Table 8.</u> Number of Motor Vehicles Owned or Leased	7
<u>Table 9.</u> Education Level of Respondents.....	8
<u>Table 10.</u> Household Income	9
<u>Display 1.</u> Demographic Profile of Respondents (Among the Total Sample).....	10
II. <u>Awareness of Information About Air Quality/Pollution</u>	13
<u>Table 11.</u> Awareness of the Pima County “Clean Air” Program	13
<u>Table 12.</u> Awareness of Various Clean Air Events or Activities	15
<u>Table 12a.</u> Participation of Anyone in Household in a Clean Air Campaign Event (Among Those Aware of at Least One Event)	16
<u>Table 12b.</u> Incidence of Changing Routines/Behaviors to Improve Air Quality After Participating in Clean Air Events (Among Those With a Household Member Who Participated)	17
<u>Table 13.</u> Opinion of Activities/Events to Encourage Use of Other Modes of Transportation (Among Those Aware of at Least One Event)	18
<u>Table 14.</u> Type of Information Most Likely to Encourage Use of Alternative Transportation Methods.....	20

EVALUATION OF THE 2010-2011 PIMA COUNTY CLEAN AIR CAMPAIGN
 (June, 2011)

Digest of the Contents (Cont'd)

<u>Table 15.</u>	Presence of Children Ages 5-18 in Household	21
<u>Table 15a.</u>	Expression of Air Pollution Concerns by Children (Among Households With Children Ages 5-18).....	22
<u>Table 15b.</u>	Incidence of Children Ages 5-18 Receiving Information From School About Air Pollution (Among Households With Children Ages 5-18).....	23
<u>Table 16.</u>	Most Effective Means of Communicating Air Quality Alerts on Air Quality Action Days	24
<u>Table 17.</u>	Agreement with Various Statements Regarding Air Pollution.....	27
<u>Table 17a.</u>	Actions Taken To Drive Less Because of Higher Gas Prices (Among Those Driving Less)	29
<u>Table 18.</u>	Perceived Seriousness of Air Quality Problem in Tucson Area.....	30
<u>Display 18.</u>	Perceived Seriousness of Air Quality Problem in Tucson Area.....	31
<u>Display 18.</u>	Perceived Seriousness of Air Quality Problem in Tucson Area (Sum of “Moderate” and “Major” Responses)	32
<u>Table 19.</u>	Importance of Regional Campaign to Encourage People to Take Actions to Improve Air Quality	33
III.	<u>Work Commuting Behavior</u>	34
<u>Table 20.</u>	Employment Status	35
<u>Table 21.</u>	Location of Place of Employment (Among Those Employed)	36
<u>Table 22.</u>	Number of Full-Time Employees at Jobsite (Among Those Who Work Outside the Home)	37
<u>Table 23.</u>	Incidence of Telecommuting (Among Those Who Work Outside the Home)	38
<u>Table 24.</u>	Frequency of Telecommuting (Among Those Who Telecommute).....	39

EVALUATION OF THE 2010-2011 PIMA COUNTY CLEAN AIR CAMPAIGN
(June, 2011)

Digest of the Contents (Cont'd)

<u>Table 25.</u>	Availability of “Compressed Workweek” Programs (Among Those Who Work Outside the Home).....	40
<u>Table 26.</u>	Current Work Schedule (Among Those Employed Full-Time)	41
<u>Table 27-S.</u>	Summary of Usage of Transportation Methods for Traveling To and From Work or School (Among Those Working Outside the Home or Going to School).....	43
<u>Table 27-D.</u>	Detailed Daily Usage and Tracking of Transportation Methods for Tracking To and From Work or School (Among Those Working Outside the Home or Going to School)	44
<u>Table 27-T.</u>	Tracking Summary of Estimated Number of Daily Commuter Miles Saved Through Alternative Modes.....	46
<u>Table 27-1.</u>	2011 Estimated Number of Daily Commuter Miles Saved Through Alternative Modes (Among Employed Persons and Students)	47
<u>Table 27a.</u>	Most Used Mode of Transportation for Work/School Commute (Among Those Working Outside the Home or Going to School).....	49
<u>Table 27b.</u>	Size of Work or School Commute Carpool (Among Those Who Carpool).....	50
<u>Display 27b.</u>	Size of Work or School Commute Carpool (Among Those Who Carpool).....	51
<u>Table 27c.</u>	Miles Traveled to Work or School (Among Those Working Outside the Home or Going to School).....	52
IV.	<u>Changes in Driving Behavior</u>	53
	<u>Table 28.</u> Frequency of Using Driving Alternatives Compared to a Year Ago	54

EVALUATION OF THE 2010-2011 PIMA COUNTY CLEAN AIR CAMPAIGN
(June, 2011)

Digest of the Contents (Cont'd)

Appendix

<u>Survey Methodology and Sample Selection</u>	A-1
<u>Statistical Reliability</u>	A-2
<i>Confidence Intervals for a Given %</i>	
<i>Significance of Difference Between %</i>	
<u>2011 Pima Air Quality Region Definitions</u>	A-4
<u>2011 Pima Air Quality Region Definitions Map</u>	A-5

EVALUATION OF THE 2010-2011 PIMA COUNTY CLEAN AIR CAMPAIGN
(June, 2011)

Detailed Perceptual Tables

Explanation of Detailed Perceptual Table Format

<u>Table</u>	<u>Title</u>
1	Type of Interview
2	Racial Background of Respondents
3	Area of Residence
4	Sex of Respondents
5	Age of Respondents
6	Length of Residence in Pima County
7	Household Member With Breathing-Related Medical Condition
8	Number of Motor Vehicles Owned or Leased
9	Education Level of Respondents
10	Household Income
11	Awareness of the Pima County “Clean Air” Program
12	Awareness of Various Clean Air Events or Activities
12a	Participation of Anyone in Household in a Clean Air Campaign Event Among Those Aware of at Least One Event)
12b	Incidence of Changing Routines/Behaviors to Improve Air Quality After Participating in Clean Air Events (Among Those With a Household Member Who Participated)
13	Opinion of Activities/Events to Encourage Use of Other Modes of Transportation
14	Type of Information Most Likely to Encourage Use of Alternative Transportation Methods
15	Presence of Children Ages 5-18 in Household
15a	Expression of Air Pollution Concerns by Children (Among Households With Children Ages 5-18)
15b	Incidence of Children Ages 5-18 Receiving Information From School About Air Pollution
16	Most Effective Means of Communication Air Quality Alerts
16a	Interest in Registering to Receive Free Air Quality Alerts (Among Those With a Breathing-Related Condition in Their Household)
17	Agreement with Various Statements Regarding Air Pollution
17a	Actions Taken to Drive Less Because of Higher Gas Prices
18	Perceived Seriousness of Air Quality Problem in Tucson Area
19	Importance of Regional Campaign to Encourage People to Take Actions to Improve Air Quality
20	Employment Status
21	Location of Place of Employment

EVALUATION OF THE 2010-2011 PIMA COUNTY CLEAN AIR CAMPAIGN
(June, 2011)

Detailed Perceptual Tables (Cont'd)

<u>Table</u>	<u>Title</u>
22	Number of Full-Time Employees at Jobsite (Among Those Who Work Outside the Home)
23	Incidence of Telecommuting
24	Frequency of Telecommuting (Among Those Who Telecommute)
25	Availability of "Compressed Workweek" Programs
26	Current Work Schedule
27	Daily Usage of Transportation Methods for Traveling To and From Work or School (Among Those Working Outside the Home or Going to School)
27a	Most Used Mode of Transportation for Work/School Commute
27b	Size of Work or School Commute Carpool (Among Those Who Carpool)
27c	Miles Traveled to Work or School
28	Frequency of Using Driving Alternatives Compared to a Year Ago

**EVALUATION OF THE 2010-2011
PIMA COUNTY CLEAN AIR CAMPAIGN**
(June, 2011)

**Introduction
and Goals**

This Campaign Effectiveness Travel Behavioral Study, conducted for the PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY, was designed to evaluate the specific effectiveness of the 2010-2011 Clean Air Campaign, as well as analyze the overall effectiveness of the air quality media campaign after 21 campaign sessions.

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

1. Determining current travel behavior (commuting/telecommuting/compressed workweeks) 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 reductions in single occupant motor vehicle trips.
3. Determining the present and potential use of alternate transportation modes, with specific emphasis on carpooling and telecommuting. Learning what encourages the use of alternative modes. Estimating the number of daily commuter miles saved through alternative modes.
4. Assessing the awareness of air quality problems in Tucson and what is known about air pollution. Learning whether children are expressing air quality concerns. Determining what types of air quality information are of most interest, including most effective means of communicating air quality alerts on Air Quality Action Days.
5. Measuring the awareness of the “Clean Air” Program in Pima County and various clean air special events or activities. Has participation in Clean Air special events changed behaviors to improve air quality?

6. Determining the change in driving behaviors. Has usage of specific alternatives to driving increased or decreased compared to a year ago?

Methodology Overview – To accomplish the goals of this study, a random sampling of 403 men and women, 16 years of age and older, in the Pima County area was interviewed by telephone during early June, 2011. 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

Type of Interview – Similar to past studies, the overwhelming majority of survey interviews were conducted in English (98%). Overall, seven respondents in the 2011 survey (2%) requested that their interview be conducted in Spanish by a bilingual FMR interviewer. The seven Spanish-language interviews were conducted among self-identified Hispanics who reside in the South (six) or Central (one) zip code regions. (See Table 3 for zip code region definitions.)

Table 1 Type of Interview

	05/00 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
English	96%	98%	99%	96%	99%	99%	98%
Spanish	4%	2%	1%	4%	1%	1%	2%
	N=500	N=500	N=502	N=502	N=503	N=402	N=403

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

Self-Identified Ethnicity – As in past studies, there were sampling quotas for ethnicity based on household distributions in Pima County. In line with the established quotas, the 2011 final in-tab sample includes 74% Whites, 20% Hispanics and 7% non-Hispanic minorities (Native Americans, African-Americans and Asian/Pacific Islanders). Consistent with prior surveys, the highest percentage of non-Whites reside in the South region zips (47%, up from 35% in 2008) – including 36% Hispanics. The Northwest (87%) and East (88%) regions have the highest concentration of Whites.

Table 2 Racial Background of Respondents

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
White	80%	76%	75%	76%	76%	77%	75%	76%	78%	74%
Hispanic	15%	18%	18%	16%	19%	19%	20%	19%	17%	20%
Native American	2%	2%	3%	2%	2%	2%	1%	2%	2%	4%
African-American	2%	3%	1%	3%	2%	2%	2%	2%	1%	2%
Asian, Pacific Islander	1%	1%	2%	2%	1%	1%	2%	2%	2%	1%

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 – As we have done in prior years, all survey respondents were assigned to one of four geographic zones (Northwest, Central, South or East) based on the zip code of their home residence (as defined in the table below). There were sampling quotas established for each zone, based on population zones in Pima County. In line with the geographic sampling quotas, there is an equal distribution of survey respondents who live in South, Northwest or Central regions (28% each) – with the remaining 16% who reside in the East zone zips. Consistent with prior surveys, residents who perceive a “major” air quality problem in the Tucson area are *least* likely to live in the East zips (12% versus 21%-37% in the other zones).

Table 3 Area of Residence

	05/00 Total	06/01 total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
<u>Northwest</u> 85653 85654 85658 85704 85705 85737 85739 85741 85742 85743 85745 85755	31%	n/a	29%	25%	25%	28%	25%	29%	26%	28%
<u>Central</u> 85710 85711 85712 85716 85718 85719	31%	n/a	31%	32%	29%	26%	28%	27%	29%	28%
<u>South</u> 85321 85614 85629 85641 85701 85706 85708 85713 85714 85735 85736 85746 85757	25%	n/a	24%	22%	32%	32%	31%	27%	30%	28%
<u>East</u> 85619 85715 85730 85747 85748 85749 85750	14%	n/a	16%	19%	14%	15%	16%	17%	16%	16%
	N=500		N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403

	Air Quality Problem		
	Major	Moderate	Minor
<u>Northwest</u> 85653 85654 85658 85704 85705 85737 85739 85741 85742 85743 85745 85755	37%	28%	22%
<u>Central</u> 85710 85711 85712 85716 85718 85719	21%	28%	31%
<u>South</u> 85321 85614 85629 85641 85701 85706 85708 85713 85714 85735 85736 85746 85757	30%	28%	24%
<u>East</u> 85619 85715 85730 85747 85748 85749 85750	12%	15%	22%
	N=76	N=214	N=98

Gender – As in prior surveys, Pima County residents randomly contacted to participate in this survey were further randomized by interviewing “the male or female in your household who is 16 or older and most recently celebrated a birthday.” There was only one interview conducted per household. As indicated in Table 4, and consistent with recent surveys (as well as Pima County demographic trends), more 2011 respondents are women (56%) than men (44%).

