



DON'T TRASH ARIZONA

LITTER EVALUATION SURVEY

August 2017
Prepared for:



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STUDY OVERVIEW

In August 2006, the Maricopa Association of Governments (MAG) launched a litter prevention and education program known as *Don't Trash Arizona*. The purpose of the program is to reduce litter on the regional freeway system by developing a strategy to increase public awareness and change behavior. The scope of work for the program additionally mandated that an evaluative process be included to measure the success of the program.

First, “secondary” research was conducted to review existing litter campaigns, not only in other regions and states, but globally. This was accomplished through online research and targeted interviews with managers of litter campaigns in other states.

The secondary research found that litterers were predominately single males, aged 18 to 24—with a secondary tier of litterers aged 25 to 34. They tend to be smokers, eat/buy fast food two times per week or more, frequent bars and nightclubs, and drive pickup trucks. According to the Transportation Research Board, 55 percent of littering is deliberate, while 45 percent occurs “accidentally” when items blow or fall off vehicles. Littering most often takes place when drivers are alone, and many reported that they did not consider small items like cigarettes and candy wrappers to be litter.

Following the secondary research, a benchmark survey was conducted in December 2006 to determine initial attitudes and awareness of litter issues in Arizona and to evaluate littering behavior.

A follow-up, evaluative survey was then conducted in July 2008 at the end of the first two years of the campaign in order to determine if any changes in awareness, attitudes or behavior were realized. Annual surveys have been conducted in subsequent years, focusing on Maricopa County residents. Follow up studies have been conducted for the past 10 years with the focus of this current report on data collected in July 2017.

Communication strategies are informed each year based on the survey results. These strategies primarily target the 18 to 34 male demographic, with a secondary demographic of key influencers to them, primarily women of varied ages. Messages targeted toward both accidental and deliberate littering are included, and a variety of strategies and tactics are employed utilizing public relations, paid advertising, special events, school outreach, distribution of informational materials and the development of value-added partnerships. The survey includes questions to help evaluate the effectiveness of various tactics and campaign messaging, so that outreach efforts can be refined each year for best results.

KEY FINDINGS AND RECOMMENDATIONS

- The number of residents who perceive litter along Maricopa County freeways as a “big” or “moderate” problem remained statistically unchanged from 2016. (Page 9)
- There was a 13 percent increase in the number of motorists who indicated they have not littered in the past year. (Page 11)
- The most common type of littering situation experienced by motorists involved accidental littering, when trash falls out of a vehicle. That type of situation increased by 100 percent among the target demographic. (Pages 13 and 24)
- Food and organic material remains the most common type of litter, followed by small pieces of paper. Knowing that, educational messaging related to this type of litter should continue. (Page 11)
- Those among the target demographic who admitted to littering cigarette butts increased by 88 percent from 2016 to 2017, a change that is significant but could also be influenced by the updated methodology of data collection used this year. (Page 24) The increase represents an opportunity for strategic messaging.
- Among those who littered, 21 percent reported doing so by leaving debris, like a tire, on the side of the road after experiencing vehicle problems. (Page 13)
- Awareness for the *Don't Trash Arizona* campaign website has reached 15 percent among the general population, which is the highest level ever recorded. Recall of the website among the target group is double that of the general population. (Pages 18 and 27)
- Awareness of the *Don't Trash Arizona* campaign as a whole remains strong within the target demographic of males ages 18-34. (Pages 26 and 27)
- Awareness of the slogan *Don't Trash Arizona* held steady in 2017 among the general population and among the target demographic of males ages 18-34. (Page 27)
- The percentage of admitted litterers among the target demographic of males ages 18 to 34 increased in 2017. (Page 29)



EXECUTIVE SUMMARY

The Maricopa Association of Governments (MAG), through its consultant, Fingerpaint, commissioned WestGroup Research of Phoenix to conduct a telephone and web study with adult residents of Maricopa County. The purpose of the study was to evaluate overall awareness of and attitudes toward litter issues, explore littering behavior, and to compare responses to previous annual studies.