Table 4 Gender of Respondents

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Men	45%	50%	49%	41%	45%	46%	46%	44%	47%	44%
Women	55%	50%	51%	59%	55%	54%	54%	56%	53%	56%

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

Age Category – Highly consistent with the 2008 survey, one-half of survey respondents are 36 to 65. The balance are distributed equally between younger (16 to 35) and older (66+) respondents. Those 66+ are more likely to reside in the Northwest or East zips, while 16 to 35 year-olds tend to live in the South region. Age distribution in the Central zone is consistent with overall patterns.

Table 5 Age of Respondents

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
16 to 25	19%	14%	17%	12%	15%	15%	13%	14%	10%	10%
26 to 35	17%	11%	15%	14%	13%	16%	18%	16%	17%	15%
36 to 45	19%	19%	20%	15%	16%	19%	17%	17%	20%	19%
46 to 55	17%	20%	20%	19%	14%	14%	13%	16%	17%	16%
56 to 65	12%	15%	12%	16%	16%	13%	13%	14%	14%	15%
66 to 75	10%	12%	8%	12%	16%	15%	16%	14%	15%	17%
76 or over	5%	9%	8%	11%	9%	8%	9%	8%	6%	8%

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

Length of Residence in Pima County – More than seven of ten respondents (73%) are 11+ year residents of Pima County, especially those who live in the East zips (83%). The percentage of long-term (11+ year) Pima County residents (73%) is higher than in 2008 (65%), but consistent with the 2006 survey (70%). The share of 6-to-10 year residents (12%) is unchanged since 2008. Instead, there are fewer 2-to-5 year residents (from 16% to 10%) – with the rest “new” (less than two years) (from 4% to 2%) or part-year (from 2% to 3%) residents. Part-year Pima County residents are more apt to reside in the Northwest or South zips. “New” residents are equally distributed across the Northwest, Central and South regions.

Table 6 Length of Residence in Pima County

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Part year	6%	6%	4%	5%	6%	9%	5%	6%	2%	3%
Less than 2 years	10%	6%	7%	n/a	5%	9%	4%	6%	4%	2%
2 to 5 years	16%	15%	15%	n/a	10%	18%	10%	15%	16%	10%
6 to 10 years	16%	14%	12%	n/a	10%	14%	11%	13%	12%	12%
11 or more years	52%	57%	57%	n/a	69%	49%	70%	60%	65%	73%

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 Breathing-Related Medical Condition – Down slightly from 2007-2008 levels (37%), one-third in the current study report that their household is somehow impacted by a breathing-related medical condition. Among those impacted (and allowing for multiple mentions), 14% indicate that they themselves have such a condition (down from 19% in 2008). Among the rest, 27% report that their children (12%, up from 11%) or other family members (15%, down slightly from 17%) are affected.

Geographically, those in the Northwest region are most likely to indicate being impacted by a breathing-related medical condition. As we have found in prior studies, there continues to be a direct relationship between the incidence of being affected by a breathing-related medical condition and the perception of a progressively more serious air quality problem in the Tucson area.

Table 7 Household Member With Breathing-Related Medical Condition

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Yes	31%	43%	30%	n/a	36%	34%	40%	37%	37%	33%
Respondent	(16%)	(13%)	(13%)	n/a	(17%)	(16%)	(16%)	(15%)	(19%)	(14%)
Children	(8%)	(12%)	(10%)	n/a	(11%)	(11%)	(12%)	(14%)	(11%)	(12%)
Other family member	(13%)	(18%)	(12%)	n/a	(16%)	(14%)	(19%)	(19%)	(17%)	(15%)
No	69%	57%	70%	n/a	64%	65%	59%	62%	62%	66%
Don't know/ Not sure	0%	–	–	n/a	0%	1%	1%	1%	1%	1%
	N=471	n/a	n/a	n/a	N=500	N=502	N=502	N=503	N=402	N=403

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 2+ vehicle households has increased since 2008 (from 64% to 70%), but is consistent with 2005-2007 totals (67%-70%). This increase is primarily related to an increase in 2-vehicle households (from 40% in 2008 to 46% now). Meanwhile, multi (3+) vehicle households are unchanged at 24%. The share of single-vehicle households has declined from 30% to 25%, reaching its lowest point in recent history (versus 27%-34% since 2000). Basically unchanged since 2008, 5% indicate that no members of their household own or lease a working motor vehicle (primarily households with incomes of less than \$25,000). Residents in the Northwest or Central zip codes are more likely to be single-vehicle households – along with those who perceive a progressively more severe air quality problem. Multi-vehicle ownership is relatively consistent regardless of geography.

Table 8 Number of Motor Vehicles Owned or Leased

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
No working cars	4%	4%	4%	n/a	7%	3%	2%	4%	6%	5%
One	34%	30%	30%	n/a	34%	28%	30%	27%	30%	25%
Two	40%	40%	40%	n/a	36%	42%	43%	44%	40%	46%
Three or more	22%	25%	22%	n/a	23%	27%	24%	26%	24%	24%

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

Education Level of Respondents – Identical to the 2008 study, 72% of survey respondents in the current study have at least some college level education. The percentage of college graduates is basically unchanged since 2008 (at 28%), while a few more indicate they have some graduate work or a graduate degree (from 15% to 18%). Consistent with the 2008 study, 18% are high school or trade school graduates and 9% have less than a high school education. Education achievement – including a college degree or better – is highest in the Central or East zip code regions.

Table 9 Education Level of Respondents

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Less than high school	10%	11%	10%	5%	12%	5%	10%	8%	8%	9%
Completed high school/ Trade school	23%	42%	52%	20%	24%	18%	24%	19%	19%	18%
Some college	30%			29%	26%	28%	25%	25%	29%	26%
College graduate	19%	25%	19%	28%	24%	29%	23%	31%	27%	28%
Some graduate work or graduate degree	17%	20%	13%	19%	13%	20%	16%	16%	15%	18%

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

Annual Household Income – One of four (regardless of zip code zone) refused to divulge their annual household income category. This is slightly higher than we have found in the last three surveys (18%-21%). Compared to 2008, there are slightly fewer in the lower (less than \$15,000) (from 8% to 5%) and slightly more in the upper (\$80,000 or more) (from 18% to 22%) household income categories. Consequently, median annual household income (excluding refusals) has increased from \$49,339 in 2008 to \$54,713 in the current study. In 2007, median income was \$53,206.

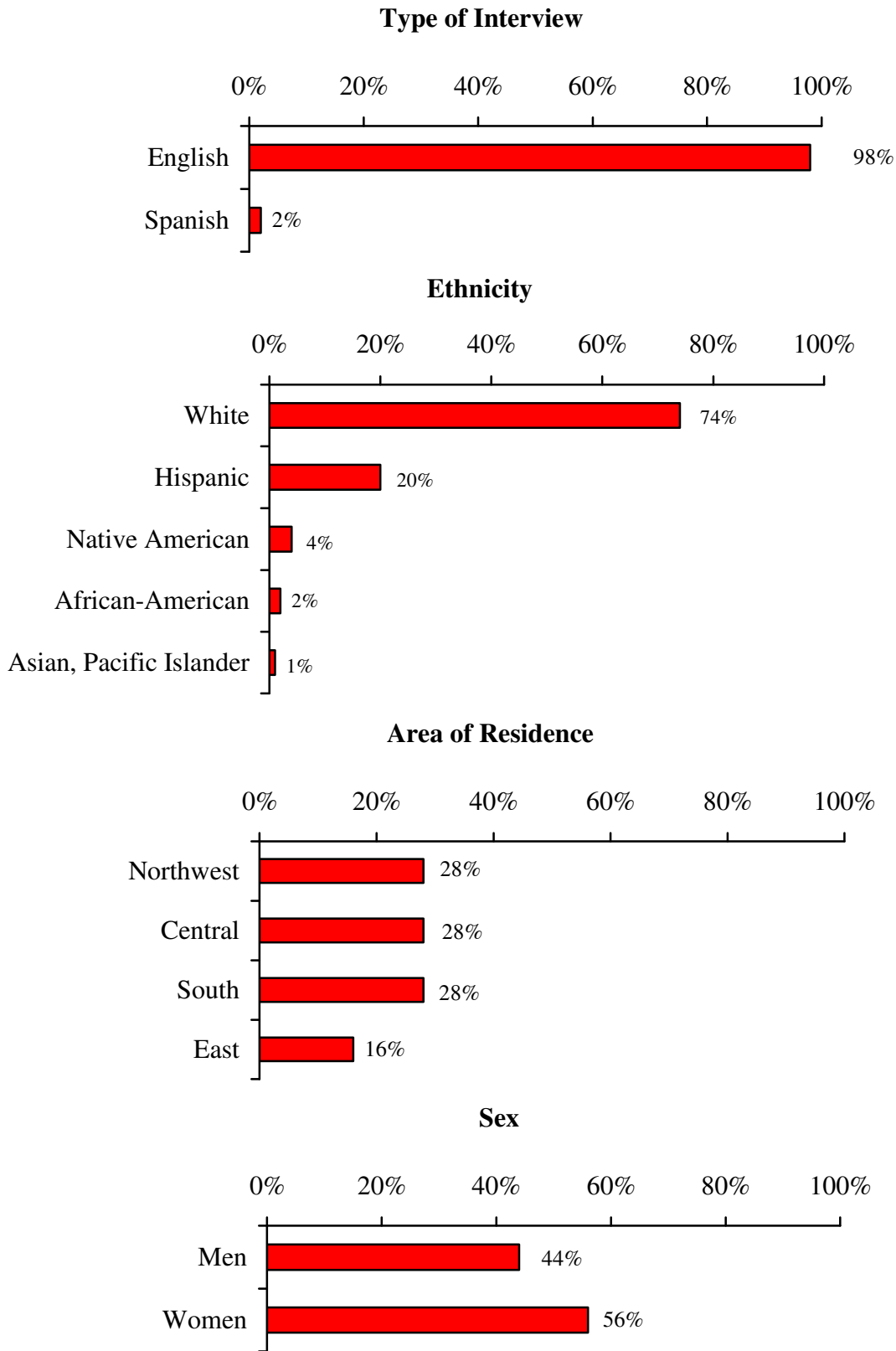
Table 10 Household Income

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Less than \$15,000	13%	9%	10%	9%	13%	8%	7%	5%	8%	5%
\$15,000 to \$24,999	14%	14%	15%	14%	14%	10%	12%	8%	9%	7%
\$25,000 to \$39,999	20%	19%	18%	22%	18%	18%	12%	15%	16%	15%
\$40,000 or more*	41%	44%	41%	53%	32%	48%	49%	50%	49%	47%
No answer/Refused	13%	15%	16%	2%	23%	16%	20%	21%	18%	25%
* \$40,000 to \$59,999	20%	20%	19%	23%	14%	19%	20%	16%	19%	13%
\$60,000 to \$79,999	12%	11%	10%	13%	9%	10%	11%	12%	12%	12%
\$80,000 or more	9%	13%	12%	17%	9%	19%	18%	22%	18%	22%

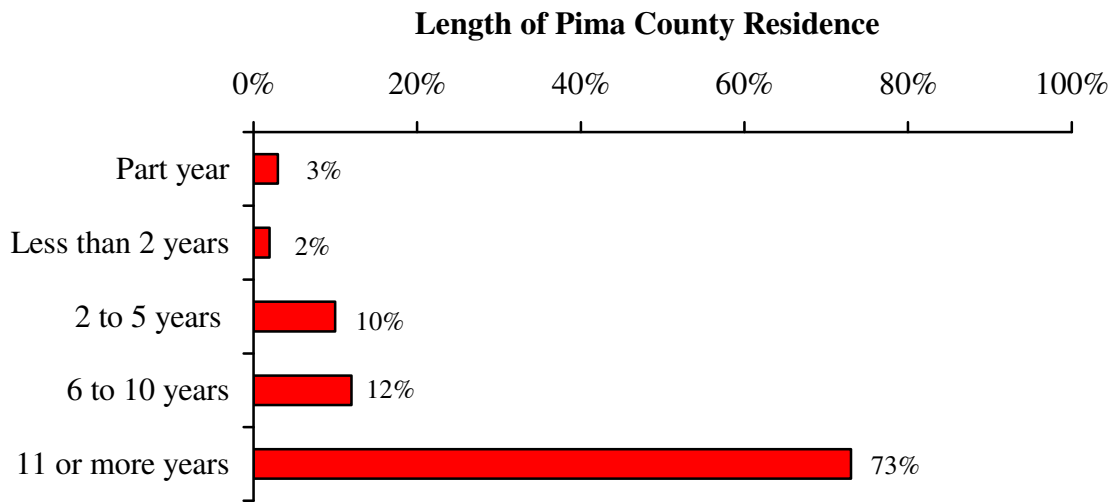
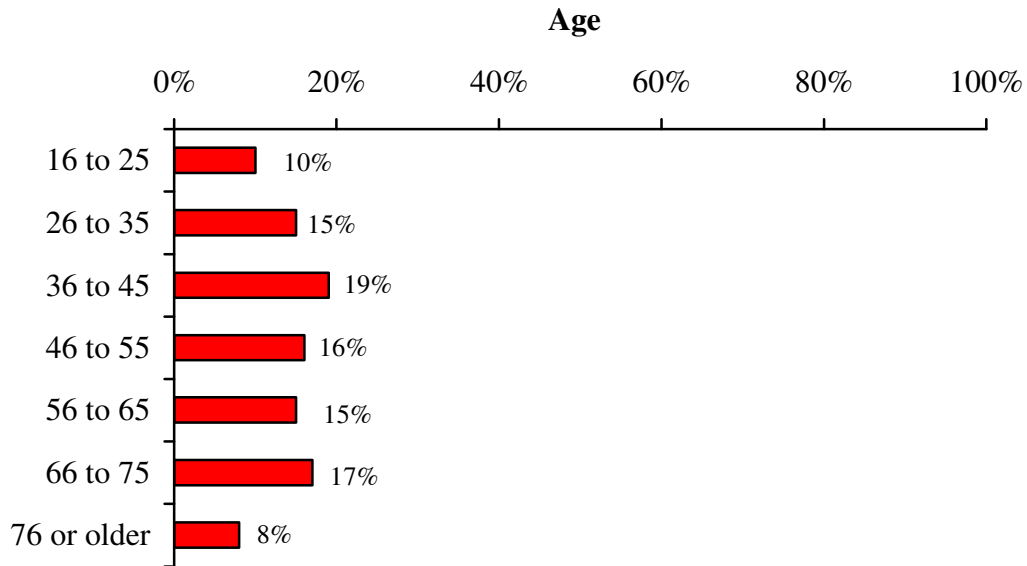
Question: As I read the following categories, please tell me into which group your total annual household income falls. We are not interested in your exact income, just your household income category...from all sources before taxes.

Display 1

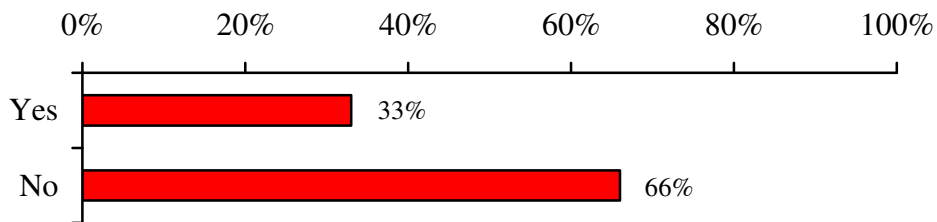
Demographic Profile of Respondents
(Among the Total Sample)



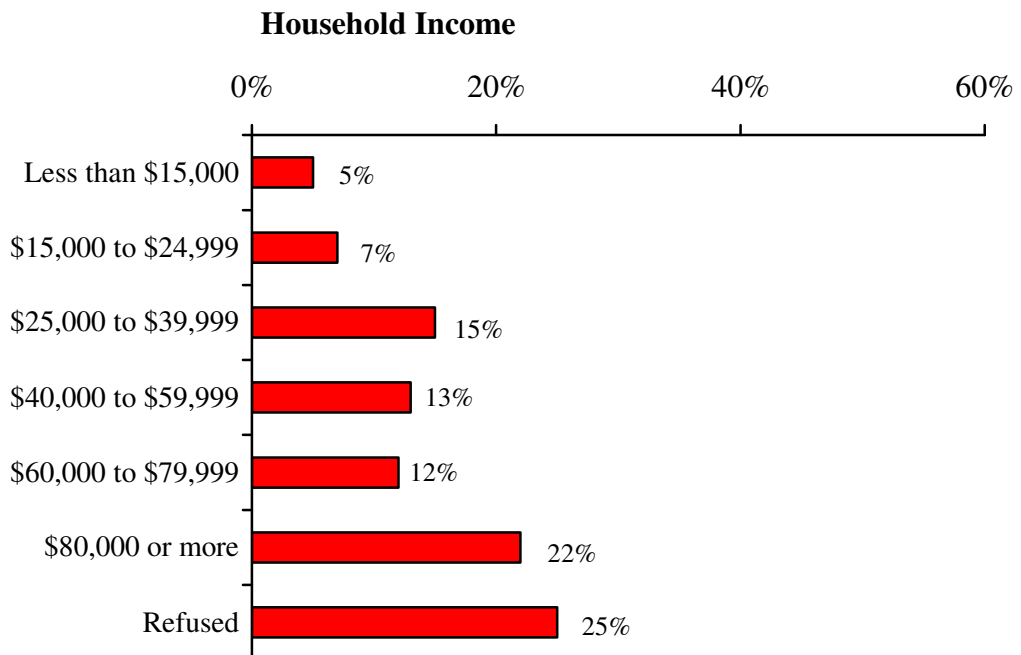
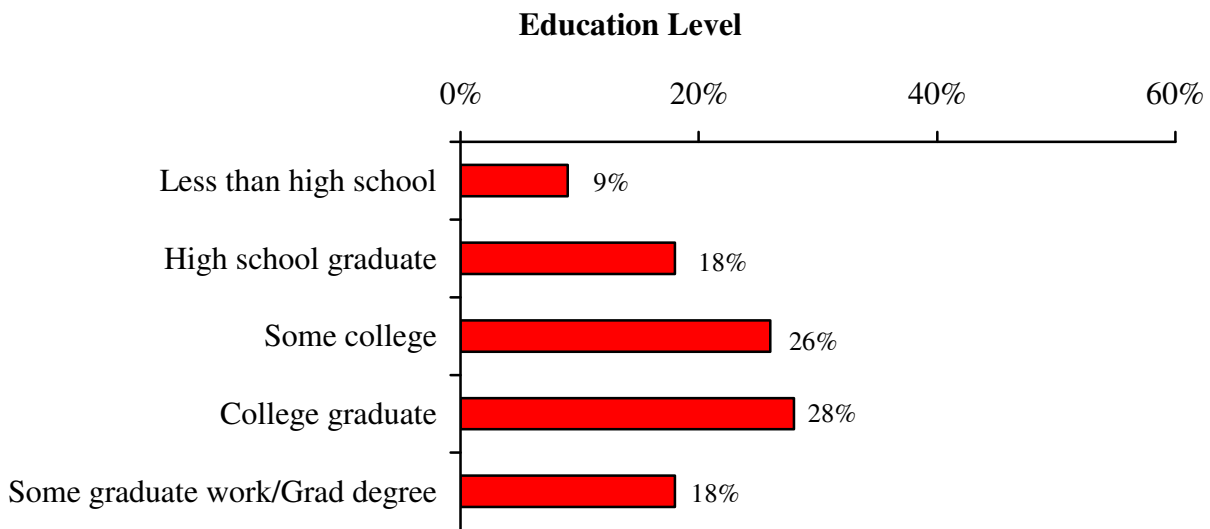
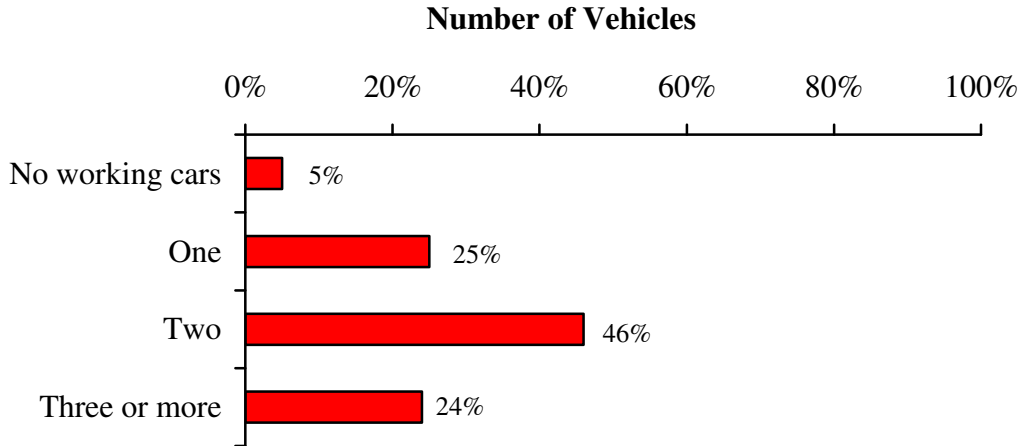
Display 1 (Cont'd) Demographic Profile of Respondents
 (Among the Total Sample)



Household Member With Breathing-Related Medical Condition



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



Awareness of Information About Air Quality/Pollution

Awareness of the Pima County “Clean Air” Program – A majority are aware of the Pima County “Clean Air” Program (52%). This represents an increase from the 2008 study (46%), but is lower than the all-time high recorded in 2006-2007 (59%). Awareness is directly related to the perceived seriousness of Tucson’s air quality. Still, even 48% of those who think there is a “minor” air quality problem indicate an awareness of the program. Awareness is generally consistent regardless of geography, marginally lower only in the South zips (46% versus 52%-55% in the other regions). Women (58% versus 44% of men), 36 to 45 or 56 to 65 year-olds, those with some college or a college degree and progressively more long-term Pima County residents also indicate a higher degree of awareness of the “Clean Air” Program.

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

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Yes	57%	55%	53%	43%	48%	53%	59%	59%	46%	52%
No	40%	45%	47%	57%	49%	41%	37%	36%	46%	43%
Don’t know	3%	–	–	–	3%	6%	4%	5%	7%	5%
	N=500	N=598	N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Yes	55%	52%	46%	55%	57%	53%	48%
No	38%	44%	52%	38%	41%	42%	44%
Don’t know	7%	4%	2%	8%	3%	4%	8%
	N=112	N=112	N=115	N=64	N=76	N=214	N=98

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

Awareness of Various Clean Air Events or Activities – Awareness of the “Clean Air” Program has increased from 46% in 2008 to 52% in 2011 (Table 11). Among individual events tracked from the 2008 study, awareness remains basically unchanged to higher.

Overall, 88% are aware of at least one “Clean Air” Program event or activity. This is down from 2008 (93%) or 2007 (90%) levels, but consistent with 2006 findings (88%). Still, similar to past studies, awareness of specific events remains much higher among those familiar with the “Clean Air” Program.

The majority are familiar with these three events:

- **“Earth Day Festival and Parade”** (68% awareness, down only slightly from 2008 levels [72%]. Awareness is generally consistent regardless of geography, gender, ethnicity, presence of a household breathing-related medical condition and among 16 to 65 year-olds. It is highest among those who perceive a “moderate” air quality problem.)
- **“Bike to Work Day”** (57% awareness, down slightly from 61% in 2008 [the highest mention recorded to-date]. Northwest residents, women, 36 to 55 year-olds, those who perceive a “moderate” air quality problem and the most formally educated respondents indicate the highest degree of familiarity. Awareness is lowest in the South region.)
- **“Bike Fest”** (53% awareness, up significantly from three of ten in 2008 [the first time this event was evaluated]. Recall is highest among Northwest residents, 36 to 55 year-olds, 2-to-5 year Pima County residents, lower income households and more formally educated respondents [with a college degree or better].)

One-third overall are aware of two events:

- **“Walk and Roll to School Day”** (34% awareness, basically unchanged since 2008 [33%]. Awareness is generally consistent regardless of region [slightly higher in the Northwest zips], and higher among 36 to 45 year-olds, non-Hispanic minorities, the least formally educated respondents and those who perceive a progressively more serious air quality problem.)
- **“Green Living Fair”** (New to the current study, 32% familiarity – with marginally higher awareness among Northwest zip residents, 36 to 75 year-olds and lower income households.)

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

Another new event – “Cyclovia” – is familiar to 13% overall. These tend to be Central zip residents, 36 to 45 year-olds and full-time employees (especially those who work at jobsites with less than 50 employees).