In addition to interviewing a general representative respondent base for this survey via telephone, an oversample of the target market (males ages 18 to 34) was conducted in 2017 through the use of an online panel. In the main report, the telephone survey data were weighted to reflect a representative demographic distribution. A supplemental unweighted report showing the target group compared to the non-target group is provided in Appendix A.

In 2017, results for the main report are based on n=401 6-minute telephone interviews. The margin of error for the general population survey is approximately $\pm 5.0\%$ at the 95% confidence level. The target market report of 227 males ages 18 to 34 is the combined data from 58 telephone surveys and the 169 web-based surveys. Overall, 570 surveys were completed in July, 2017 for this study. Results are compared to previous years when appropriate.

Driver Characteristics

- A large majority of residents indicated either that they do not haul items in a pick-up truck or in an open-air trailer (52%) or that, if they do, they always secure their loads (42%). Very few indicated they only sometimes secure their loads (2%) or never secure their loads (4%).

Litter Awareness and Behavior

- Nearly two-thirds (64%) of residents surveyed believe litter along Maricopa County freeways is a “big” or “moderate” problem, which is comparable to figures recorded in recent years.
- Seven in ten (70%) residents surveyed report they have not littered in the past year (up significantly from 62% last year). Among those who reported littering items, food/organic material continues to be the most common type of litter mentioned by residents (46%) followed by small pieces of paper (24%).
- In 2016, there was a significant increase in the percentage of males ages 18 to 34 who reported that they had not littered in the past year, however that gain was somewhat diminished this year.
- Similar to previous years, those who admitted to littering in the past year were most likely to report doing so while driving or riding in a vehicle (43%), distantly followed by *something flew out of an open door or window* (13%), *threw it out anywhere I could* (11%) and *when there was no trash can around* (10%).
- In 2017, residents were read a list of five specific littering scenarios and were asked to indicate if they had experienced that littering situation in the past year. The most common littering situation residents have experienced in the past year is trash falling out of a vehicle (29%), followed by having problems with a vehicle and leaving debris on the roadside (21%).



Campaign Awareness

- One in five (21%) residents reported having seen litter-related advertising in the past three months. This represents the lowest level of awareness recorded since the study began in 2006. Awareness has varied from 24% to 32% over the past ten waves of research.
- While still higher than the general population awareness, awareness of the campaign among the target group of males 18 to 34 also declined slightly this year, from 39% in 2016 to 35% currently, and compared to 37% in 2015.
- Among those who indicated they had seen or heard litter-related advertising in the past three months, the “slogan” residents were most likely to recall on an unaided basis were *Do not litter* (19%) and *Don’t Trash Arizona* (11%). These results are consistent with previous findings.
- One-half (51%) of residents indicated they have heard the slogan “*Don’t Trash Arizona*” in either an aided (49%) or unaided (2%) fashion. Males and younger residents were significantly more likely to have awareness of the slogan.
- Awareness of the website DontTrashArizona.com increased to 15% this year, which is the highest level measured for at least the past 10 years. Again, males and younger residents were significantly more likely than their comparative groups to report being familiar with the website.

Profile of Litterers

- For 2017, the proportions are: 28% Admitted Litterers, 33% Accidental Litterers, and 39% Non-Litterers. The proportion of admitted litterers is consistent with prior years. Of note: 60% of those in the Target Group fall into the admitted litterer category which is statistically consistent with prior years.
 - Due to the substantial changes made to the content of the questions that determine who is categorized as an accidental or non-litterer, the 2017 proportions cannot be statistically compared to prior years.



I. INTRODUCTION

A. Background and Methodology

The Maricopa Association of Governments (MAG), through its consultant, Fingerpaint, commissioned WestGroup Research of Phoenix to conduct a telephone study with adult residents of Maricopa County. The purpose of the study was to evaluate overall awareness of and attitudes toward litter issues, explore littering behavior, and to compare responses to previous annual studies.