Table 12 Awareness of Various Clean Air Events or Activities

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
“Earth Day Festival and Parade”	–	67%	68%	n/a	71%	70%	66%	74%	72%	68%
“Bike to Work Day”	54%	50%	45%	n/a	53%	50%	56%	55%	61%	57%
“Bike Fest”	–	–	–	–	–	–	–	–	30%	53%
“Walk and Roll to School Day”*	18%	20%	19%	n/a	28%	29%	38%	22%	33%	34%
“Green Living Fair”	–	–	–	–	–	–	–	–	–	32%
“Bike to the Zoo Day”	12%	14%	11%	n/a	9%	8%	5%	10%	11%	20%
“Cyclovia”	–	–	–	–	–	–	–	–	–	13%
None of these	18%	13%	12%	n/a	13%	11%	12%	10%	7%	12%
	N=500	N=598	N=508	n/a	N=500	N=502	N=502	N=503	N=402	N=403

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
“Earth Day Festival and Parade”	69%	70%	62%	72%	64%	73%	59%
“Bike to Work Day”	66%	57%	46%	61%	57%	60%	54%
“Bike Fest”	59%	49%	54%	47%	49%	56%	51%
“Walk and Roll to School Day”*	38%	30%	34%	33%	45%	34%	26%
“Green Living Fair”	38%	30%	30%	30%	38%	35%	24%
“Bike to the Zoo Day”	19%	24%	16%	25%	22%	22%	14%
“Cyclovia”	11%	18%	10%	12%	9%	14%	12%
None of these	10%	12%	16%	9%	10%	11%	14%
	N=112	N=112	N=115	N=64	N=76	N=214	N=98

* Was “Walk Our Children to School Day” (5/00-5/06).

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.

Participation of Anyone in Household in a “Clean Air” Campaign Event – While somewhat fewer overall are familiar with at least one campaign event (88%, down from 93% in 2008), participation is at a record high. As summarized in Table 12a, 17% of those aware of at least one event indicate that they (or someone in their household) participated in at least one activity. This is up from one of ten in 2008, and represents the highest participation level recorded to-date (versus 8%-12% in recent years). What’s more, participation is generally consistent across a full spectrum of ages (16 to 65 year-olds). Participation is highest in the Central or East zips, as well as among women, college graduates and those employed at “large” (100+ employees) companies. Participation is directly related to perceived seriousness of the air quality problem and incidence of a household medical-related breathing problem.

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

	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Yes	9%	8%	n/a	12%	10%	9%	11%	10%	17%
No	91%	92%	n/a	86%	86%	88%	86%	88%	82%
Don’t know	–	–	n/a	2%	4%	4%	3%	2%	1%
	n/a	n/a	n/a	N=434	N=447	N=444	N=455	N=374	N=354

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Yes	16%	21%	14%	19%	25%	20%	7%
No	84%	78%	86%	79%	74%	80%	93%
Don’t know	0%	1%	0%	2%	2%	1%	0%
	N=101	N=99	N=96	N=58	N=68	N=190	N=84

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 Participation in “Clean Air” Events – Among the record 17% who indicate past-participation in a “Clean Air” event, 57% report that they have changed (or are considering actions to change) their daily routine or behaviors to help improve air quality. This equals 9% of the total sample – up from 7% overall in both 2007 and 2008. The willingness to change is evident regardless of education and higher among residents in the Northwest or East zips, 26 to 45 or 56 to 65 year-olds and those who perceive a “moderate” air quality problem.

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

	05/07 Total	05/08 Total	06/11 Total	Area				Air Quality Problem		
				North- west	Central	South	East	Major	Moderate	Minor
Yes	65%	81%	57%	62%	52%	46%	73%	53%	65%	17%
No	27%	11%	41%	38%	43%	54%	27%	47%	35%	67%
Don't know	8%	8%	2%	0%	5%	0%	0%	0%	0%	17%
	N=52	N=36	N=61	N=16	N=21	N=13	N=11	N=17	N=37	N=6

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 86% of respondents aware of at least one “Clean Air” campaign event have a favorable opinion of “events that encourage people to use other modes of transportation or work from home instead of driving alone.” This is the highest favorable rating recorded to-date (compared to 78%-84% in recent years), although the percentage “very favorable” is down slightly from 2008 (42%, down from 46%). Those “very favorable” towards “Clean Air” events tend to be Northwest or South region residents, women, 16 to 35 year-olds, Hispanics and respondents impacted by a medial-related breathing problem – as well as those who perceive a progressively more serious air quality problem. Overall, 13% have a negative opinion of “Clean Air” activities (up from 7%-8% between 2006 and 2008).

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

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

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Very favorable	46%	40%	45%	31%	57%	41%	29%
Somewhat favorable	39%	44%	47%	48%	37%	52%	36%
Not very favorable	10%	6%	2%	12%	2%	4%	18%
Not at all favorable	6%	7%	5%	7%	3%	3%	17%
Don't know/No answer	0%	2%	1%	2%	2%	1%	1%
	N=101	N=99	N=96	N=58	N=68	N=190	N=84

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?

Types of Information Most Likely to Encourage Use of Alternative Transportation Methods – Highly consistent with past surveys, and allowing for multiple mentions, these four types of information would most likely encourage the use of alternative methods of transportation:

- **Information about how alternative modes can save you money** (53%, up significantly from 2006-2008 levels [42%-44%], and the highest total recorded to-date. Money-saving information is especially relevant to South region residents, men, 16 to 35 year-olds, Hispanics and those with some college or less.)
- **Information about how alternative modes can save you gasoline** (34%, down slightly from 2008 [38%] – but consistent with 2007 findings [34%]. Again, importance is highest in the South zips and among Hispanics [as well as non-Hispanic minorities]. Women and 16 to 45 year-olds are also more likely to indicate increased importance.)
- **Information about how alternative modes can help reduce air pollution** (25%, off slightly from 2008 [27%] and 2007 [29%] totals. Information related to air pollution is more important to East region residents, 6-to-10 year Pima County residents and those who perceive a progressively more severe air quality problem [including 46% who declare it a “major” issue].)
- **Information on how alternative modes can improve your health** (24%, basically unchanged since 2008 [23%]. Health-related information is *less* important only to East region residents [17% versus 24%-27% in the other zones] – with fewer differences based on existence of a breathing-related medical condition. Younger respondents [16 to 35], newer Pima County residents and Hispanics indicate increased importance.)

New to the current study, 8% indicate that **information on how alternative modes can reduce global climate change** is relevant to them. These tend to be Northwest or East region residents, women and those who perceive a “major” air quality problem. Down slightly from recent surveys (10%-13%), 7% (regardless of geography) say in the current study that **information about how to use alternative modes** could encourage their usage.

Identical to 2008, 19% say that **nothing** would encourage them to use alternative modes – most likely those who indicate that Tucson’s air quality problem is “minor.”

Table 14

Type of Information Most Likely to Encourage Use of
Alternative Transportation Methods
(Multiple Mentions Allowed)

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Can save you money	49%	17%	17%	n/a	32%	34%	43%	42%	44%	53%
Can save gasoline	–	–	–	–	29%	32%	37%	34%	38%	34%
Can help reduce air pollution	36%	11%	13%	n/a	17%	22%	26%	29%	27%	25%
Can improve your health	51%	18%	19%	n/a	19%	15%	22%	23%	23%	24%
Can reduce global climate change	–	–	–	–	–	–	–	–	–	8%
How to use alternate modes	26%	14%	13%	n/a	11%	13%	12%	12%	10%	7%
Something else	3%	6%	11%	n/a	3%	2%	3%	0%	1%	4%
Nothing	22%	26%	21%	n/a	33%	30%	27%	24%	19%	19%
	N=500	N=598	N=508	n/a	N=500	N=502	N=502	N=503	N=402	N=403

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Can save you money	47%	54%	60%	50%	57%	58%	45%
Can save gasoline	35%	28%	41%	30%	40%	36%	24%
Can help reduce air pollution	27%	20%	22%	34%	46%	24%	10%
Can improve your health	25%	27%	24%	17%	16%	27%	28%
Can reduce global climate change	12%	5%	5%	11%	12%	6%	8%
How to use alternate modes	6%	6%	8%	9%	4%	8%	6%
Something else	3%	4%	4%	5%	3%	4%	4%
Nothing	21%	20%	15%	22%	14%	15%	29%
	N=112	N=112	N=115	N=64	N=76	N=214	N=98

Question: Which of the following types of information would most likely encourage you to consider using alternative methods of transportation? Information about how alternative modes...

Expression of Air Pollution Concerns by Children – Among the 27% of survey respondents with children ages 5 to 18 in their household, one-third indicate that these children have asked questions or talked about air pollution. This is up from three of ten in 2008. These households are most likely to be located in the Northwest region. Those reporting such concerns by children tend to be women, 16 to 45 year-olds, highly educated and respondents aware of the “Clean Air” Program – as well as residents who perceive a “moderate” air quality problem.

Table 15a Expression of Air Pollution Concerns by Children
(Among Households With Children Ages 5-18)

	05/00 Total*	06/01 Total*	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Yes	40%	41%	34%	38%	30%	38%	30%	36%	30%	33%
No	60%	59%	66%	62%	68%	59%	68%	60%	67%	65%
Don't know	–	–	–	–	1%	3%	1%	4%	2%	2%
	N=99	n/a	n/a	n/a	N=143	N=139	N=149	N=153	N=119	N=109

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
Yes	48%	27%	28%	29%	20%	47%	8%
No	52%	73%	68%	71%	80%	53%	92%
Don't know	0%	0%	4%	0%	0%	0%	0%
	N=29	N=26	N=47	N=7	N=10	N=66	N=26

* Ages 6 to 12.

Question: Have the children between 5 and 18 years of age in your home ever asked you questions or talked to you about air pollution?

Incidence of Children Ages 5-18 Receiving Air Pollution Information From School – More than one-third of households with children age 5 to 18 report that these children have “talked about or brought home materials from school about improving air quality” (36%). This represents an increase from the 2008 study (30%), but is consistent with 2007 (36%). School material recall is higher among households in the Northwest zips, women and those familiar with the “Clean Air” Program.

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

	05/00 Total*	06/01 Total*	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Yes	39%	36%	37%	39%	32%	34%	36%	36%	29%	36%
No	61%	64%	63%	61%	62%	61%	59%	50%	64%	59%
Don't know	–	–	–	–	6%	4%	5%	14%	7%	6%
	N=99	n/a	n/a	n/a	N=143	N=139	N=149	N=153	N=119	N=109

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Yes	45%	31%	30%	57%	40%	47%	15%
No	52%	65%	62%	43%	60%	48%	81%
Don't know	3%	4%	8%	0%	0%	4%	4%
	N=29	N=26	N=47	N=7	N=10	N=66	N=26

* Ages 6 to 12.

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

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

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

Up from just “single-digit” mention in 2008, more now consider **cell phone/text messages** (19%, up from 8%) or **Internet web postings** (17%, up from 6%) to be most effective. The appeal of both methods is higher among younger (16 to 35 year-old) respondents. As we found in 2008, less than one of ten consider **email** “most effective” (8%, up slightly from 5%).

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

Table 16 Most Effective Means of Communicating Air Quality Alerts on Air Quality Action Days

	5/08 Total	6/11 Total	Area				Air Quality Problem		
			North-west	Central	South	East	Major	Moderate	Minor
Television alerts	64%	51%	54%	46%	50%	58%	53%	54%	46%
Radio announcements	40%	43%	41%	38%	49%	45%	36%	45%	47%
Television news reports	41%	37%	38%	30%	41%	39%	49%	31%	41%
Cell phone/Text messages	8%	19%	12%	20%	24%	22%	22%	19%	17%
Internet website postings	6%	17%	15%	21%	10%	23%	12%	20%	14%
E-mail	5%	8%	10%	6%	10%	5%	7%	10%	4%
None/Can't think of any	9%	2%	3%	4%	1%	0%	0%	0%	6%
	N=402	N=403	N=112	N=112	N=115	N=64	N=76	N=214	N=98

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

Agreement With Various Statements Regarding Air Pollution – Consistent with past surveys, respondents were read several statements about air pollution, gas prices and related government agencies and asked to agree or disagree with each.

PDEQ/Sun Rideshare Evaluations –

- **You are aware of the Pima County Department of Environmental Quality (PDEQ)** (69% agree, basically unchanged since the 2008 survey [70%]. Awareness is lower only in the South zips [56% versus 70%-77% in the other regions]. Older respondents [56+], those who perceive a “major” air quality problem and respondents familiar with the “Clean Air” Program are most apt to indicate awareness of PDEQ [85% versus 50% unfamiliar].)
- **You are aware of the services provided by Sun Rideshare** (New to the current study, 48% agree. Agreement is lower only among South region residents [41% versus 50%-52% in the other zones] and similar regardless of perceived air quality problem. Those most familiar with Sun Rideshare services include 36 to 55 year-olds and respondents aware of the “Clean Air” Program.)