For surveys prior to 2011, interviewing was conducted using a Random Digit Dial (RDD) database comprised of “landline” phone numbers from targeted zip codes. In each subsequent year, interviewing was conducted using both RDD landline phone numbers, as well as a supplemental cell phone database. Cell phone sample is necessary both to speak with cell-phone only residents and to ensure accurate representation in the sample from younger residents. In 2017, 64% of the residents completing the survey were reached via cell phone and 36% via land line.

Since 2013, the study has oversampled the target audience (males ages 18 to 34) until a threshold of at least n=200 was achieved. Due to difficulty in meeting this quota, in 2015 and 2016 the target group was given the option to participate via a web survey but a vast majority of surveys were still completed by phone. This year the dual methodology was adapted again but included an online panel in order to more effectively reach the target audience. Therefore, for the first time most respondents in the oversample of males 18 to 34 were completed via web survey with members of an online panel (169 of the 227 total surveys with the target). Fifty-eight (58) surveys with the target group were completed over the phone via RDD enhanced wireless sample.

In the primary portion of this report, the 401 general population telephone survey data were weighted to reflect a representative demographic distribution as shown in the table below. A supplemental, unweighted report with the combined telephone and web survey data for 18 to 34 year old males target group vs. all other demographics is provided in Appendix A. Unless otherwise specified, proportions and frequencies shown in the main report for 2017 are based on weighted data, while proportions and frequencies in the supplemental males ages 18 to 34 report are based on unweighted data. **In 2017, results for the main report are based on n=401 6-minute telephone interviews. The margin of error for the general population survey is approximately $\pm 5.0\%$ at the 95% confidence level.**

Total Data Weighting Scheme

Age	% of sample
18 to 34 years old	34%
35 to 54 years old	33%
55+ years old	33%
Male	51%
Female	49%



B. Significance Testing and Sub-Group Analysis

Throughout this report, symbols (▼or▲) or superscript letters (^{ABC}) next to certain 2017 data indicate that the number is significantly different at the 95% confidence interval than the corresponding figure in 2016. For example, in the table below, the 15 percent for “yes” means that the percentage of 2017 residents who answered “yes” is significantly lower than the percentage of 2016 residents who gave that same answer.

In yearly tracking charts and tables, the current year’s results are only compared in this manner to the previous year’s results for the same question.

Response	2017 n=401	2016 n=502
Yes	15%▼	25%

Data was analyzed by the following demographic subgroups:

- Gender: male, female
- Age: < 35, 35-54, 55+



C. Demographics

Per established quotas, the gender composition of the survey was evenly split (51% females and 49% males). Overall, the demographic profile of respondents in 2017 was comparable to 2016.

Table 1: Respondent Demographics

Characteristic	2017 n=401	2016 n=502	2015 n=401	2014 n=401	2013 n=451
Gender					
Male	51%	51%	50%	50%	50%
Female	49%	49%	50%	50%	50%
Age					
18 to 34	34%	34%	33%	33%	28%
35 to 54	33%	32%	33%	34%	43%
55+	33%	33%	34%	33%	30%
Average	43.3 yrs	43.4 yrs	43.7 yrs	43.5 yrs	44.0 yrs
Language spoken at home					
English only	80%▲	74%	71%	74%	72%
Spanish only	--	--	<1%	--	1%
Mostly Spanish but some English	1%	1%	<1%	1%	2%
Equally in both languages	3%	7%	5%	5%	4%
Mostly English but some Spanish	10%	12%	12%	10%	11%
English and other language	6%	6%	8%	7%	9%
Refused	<1%	<1%	3%	3%	1%

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.



II. DRIVER CHARACTERISTICS

A. Securing Loads

A large majority of respondents indicated either that they *do not haul* items in a pick-up truck or in an open-air trailer (52%) or that, if they do, they *always* secure their loads (42%). Very few indicated they only *sometimes* secure their loads (2%) while another 4% reported they *never* secure their loads. A significantly higher proportion of respondents indicated they do not haul in 2017 than last year (52% vs. 44%).