Air Pollution/Gas Price Evaluations –

- **You are aware that air pollution causes health problems** (As we have found in prior surveys, agreement is nearly universal [98%].)
- **You understand what an air pollution advisory means** (87% agree, up from 79% in 2008 [when the statement read was “you understand what an air pollution advisory means, issued as part of an Air Quality Action Day”]. Awareness is especially high in the East zips, with no difference based on familiarity with the “Clean Air” Program, perceived air quality problem or impact of a breathing-related medical condition.)
- **You are aware that the majority of our air pollution comes from motor vehicle use** (New to the 2011 study, 79% agree with this statement – with a similar degree of agreement among those who perceive a “major” or “moderate” air quality problem. There are fewer differences based on awareness of the “Clean Air” Program or geography. Instead, women and 16 to 35 year-olds are most apt to agree.)
- **You are aware of air pollution advisories in Tucson** (75% agreement, down only slightly from 2008 [79%]. Once again, awareness is directly related to the perceived seriousness of Tucson’s air quality problem and higher among Northwest or East region residents, women, 46 to 65 year-olds and those aware of the “Clean Air” Program.)

- **You have seen or heard commercials on TV or radio regarding clean air or air pollution** (74% agree, up from 69% in 2008. Agreement is lower only in the South zips and is consistent regardless of perceived air quality problem. Recall is highest among those aware of the Pima County “Clean Air” Program [83% versus 64% who are unaware].)
- **Because of *higher gas prices*, you are generally driving less** (64% agree, consistent with 2006-2008 totals [62%-64%]. South region residents, women, 16 to 25 or 46 to 55 year-olds, Hispanics and households with incomes under \$40,000 are most apt to agree with this statement. Agreement is marginally higher among those aware of the “Clean Air” Program [68%] than not [60%].)
- **Because you want to *reduce air pollution*, you are generally driving less** (48% agree [regardless of “Clean Air” Program awareness], down from 55% in 2008. Still, agreement is directly related to the perceived seriousness of Tucson’s air quality problem. South zip residents and non-Whites are also more apt to agree with this statement.)
- **You have noticed a reduction in the amount of dust generated at construction sites or at other dust producing activities** (45% agree, basically unchanged since 2008 [44%]. Agreement is highest in the Central zip codes [54% compared to only 34% in the East]. The youngest respondents, those who perceive a “moderate” air quality problem, non-Whites and residents familiar with the “Clean Air” Program are also more apt to agree.)

Table 17 Agreement With Various Statements Regarding Air Pollution

	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
You are aware that air pollution causes health problems.*	-	-	-	-	98%	96%	98%
You understand what an air pollution advisory means.**	84%	86%	88%	83%	83%	79%	87%
You are aware that the majority of our air pollution comes from motor vehicle use.	-	-	-	-	-	-	79%
You are aware of air pollution advisories in Tucson.	79%	78%	74%	70%	74%	79%	75%
You have seen or heard commercials on TV or radio regarding clean air or air pollution.	-	-	74%	75%	76%	69%	74%
You are aware of the Pima County Department of Environmental Quality (PDEQ).***	44%	48%	45%	48%	65%	70%	69%
Because of <i>higher gas prices</i> , you are generally driving less	-	-	-	63%	64%	62%	64%
You are aware of the services provided by Sun Rideshare.	-	-	-	-	-	-	48%
Because you want to <i>reduce air pollution</i> , you are generally driving less	-	-	-	-	-	55%	48%
You have noticed a reduction in the amount of dust generated at construction sites or at other dust producing activities.	-	-	33%	36%	42%	44%	45%
	N=1006	N=500	N=502	N=502	N=503	N=402	N=403

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
You are aware that air pollution causes health problems.*	98%	96%	100%	98%	100%	99%	96%
You understand what an air pollution advisory means.**	88%	86%	80%	97%	84%	86%	90%
You are aware that the majority of our air pollution comes from motor vehicle use.	77%	78%	82%	78%	79%	83%	68%
You are aware of air pollution advisories in Tucson.	81%	74%	65%	84%	84%	77%	66%
You have seen or heard commercials on TV or radio regarding clean air or air pollution.	77%	77%	66%	77%	74%	73%	71%
You are aware of the Pima County Department of Environmental Quality (PDEQ).***	77%	74%	56%	70%	79%	68%	68%
Because of <i>higher gas prices</i> , you are generally driving less	67%	54%	73%	59%	64%	66%	57%
You are aware of the services provided by Sun Rideshare.	52%	51%	41%	50%	46%	50%	50%
Because you want to <i>reduce air pollution</i> , you are generally driving less	47%	41%	57%	44%	62%	48%	34%
You have noticed a reduction in the amount of dust generated at construction sites or at other dust producing activities.	45%	54%	44%	34%	45%	51%	38%
	N=112	N=112	N=115	N=64	N=76	N=214	N=98

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

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

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

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

Actions Taken to Drive Less Because of Higher Gas Prices – Among the 64% of respondents who are driving less because of higher gas prices, seven of ten again indicate that they are reducing or combining trips (71%, unchanged since 2008). These tend to be East region residents, those 56 or older and 11+ year Pima County residents. The incidence of reducing or combining car trips is inversely related to perceived air quality problem.

In lesser numbers, others are carpooling/vanpooling (22%, up from 14% in 2008) and/or walking for short trips or errands (13%, basically unchanged). Carpooling is more popular among South region residents, 16 to 45 year-olds and lower income households. Central or East zip residents and 46 to 65 year-olds are more apt to walk for short trips.

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

Table 17a

Actions Taken to Drive Less Because of Higher Gas Prices
(Among Those Driving Less)

	05/06 Total	05/07 Total	05/08 Total	06/11 Total	Area			
					North- west	Central	South	East
Reducing/Combining trips	77%	76%	70%	71%	73%	66%	69%	79%
Carpooling/Van pooling	21%	24%	14%	22%	16%	23%	30%	16%
Walking for short trips or errands	16%	19%	14%	13%	12%	18%	7%	18%
Stay home/Don't go out/Drive less	–	–	4%	7%	5%	2%	11%	8%
Walking to work or school	3%	4%	4%	5%	3%	7%	4%	8%
Riding the bus	2%	9%	10%	4%	1%	3%	7%	5%
Riding a bicycle for short trips/ Errands	5%	4%	10%	4%	1%	13%	1%	3%
Telecommuting	2%	4%	4%	4%	5%	2%	0%	10%
Compressed work week	4%	2%	2%	3%	5%	0%	2%	5%
Riding a bicycle to work or school	2%	2%	3%	2%	1%	3%	1%	3%
	N=318	N=320	N=251	N=258	N=75	N=61	N=84	N=38

	Air Quality Problem		
	Major	Moderate	Minor
Reducing/Combining trips	65%	73%	80%
Carpooling/Van pooling	29%	23%	18%
Walking for short trips or errands	10%	14%	12%
Stay home/Don't go out/Drive less	2%	4%	9%
Walking to work or school	4%	5%	5%
Riding the bus	2%	6%	4%
Riding a bicycle for short trips/Errands	8%	4%	2%
Telecommuting	0%	6%	2%
Compressed work week	4%	1%	4%
Riding a bicycle to work or school	4%	2%	0%
	N=49	N=141	N=56

Question: What actions are you taking to drive less?

Perceived Seriousness of Air Quality Problem in the Tucson Area – Two of ten perceive that there is a “serious” air quality problem in the Tucson area (19%). This is down from 2008 (25%), and represents the lowest total recorded in the recent past. The majority continue to indicate a “moderate” air quality problem (53%, down somewhat from 58% in 2008). One of four in the current study perceive a “minor” air quality problem (versus 13% to 20% since 2000).

The perception of a “major” air quality problem is higher in the Northwest (25%) or South (20%) zip codes as compared to the Central or East (14% each). Women, the least formally educated respondents and lower income households more likely to indicate a “major” air quality problem – as do those impacted by a breathing related medical problem. Meanwhile, ethnicity and “Clean Air” Program awareness are non-factors.

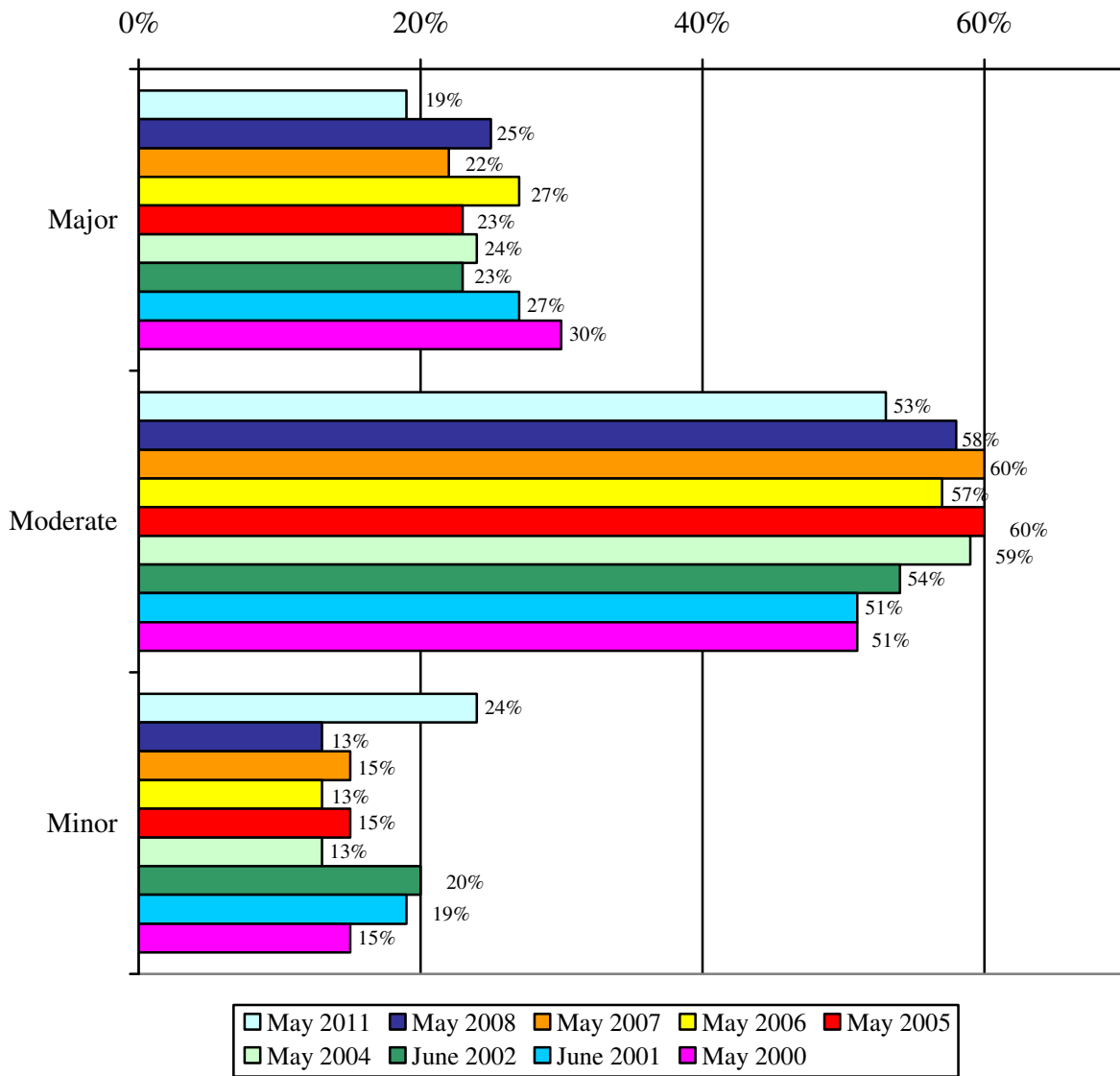
Who is more likely to perceive that Tucson’s air quality is a “minor problem”? East region residents, 55 to 65 year-olds, newer Pima County residents, higher income households and those with a college degree or better.

Table 18 **Perceived Seriousness of Air Quality Problem in Tucson Area**

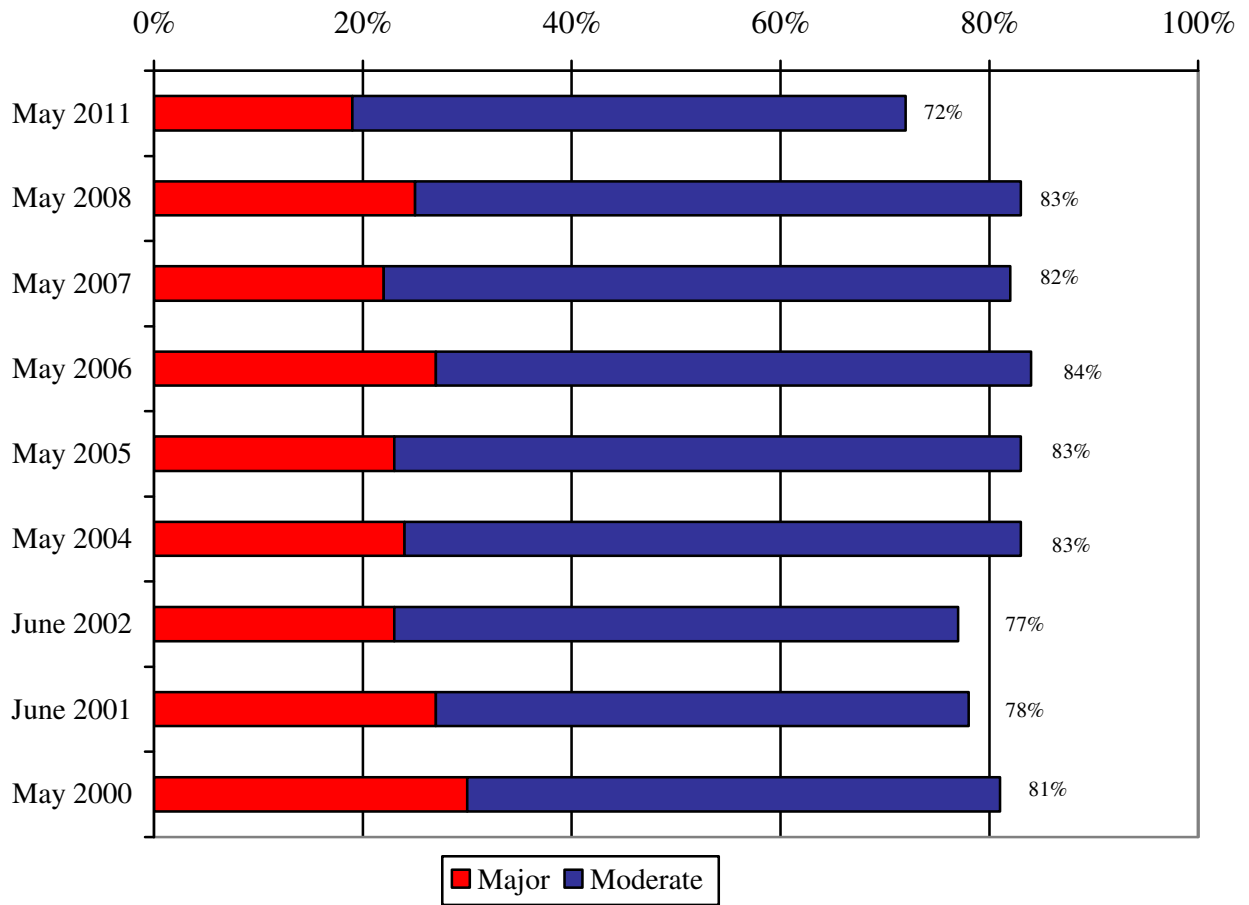
	05/00 Total	06/01 Total	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Major problem	30%	27%	23%	24%	23%	27%	22%	25%	19%
Moderate problem	51%	51%	54%	59%	60%	57%	60%	58%	53%
Minor problem	15%	19%	20%	13%	15%	13%	15%	13%	24%
Don't know	4%	3%	3%	3%	2%	3%	2%	4%	4%

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

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



Display 18 Perceived Seriousness of Air Quality Problem in Tucson Area
 Among the Total Sample – Sum of “Moderate” and “Major” Responses



Importance of Regional Campaign to Encourage People to Take Actions to Improve Air Quality – Consistent with prior surveys, the vast majority of respondents think it is at least “somewhat important” to have a regional campaign that encourages people to improve air quality (84%). However, compared to recent years, fewer think such a campaign is “very important” (46%, down from 50%-60% in recent years and 55% in 2008). Among the rest, 15% indicate that a regional campaign is of little (8%) or no (7%) importance (up from 9% in 2008).

As we have found in past years, the high degree of importance for a regional campaign is directly related to the perceived seriousness of the air quality problem in Tucson. It is also higher among those aware of the “Clean Air” Program (48% versus 42% not aware) or impacted by a breathing-related medical problem (58% versus 40% not impacted). Strong support is generally consistent regardless of geography and highest among women (52% versus 38% of men), 26 to 35 year-olds, 6-to-10 year Pima County residents and non-Whites (especially Hispanics).

Those who think a regional campaign is unimportant tend to be men, older (56+) and high income households.

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

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

	Area				Air Quality Problem		
	Northwest	Central	South	East	Major	Moderate	Minor
Very important	49%	43%	46%	44%	63%	49%	26%
Somewhat important	36%	40%	37%	39%	32%	44%	33%
Not very important	10%	8%	7%	6%	4%	6%	15%
Not at all important	4%	9%	8%	11%	1%	2%	24%
Don't know/No answer	2%	0%	2%	0%	0%	0%	2%
	N=112	N=112	N=115	N=64	N=76	N=214	N=98

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

Work Commuting Behavior

Employment Status – Up from three of ten in 2008, and allowing for multiple mentions, one-third of survey respondents are employed on a full-time basis (34%). The percentage of full-time employees is highest in the Central region (43%) and lowest in the Northwest (28%). Similar to past years, men (42%) remain far more likely than women (28%) to be employed full-time. Those employed full-time tend to be 26 to 55 year-olds. Another 8% are employed on a part-time basis (down from 12%), more often South region residents.

Similar to the 2008 study, 35% are retired – including the vast majority of those 66+. The majority of 56 to 65 year-olds are also retired (56%). Retirees are most apt to live in the Northwest or East zip codes. Among the rest, 9% are students (unchanged from 2008) and 9% are homemakers (down slightly from 12%). Students are more apt to reside in the South zips, while Northwest or South region residents are more likely to be homemakers. Another 6% indicate that they are currently unemployed (down slightly from 8% in 2008), more often Central region residents.

Table 20

Employment Status
(Multiple Mentions Allowed)

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Employed full-time (30 hours or more each week)	43%	44%	40%	37%	30%	28%	34%	35%	29%	35%
Employed part- time (Less than 30 hours each week)	16%	12%	10%	10%	9%	9%	11%	11%	12%	8%
A student	13%	8%	14%	6%	13%	15%	11%	10%	9%	9%
Retired	24%	29%	26%	33%	32%	33%	32%	31%	34%	35%
A homemaker	14%	8%	8%	7%	12%	13%	12%	10%	12%	9%
Currently unemployed	5%	6%	10%	7%	8%	6%	4%	4%	8%	6%
	N=500	N=598	N=508	N=1006	N=500	N=502	N=502	N=503	N=402	N=403

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
Employed full-time (30 hours or more each week)	28%	43%	35%	31%	34%	34%	38%
Employed part-time (Less than 30 hours each week)	8%	5%	10%	8%	8%	8%	8%
A student	5%	8%	13%	8%	4%	13%	4%
Retired	44%	30%	24%	45%	46%	29%	38%
A homemaker	11%	7%	11%	6%	4%	10%	8%
Currently unemployed	4%	10%	6%	3%	4%	9%	2%
	N=112	N=112	N=115	N=64	N=76	N=214	N=98

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

Location of Place of Employment – Highly consistent with the 2008 survey, 18% of respondents employed at least part-time work at a home-based business, either exclusively (unchanged at 15%) or in addition to another company (3%, down slightly from 4%). The remaining 82% (unchanged since 2008) are employed exclusively outside the home – regardless of zip code area (slightly lower on in the South zips: 78% versus 80%-85% in the other regions).

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

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Home-based business	15%	12%	12%	14%	12%	17%	18%	17%	15%	15%
Another company	81%	85%	84%	86%	86%	79%	78%	78%	82%	82%
Both	5%	2%	4%		2%	4%	4%	5%	4%	3%
	N=292	N=336	N=253	n/a	N=195	N=190	N=227	N=233	N=163	N=170

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
Home-based business	10%	17%	16%	20%	3%	21%	11%
Another company	85%	83%	78%	80%	97%	77%	82%
Both	5%	0%	6%	0%	0%	2%	7%
	N=40	N=54	N=51	N=25	N=32	N=90	N=45

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

Number of Full-Time Employees at Jobsite – Unchanged since 2008, one-half of those who work outside the home indicate that there are more than 100 employees at their primary place of work. Among the rest, and consistent with prior surveys, more employees work at a small (less than 50 employees) rather than a medium (50 to 100 employees) jobsite. Northwest residents and those with some college (but no degree) are more apt to be employed by a small business. South or (especially) East region residents, men, non-Whites and full-time employees are more likely to work at a large jobsite.

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

	05/00 Total	06/01 Total	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
More than 100	39%	47%	53%	50%	54%	55%	53%	50%	50%
Less than 100	56%	53%	47%	49%	46%	44%	46%	48%	49%
Between 50 and 100	(16%)	(13%)	(14%)	(12%)	(11%)	(12%)	(10%)	(14%)	(12%)
Less than 50	(40%)	(40%)	(33%)	(37%)	(35%)	(32%)	(36%)	(34%)	(37%)
Don't know	5%	1%	0%	1%	–	1%	1%	2%	1%

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

Incidence of Telecommuting – Among workers employed outside the home, 19% indicate that they telecommute (“working from home as an alternative to going in your office or business location during regular business hours”). This represents a significant increase (+111%) in the incidence of telecommuting since 2008 (9%). Telecommuters tend to reside in the Northwest or East zips and be employed at large jobsites (with 100+ employees).

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

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Yes	8%	7%	5%	6%	8%	8%	4%	14%	9%	19%
No/Employer does not offer telecommuting/ Don't know/Not sure	92%	93%	95%	94%	92%	92%	96%	86%	91%	81%
	N=249	N=283	N=223	n/a	N=172	N=157	N=185	N=193	N=139	N=144

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
Yes	22%	16%	16%	25%	29%	18%	10%
No/Employer does not offer telecommuting/ Don't know/Not sure	78%	84%	94%	75%	71%	82%	90%
	N=36	N=45	N=43	N=20	N=31	N=71	N=40

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

Frequency of Telecommuting – Among those who telecommute, six of ten do so more than once a week (26%) or about once a week (33%). This is up from 54% in 2008, although the percentage of more than once a week telecommuters has declined somewhat (from 31% to 26%). Among the rest, four of ten telecommute 2 to 3 times a month (15%, down from 31%) or once a month (or less) (from 15% to 26%).

Table 24 Frequency of Telecommuting
(Among Those Who Telecommute)

	05/00 Total	06/01 Total	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
More than once a week	58%	61%	42%	50%	46%	62%	52%	31%	26%
About once a week	5%	28%	32%	7%	23%	25%	15%	23%	33%
2 to 3 times a month	14%	6%	10%	21%	23%	12%	15%	31%	15%
Once a month	5%	6%	5%	21%	8%	0%	18%	15%	26%
	N=21	N=18	N=19	N=14	N=13	N=8	N=27	N=13	N=27

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

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

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
Yes	34%	23%	27%	27%	25%	31%	35%	31%	27%	33%
No	66%	77%	73%	73%	75%	69%	65%	69%	73%	67%
	N=249	N=296	N=223	N=456	N=172	N=157	N=185	N=193	N=139	N=144

	Area				Air Quality Problem		
	North- west	Central	South	East	Major	Moderate	Minor
Yes	36%	31%	33%	35%	42%	34%	25%
No	64%	69%	67%	65%	58%	66%	75%
	N=36	N=45	N=43	N=20	N=31	N=71	N=40

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

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

	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
8 hour day, 5 days a week	59%	58%	49%	70%	68%	62%	68%	64%	72%
10 hour day, 4 days a week	7%	4%	6%	5%	6%	6%	6%	11%	10%
12 hour day, 3 or 4 days a week	2%	4%	6%	8%	2%	10%	7%	6%	5%
80 hours over 9 days with the 10 th day off	2%	2%	2%	8%	3%	1%	3%	3%	2%
Varies/Other	30%	32%	38%	8%	21%	20%	17%	16%	11%
	N=296	N=223	n/a	N=129	N=121	N=138	N=146	N=100	N=118

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
8 hour day, 5 days a week	64%	70%	79%	75%	76%	74%	67%
10 hour day, 4 days a week	18%	8%	6%	12%	4%	12%	12%
12 hour day, 3 or 4 days a week	4%	10%	0%	6%	8%	7%	0%
80 hours over 9 days with the 10 th day off	4%	2%	0%	0%	0%	0%	3%
Varies/Other	11%	10%	15%	6%	12%	7%	18%
	N=28	N=40	N=34	N=16	N=25	N=58	N=33

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 prior surveys, 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 where possible) is included in Table 27-S, with the detailed daily usage in Table 27-D.