Female residents were more likely than male residents to report *they do not haul items in a pickup truck* (64% vs. 40%)

Table 2: How often Drivers Secure Loads

Frequency	2017 n=401	2016 n=502
Always	42%	42%
Sometimes	2%▼	6%
Never	4%	8%
I don't haul	52%▲	44%

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.

Q10: On average, how often do you secure the load that you are hauling with ties, bungees, or a tarp when driving in a pick-up truck or when pulling an open-air trailer?

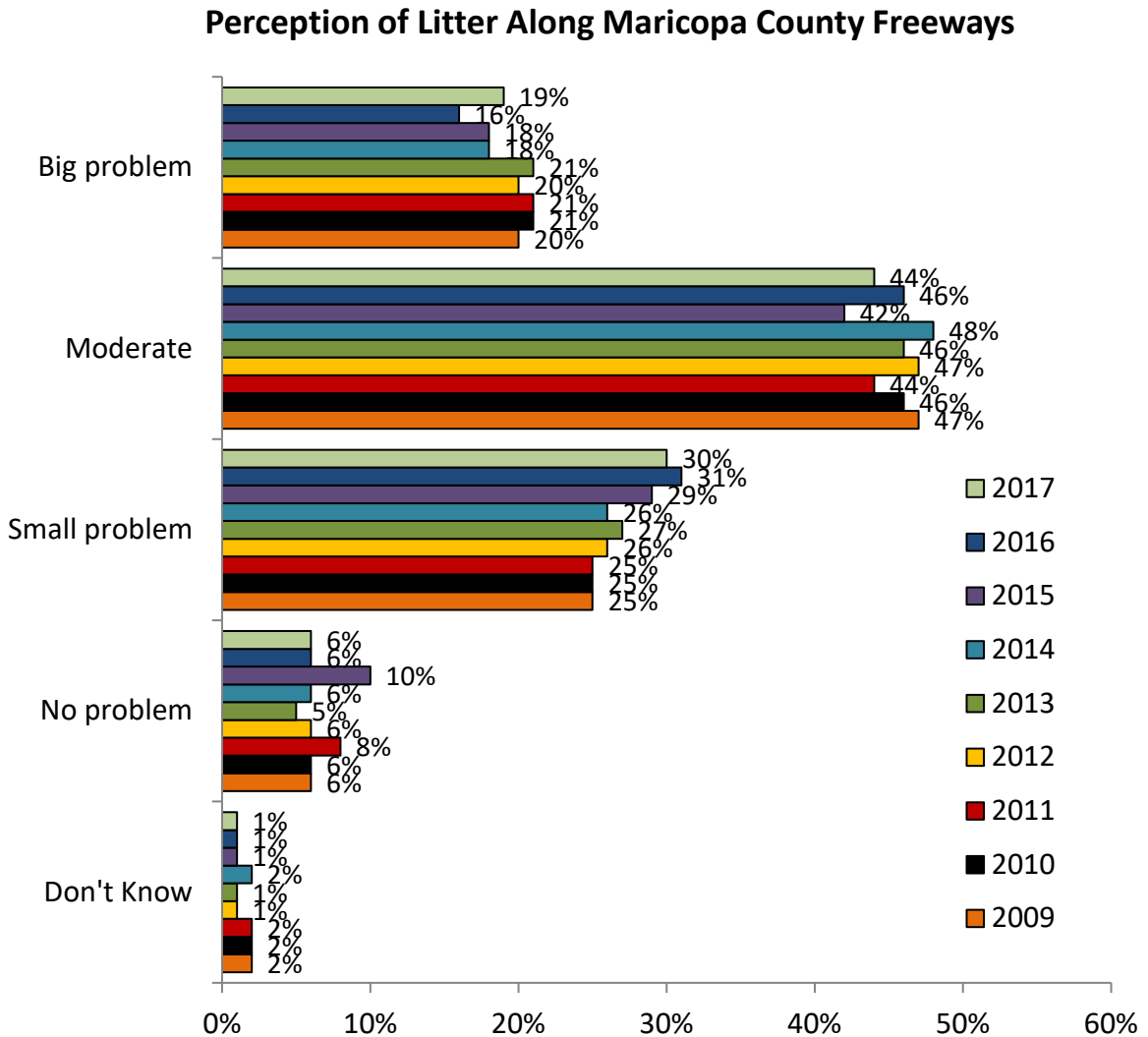
Note: Prior to 2016, question was limited to drivers who reported primarily driving in pickup-trucks. Historical data, therefore, is not comparable and is not shown in Table 2.