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

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

The remaining commute travel methods analyzed in this survey include:

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

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

Travel Method	2001 Usage* (N=302)	2001 Average Frequency	2002 Usage* (N=260)	2002 Average Frequency	2004 Usage* (N=172)	2004 Average Frequency
Drive alone	83%	4.8 days	79%	4.6 days	84%	4.4 days
Carpool/Vanpool	20%	3.9 days	19%	3.5 days	17%	3.9 days
Walk to work	9%	3.3 days	12%	3.3 days	10%	4.1 days
Ride a bike	7%	3.6 days	7%	3.6 days	10%	3.6 days
Work at home instead of driving to work	–	–	–	–	7%	2.7 days
Take the bus	8%	3.6 days	6%	3.6 days	4%	3.8 days
Ride a motorcycle	3%	2.4 days	1%	2.7 days	3%	2.6 days

Travel Method	2005 Usage* (N=210)	2005 Average Frequency	2006 Usage* (N=219)	2006 Average Frequency	2007 Usage* (N=229)	2007 Average Frequency
Drive alone	77%	4.3 days	81%	4.4 days	78%	4.1 days
Carpool/Vanpool	24%	3.6 days	24%	4.4 days	30%	3.4 days
Walk to work	15%	3.9 days	9%	3.2 days	14%	3.6 days
Ride a bike	13%	3.3 days	6%	2.8 days	9%	2.8 days
Work at home instead of driving to work	8%	3.2 days	6%	3.5 days	10%	2.7 days
Take the bus	8%	4.0 days	6%	3.9 days	7%	3.8 days
Ride a motorcycle	3%	2.8 days	3%	4.2 days	2%	3.6 days

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

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

**Table 27-D Detailed Daily Usage and Tracking of Transportation Methods for
Traveling To and From Work or School
(Among Those Working Outside the Home or Going to School)**

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	Area				Awareness of "Clean Air" Program	
							North- west	Central	South	East	Yes	No
Take the bus												
Not at all	96%	92%	94%	93%	89%	95%	100%	98%	90%	92%	99%	91%
1-4 days/week	2%	3%	2%	4%	6%	4%	0%	2%	5%	8%	1%	5%
5 days/week	1%	4%	4%	3%	3%	2%	0%	0%	5%	0%	0%	4%
6+ days/week	1%	1%	0%	1%	2%	0%	0%	0%	0%	0%	0%	0%
Ride a motorcycle												
Not at all	97%	97%	97%	98%	99%	98%	98%	98%	100%	96%	98%	99%
1-4 days/week	3%	2%	2%	1%	1%	1%	2%	2%	0%	0%	1%	1%
5 days/week	–	1%	1%	1%	0%	1%	0%	0%	0%	4%	1%	0%
6+ days/week	–	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ride a bike												
Not at all	90%	87%	94%	91%	92%	93%	95%	94%	91%	92%	95%	92%
1-4 days/week	6%	9%	5%	6%	5%	6%	5%	4%	9%	4%	5%	6%
5 days/week	2%	3%	1%	3%	2%	0%	0%	0%	0%	0%	0%	0%
6+ days/week	2%	1%	0%	0%	1%	1%	0%	2%	0%	4%	0%	1%
Walk												
Not at all	90%	85%	91%	86%	86%	85%	85%	90%	84%	79%	92%	81%
1-4 days/week	6%	7%	6%	11%	9%	9%	15%	0%	12%	13%	7%	9%
5 days/week	2%	4%	2%	0%	3%	1%	0%	2%	0%	4%	1%	1%
6+ days/week	2%	4%	1%	4%	2%	4%	0%	8%	4%	4%	0%	9%
Work at home instead of driving to work												
Not at all	93%	92%	94%	90%	88%	91%	80%	96%	96%	88%	87%	95%
1-4 days/week	5%	5%	4%	8%	8%	5%	15%	2%	0%	8%	8%	2%
5 days/week	1%	1%	1%	1%	2%	3%	2%	2%	4%	4%	4%	2%
6+ days/week	1%	2%	1%	0%	1%	1%	2%	0%	0%	0%	1%	0%
	N=172	N=210	N=219	N=229	N=159	N=171	N=40	N=50	N=57	N=24	N=84	N=80

-Table 27-D continued on next page-

Table 27-D (Cont'd)

	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total	Area				Awareness of "Clean Air" Program	
							North- west	Central	South	East	Yes	No
Drive or ride with people age 16 or older in a carpool												
Not at all	83%	76%	76%	70%	78%	72%	78%	80%	63%	67%	67%	78%
1 day/week	2%	4%	2%	4%	2%	2%	0%	2%	4%	4%	2%	2%
2 days/week	5%	3%	3%	7%	3%	4%	5%	0%	4%	8%	4%	4%
3 days/week	-	6%	2%	4%	2%	3%	5%	2%	4%	0%	4%	2%
4 days/week	3%	2%	5%	6%	3%	5%	2%	10%	0%	12%	2%	6%
5 days/week	6%	6%	7%	9%	11%	12%	8%	6%	23%	8%	19%	6%
6+ days/week	2%	3%	6%	0%	1%	2%	2%	0%	4%	0%	2%	1%
Drive alone												
Not at all	16%	23%	19%	22%	26%	16%	10%	6%	26%	21%	16%	18%
1 day/week	6%	8%	6%	5%	2%	4%	2%	2%	5%	4%	6%	1%
2 days/week	6%	6%	6%	6%	4%	7%	15%	4%	5%	4%	5%	9%
3 days/week	10%	6%	8%	11%	8%	6%	12%	4%	0%	17%	8%	5%
4 days/week	7%	8%	10%	17%	12%	15%	15%	24%	5%	17%	17%	9%
5 days/week	45%	36%	39%	31%	38%	41%	38%	48%	44%	25%	42%	41%
6+days/week	10%	12%	12%	7%	11%	12%	8%	12%	14%	12%	7%	18%
	N=172	N=210	N=219	N=229	N=159	N=171	N=40	N=50	N=57	N=24	N=84	N=80

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?

2011 Estimated Number of Daily Commuter Miles Saved Through Alternate Modes – The following tables reflect the combination of results related to modes of commuter travel and distances traveled with employment estimates (Source: Department of Commerce) to provide an estimate of the number of vehicle miles saved daily through the use of alternative methods of transportation. The specific computations and data sources are described in the footnotes included with Table 27-I. As shown in 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 2,739,932 vehicle miles per day – or 25% of total miles driven/not driven. As summarized in the tracking display below, this has declined from a peak of 30% in 2007 and 2008.**

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

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

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

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

Table 27-1

2011 Estimated Number of Daily Commuter Miles Saved Through Alternative Modes
(Among Employed Persons and Students)

Pima Air Quality, June, 2011

	(A) # of Non-Home-Based Employed Persons/ Students	(B) # One-Way Commute Trips Per Week	(C) Estimated # of One-Way Trips Each Week	(D) Average Days/Week Commute Using Any Mode	(E) # of One-Way Commute Trips/Day	(F) Average Commute Distance	(G) Estimated # Commute Miles Driven/Not Driven	(H) Vehicle Miles Traveled Daily	(I) Vehicle Miles Saved Daily
<u>Travel Mode</u>									
Single Occupant (auto)	(84%) 352,426	4.47x2=8.94	3,150,688	6.4	492,295	14.8	7,285,966	7,285,966	-0-
Motorcycle	(2%) 8,391	2.67x2=5.34	44,808	6.4	7,001	10.7	74,911	74,911	-0-
<u>Alternative Modes:</u>									
Carpool	(28%) 117,475	4.02x2=8.04	944,499	6.4	147,578	14.3	2,110,365	811,679	1,298,686
Bus	(5%) 20,978	3.11x2=6.22	130,483	6.4	20,388	5.6	114,173	3,262	110,911
Bike	(7%) 29,369	3.67x2=7.34	215,568	6.4	33,683	8.5	286,306	-0-	286,306
Walk	(15%) 62,933	3.96x2=7.92	498,429	6.4	77,880	5.1	397,188	-0-	397,188
Telecommute	(9%) 37,760	3.33x2=6.66	251,482	6.4	39,294	11.0	432,234	-0-	432,234
Compressed workweek	(12%) 50,347	1.10x2=2.20	110,763	6.4	17,307	12.4	214,607	-0-	214,607
					835,426		10,915,750		2,739,932

(A) # employed persons in Pima County (est. @ 359,400 as of April, 2011 by Arizona Department of Commerce) x % non-home-based employees (85%)(Table 21) + # students 16+ (est. 114,065 in 2009 Census Bureau American Community Survey) x % of work/school commuters reported using each mode (Table 27).

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

(C) (A) x (B)

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

(E) (C) ÷ (D)

(F) From Table 27c. Reported commute miles ranged from 1 to 75 miles.

(G) (E) x (F)

(H) Vehicle miles/day:

Driving alone: Estimated # miles commuted

Carpool: # miles/day ÷ average # persons (2.6) in each carpool (Table 27b)

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

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

(I) (G) - (H)

Most Used Mode of Transportation for Work/School Commute – Consistent with 2008, seven of ten respondents who work outside the home or attend school say that single-passenger vehicle commuting is their **most-used** method to commute between home and work or school (71%). This is more apt to be true among Central area residents (84%), while more than one-third of South (37%) or East (36%) residents primarily use alternative methods. Carpooling is the primary commute method for 10% (down slightly from 11%), particularly Northwest (12%) and South (14%) zip code residents. Compared to 2008, twice as many primarily walk to work or school (8%, up from 4%). These tend to be South (9%) and East (12%) area residents. A few more are riding a bike to work/school as their primary form of commuting (from 3% to 4%), while somewhat fewer are primarily telecommuting (from 6% to 4%). South residents are more apt to be primarily bike riding (7%), while Northwest and East area residents (8% each) are more apt to primarily telecommute. There has been a decrease in those who primarily ride the bus for commuting (from 6% to 2%), all South zip code residents. Overall, 1% (up from no mention in 2008) – exclusively from the East area (4%) – primarily ride a motorcycle to work or school.

Table 27a

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

	5/05 Total	5/06 Total	5/07 Total	5/08 Total	6/11 Total	Area			
						North- west	Central	South	East
Drive alone	64%	66%	66%	70%	71%	72%	84%	63%	62%
Drive or ride in a carpool	14%	16%	17%	11%	10%	12%	6%	14%	8%
Walk	7%	4%	5%	4%	8%	5%	6%	9%	12%
Ride a bike	5%	2%	4%	3%	4%	2%	2%	7%	4%
Work at home instead of driving to work	2%	3%	3%	6%	4%	8%	2%	2%	8%
Take the bus	7%	6%	4%	6%	2%	0%	0%	5%	0%
Ride a motorcycle	1%	3%	2%	–	1%	0%	0%	0%	4%
	N=210	N=219	N=229	N=159	N=171	N=40	N=50	N=57	N=24

	Air Quality Problem		
	Major	Moderate	Minor
Drive alone	79%	60%	91%
Drive or ride in a carpool	9%	14%	4%
Walk	3%	13%	0%
Ride a bike	6%	3%	2%
Work at home instead of driving to work	0%	7%	2%
Take the bus	0%	2%	0%
Ride a motorcycle	3%	0%	0%
	N=33	N=91	N=44

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.)

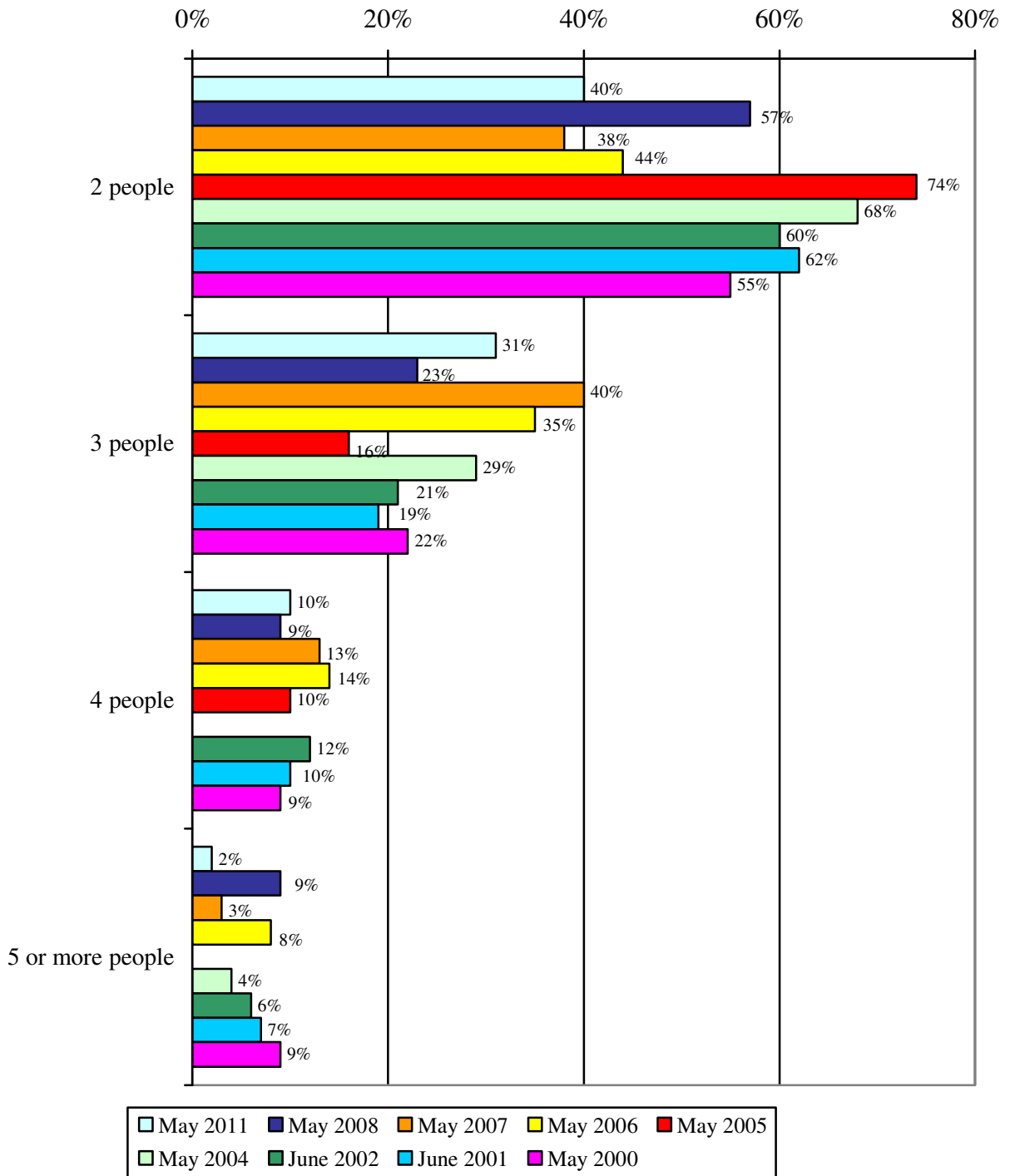
Size of Work or School Commute Carpool – Compared to 2008, the share who carpool to work or school in a two-person carpool has decreased (from 57% to 40%), while 43% are in 3+ person carpools (up from 41%). The average carpool size, however, has decreased slightly (from 2.7 to 2.6) – due to fewer 5+ person carpools (from 9% to 2%). Overall, 17% now indicate that the size of their carpool “varies” (up from just 3% in 2008).

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

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
2 people	55%	62%	60%	n/a	68%	74%	44%	38%	57%	40%
3 people	22%	19%	21%	n/a	29%	16%	35%	40%	23%	31%
4 people	9%	10%	12%	n/a	–	10%	14%	13%	9%	10%
5 or more people	9%	7%	6%	n/a	4%	–	8%	3%	9%	2%
Varies	5%	2%	1%	n/a	–	–	–	6%	3%	17%
	N=112	N=60	N=52	n/a	N=28	N=51	N=52	N=68	N=35	N=48

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

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



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

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

	05/00 Total	06/01 Total	06/02 Total	06/03 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	05/08 Total	06/11 Total
5 miles or less	35%	37%	40%	n/a	30%	33%	35%	36%	34%	27%
6 to 10 miles	26%	26%	23%	n/a	21%	20%	24%	25%	26%	28%
11 to 14 miles	6%	9%	9%	n/a	16%	3%	10%	5%	4%	6%
15 or more miles	31%	24%	24%	n/a	28%	32%	29%	28%	24%	38%
Don't know/Not sure	3%	5%	4%	n/a	5%	12%	4%	6%	11%	2%
	N=284	N=322	N=269	n/a	N=172	N=210	N=219	N=229	N=159	N=169

	Area				Air Quality Problem		
	North-west	Central	South	East	Major	Moderate	Minor
5 miles or less	10%	47%	30%	4%	12%	30%	30%
6 to 10 miles	36%	33%	16%	33%	24%	30%	25%
11 to 14 miles	10%	2%	5%	8%	6%	6%	7%
15 or more miles	44%	18%	49%	42%	58%	31%	36%
Don't know/Not sure	0%	0%	0%	12%	0%	2%	2%
	N=39	N=49	N=57	N=24	N=33	N=89	N=44

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

Changes in Driving Behavior

Frequency of Using Driving Alternatives as Compared to a Year Ago – As we found in 2007 (the last time this question series was asked), the vast majority indicate that they are **combining automobile trips** (86%, down slightly from 88%). In the current study, fully 55% (lower only in the East zip) report combining automobile trips more often (up from 50% in 2007) – increasing progressively and incrementally since 2001 (29%). More apt to be combining automobile trips are women, 36 to 65 year-olds, Hispanics, employed respondents and households with at least \$25,000 in annual income. Importantly, those familiar with the “Clean Air” Program are among those most apt to be combining trips most often (63% versus 46% unaware of the program).

Most also report **walking for short trips or errands** (54%, down slightly from 57% in 2007). Significantly, the largest share to-date indicate walking more often (34%, up from 25% in 2007) – especially South region residents, 16 to 35 or 46 to 55 year-olds and non-Whites.

Compared to recent years, a larger percentage are **carpooling or vanpooling** (48%), and a record percentage are doing so more often (24%, up from 20% in 2007). Those carpooling more often tend to be South zip residents, progressively younger, Hispanics and respondents with some college (but no degree) – as well as those aware of the “Clean Air” Program (28% versus 21% unaware of the program).

In line with 2007 findings, seven of ten are **riding a bicycle for short trips or errands** (31%, up slightly from 29%). Once again, a record number indicate riding their bike more often (17%, up from just 10% in 2007) – particularly Central residents, 16 to 25 year-olds, Hispanics and the most formally educated respondents.

Overall, 15% report **walking to work** (down from 20% in 2007). Still, among those who do, a larger percentage indicate they are walking to work more (8%) rather than less (4%) often. In 2007, as many were walking less as more often (5% each). Men, East region residents and 26 to 35 year-olds are more likely to be increasing their frequency of walking to work.

The percentage of survey respondents **riding the bus** is basically unchanged since 2007 (22%). However, for the first time in the recent past, a slightly larger number are riding the bus more (6%) rather than less (5%) often. Who is most likely to be increasing their bus ridership? South region residents, 16 to 35 year-olds, non-Whites and those with lower incomes or less formal education.

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

Table 28 Frequency of Using Driving Alternatives as Compared to a Year Ago

	05/00 Total	06/01 Total	06/02 Total	05/04 Total	05/05 Total	05/06 Total	05/07 Total	06/11 Total
Combining automobile trips								
More often	45%	29%	31%	38%	41%	46%	50%	55%
Less often	5%	9%	9%	9%	6%	5%	7%	4%
About the same	40%	61%	57%	36%	40%	39%	31%	28%
Not at all	10%	–	–	17%	12%	10%	12%	14%
Walking for short trips or errands								
More often	29%	18%	22%	25%	20%	24%	25%	34%
Less often	7%	12%	14%	10%	7%	6%	6%	3%
About the same	35%	65%	62%	26%	26%	22%	26%	17%
Not at all	30%	–	–	39%	46%	48%	43%	46%
Carpooling/Vanpooling								
More often	22%	10%	15%	17%	16%	16%	20%	24%
Less often	6%	14%	13%	10%	4%	5%	5%	4%
About the same	30%	69%	68%	19%	23%	24%	22%	20%
Not at all	42%	–	–	54%	57%	55%	54%	52%
Riding a bicycle for short trips or errands								
More often	16%	9%	8%	9%	10%	9%	10%	17%
Less often	8%	18%	25%	7%	6%	3%	5%	4%
About the same	19%	62%	61%	13%	16%	12%	15%	11%
Not at all	57%	–	–	71%	68%	76%	71%	69%
Walking to work								
More often	6%	4%	5%	3%	3%	3%	5%	8%
Less often	8%	16%	16%	8%	5%	7%	5%	4%
About the same	14%	73%	74%	15%	9%	8%	10%	3%
Not at all	72%	–	–	74%	83%	83%	80%	85%
Riding the bus								
More often	5%	4%	4%	5%	6%	5%	5%	6%
Less often	12%	19%	21%	10%	7%	7%	5%	5%
About the same	20%	67%	69%	12%	11%	8%	13%	11%
Not at all	62%	–	–	73%	77%	81%	77%	78%
Riding a bicycle to work								
More often	7%	4%	4%	2%	4%	3%	4%	4%
Less often	9%	20%	19%	5%	6%	9%	4%	6%
About the same	14%	69%	73%	13%	11%	8%	9%	6%
Not at all	71%	–	–	79%	80%	80%	84%	85%
	N=500	N=598	N=508	N=500	N=502	N=502	N=503	N=403

Question: Now I am going to read you a list of ways in which some people are reducing the amount they drive. For each, please tell me if you are using the method more, less, about the same or not at all as compared to a year ago.

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

(June, 2011)

Appendix

**Survey
Methodology
and Sample
Selection**

This survey consists of a 403-person, randomly-selected and statistically-projectable sample of the 16 years and older male and female target audience in designated Pima County zip code areas. The interviews were distributed on the basis of geographic population density in the market – with specific steps taken to ensure a proportionate number of interviews in each survey “region.” The sample distribution in each “region” was developed using recent population estimate projections. The final in-tab geographic proportions are reflective of these “actual” population estimates. A similar sampling plan (based on household distribution) was also developed to ensure the ethnic composition of the final in-tab sample was as close as possible to actual proportions in Pima County.

All interviews were conducted by telephone, during early June 2011. Respondents included in this survey were selected through a random sampling procedure that allows equal probability of selection. This technique ensures that area residents who are not yet listed in a telephone directory (or choose not to be listed) are still eligible for selection. Neither the interviewer nor the interviewee had any knowledge of the study sponsor. All interviews were conducted and validated by the FMR Field staff.

Where relevant, respondents were asked if they preferred the interview to be conducted in English or Spanish. A Spanish-language version of the questionnaire was developed by FMR Associates. A total of 104 non-White respondents were interviewed in the project, including 80 Hispanics. However, only 7 respondents (2%) requested that their interview be conducted in Spanish by a bilingual interviewer. This is similar to the 2008 survey (1%). Each telephone interview lasted approximately 11 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 manually dialing were given three options: to proceed with the interview using their cell

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

Statistical Reliability

The statistics in this report are subject to a degree of variation that is determined by sample (or sub-sample) size. All research data are subject to a certain amount of variation for this reason. This does not mean that the figures represented in the various tables are wrong. It means that each percentage represents a possible “range” of response. This is because the random sampling process, as well as human behavior itself, can never be perfect. For this sample, at N=400 (rounded) the statistical variation is $\pm 4.9\%$ 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 45.1% to 54.9%. The 95% confidence level means that if the survey were repeated 100 times, in 95 cases the same range of response would result. Those percentages that occur at either extreme (for example, 10% or 90%) are subject to a smaller degree of statistical fluctuation (in this case, $\pm 2.9\%$).

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

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

N (Base for %)	Reported Percentage				
	10 or 90%	20 or 80%	30 or 70%	40 or 60%	50%
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=400) have a positive or negative attitude about a question category, the chances are 95 out of 100 that the true value is 20% ± 3.9 percentage points; that is, the range of response would be 16.1% to 23.9%.

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

The average base is 200 (rounded) for the reported percentages $(178+225)/2=201.5$. 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 8.9% (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 men and women.

Example:
(Year Comparisons)

If a table indicates that 36% of respondents in 2008 had a positive attitude toward a category of response, and that 43% of respondents in 2011 have the same attitude, the following procedure should be used to determine if this attitude change is due to chance:

The average base is 400 (rounded) for the reported percentages $(402+403)/2=402.5$. The average of the percentages is 40% (rounded) – $(36+43)/2=39.5\%$. The difference between the percentages is 7%. Since 7% is greater than 6.5% (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 respondents from these two studies.

2011 PIMA AIR QUALITY REGION DEFINITIONS

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

Central: 85710
85711
85712
85716
85718
85719

South: 85321
85614
85629
85641
85701
85706
85708
85713
85714
85735
85736
85746
85757

East: 85619
85715
85730
85747
85748
85749
85750