III. LITTER AWARENESS AND BEHAVIOR

A. Perception of Litter as Problem along Freeways

Nearly two-thirds (64%) of residents surveyed believe litter along Maricopa County freeways is a “big” or “moderate” problem, which is comparable to figures recorded in recent years. There were no significant perception differences between age or gender groups.



2017 n=401; 2016 n=502; 2015 n=401; 2014 n=401; 2013 n=451; 2012 n=600; 2011 n=602; 2010 n=601; 2009 n=637; Note: In 2009 question was changed to “Maricopa County” where previously it was “in your county.”



Table 3: Freeway Litter as a Problem in Maricopa County

Rating	2017 n=401	2016 n=502	2015 n=401	2014 n=401	2013 n=451	2012 n=600
Big + Moderate problem	63%	62%	60%	66%	67%	67%
Big problem	19%	16%	18%	18%	21%	20%
Moderate problem	44%	46%	42%	48%	46%	47%
Small problem	30%	31%	29%	26%	27%	26%
Not a problem at all	6%	6%	10%	6%	5%	6%
Don't know	<1%	1%	1%	2%	1%	1%

Q6: In your opinion, how big of a problem is litter along freeways in Maricopa County? Would you say it is a...



B. Personal Littering

Seven in ten (70%) residents surveyed reported they have not littered in the past year (up significantly from 62% last year). Among those who reported littering items, food/organic material continues to be the most common type of litter mentioned by residents (46%) followed by small pieces of paper (24%).

Residents ages 35 and older were more likely than younger residents to report *not littering in the past year* (72% of 35 to 54 year olds and 88% of those ages 55 and older vs. 52% of those ages 18 to 34). In 2016, there was a significant increase in the percentage of males ages 18 to 34 who reported that they had not littered in the past year, however that gain was diminished this year. (See Appendix for details.)

Table 4: Items Personally Discarded as Litter – Total Responses

Top Items Mentioned	2017 n=401	2016 n=502	2015 n=401	2014 n=401	2013 n=451
Have not littered in past year.	70%▲	62%	71%	62%	61%
	(n=120)	(n=191)	(n=115)	(n=151)	(n=176)
Food/organic material	46%	39%	50%	39%	36%
Small pieces of paper	24%	24%	27%	25%	31%
Other food wrappers	9%	10%	12%	12%	8%
Cigarette butts	8%	12%	6%	3%	7%
Hair/Dog hair	3%	1%	2%	1%	--
Don't know	8%	5%	11%	23%	9%

Q8: Can you think of items that you yourself might have discarded as litter (by litter we mean items you did not put in a trash receptacle) in the past year? (Multiple responses allowed.)

Note: items with less than 3% responses in 2016 not included in this table

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.

C. Littering Circumstances

Similar to previous years, those who admitted to littering in the past year were most likely to report doing so while driving or riding in a vehicle (43%), distantly followed by something flew out of an open door or window (13%), threw it out anywhere I could (11%) and when there was no trash can around (10%).

Table 5: Littering Situation – Total Responses
Among those who indicated they have littered in the past year

Top situations	2017 n=120	2016 n=191	2015 n=115	2014 n=151	2013 n=176
Driving/riding/traveling in vehicle.	43%	37%	45%	46%	52%
Opened door/window–flew out	13%	11%	6%	5%	4%
Just threw it/got rid of it anywhere I could	11%	10%	8%	10%	3%
No trash can around	10%	6%	4%	5%	5%
Walking outside	6%	7%	10%	7%	14%
In a parking lot	5%	6%	6%	3%	--
Cleaning out car	3%	4%	3%	1%	4%
Don't consider it litter if it's biodegradable	2%	2%	3%	1%	1%
Don't know/can't remember	12%	14%	15%	18%	10%

Q9: To the best of your knowledge, what were the general circumstances in terms of where and what you were doing when you discarded litter? Any other circumstances?

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.

Note: items with less than 2% responses in 2017 not included in this table.



D. Personal Experience with Specific Littering Situations

In 2017, residents were read a list of five specific littering scenarios and were asked to indicate if they had experienced that littering situation in the past year. **The most common littering situation residents have experienced in the past year is trash falling out of a vehicle (29%), followed by having problems with a vehicle and leaving debris on the roadside (21%).**

As seen in past studies, men and residents aged 18 to 34 are generally more likely than women and older residents to report experiencing these scenarios. Interestingly, no one in the main telephone survey sample reported being in a vehicle where someone got a ticket or warning for littering in the past year (this compares to 4% among the target market when the web surveys of males 18 to 34 are included).

Table 6a: Experience with Littering Scenarios in Past Year

Littering Scenarios	Total (n=401)
You noticed that trash or some other item fell out of a pickup truck or other vehicle you were driving or riding in	29%
You had problems with a vehicle and left debris like tire, part of a tire, or other stuff on the roadside	21%
Someone in a vehicle you were in threw trash out of the window. This could include things like a small wrapper, cup, can, or any other litter	18%
You or someone in the vehicle you were in threw a cigarette butt out the window	13%
You or someone you were with got a ticket or warning for littering	--

Q7: I am going to read you a few statements pertaining to littering from a vehicle, whether it is accidental or deliberate. For each of the following statements, please respond by telling me if this is something you experienced in the last year.

NOTE: This year the timeframe presented in this question was changed from asking if the scenarios had been experienced in the “past three months”, “three or months ago” or “never” to asking if they had been experienced in the “past year”. Due to this significant change, 2017 data cannot be compared to historical data. However, 2016 to 2014 data is shown on the following page for reference only on the following page. Also please note that the number of scenarios provided dropped from nine to five and the wording was altered for three of the scenario statements.



Table 6b: Experience with Littering Scenarios – 2013 to 2016

Littering Scenarios	Past 3 months	3+ months	Never
Someone in a vehicle you were in threw out a can, bottle, or other litter out onto the side of the road.			
2016	6%	10%	84%
2015	5%	13%	82%
2014	4%	10%	86%
2013	5%	12%	83%
Rather than keep a cigarette butt in the car, you or someone in the vehicle you were in threw the cigarette butt out the window			
2016	10%	13%	77%
2015	8%	14%	78%
2014	8%	10%	82%
2013	<1%	2%	98%
You or someone you were with got a ticket or warning for littering			
2016	<1%	<1%	99%
2015	1%	1%	98%
2014	1%	2%	97%
2013	8%	14%	78%
You had problems with a vehicle and left debris like tire, part of a tire, or other stuff on the roadside			
2016	16%	10%	74%
2015	13%	8%	79%
2014	13%	12%	75%
2013	5%	12%	83%
You noticed that some trash fell out of a pickup or other vehicle you were driving or riding in			
2016	28%	22%	50%
2015	26%	20%	53%
2014	31%	20%	49%
2013	25%	20%	55%

Historical Q7: I am going to read you a few statements pertaining to your litter awareness. For each of the following statements, please respond by telling me if this is something you "Have experienced within the past 3 months," Have experienced over 3 months ago," or "Have never experienced." Wording for Q7 was updated in 2017 from "You noticed that some trash fell out of a pickup or other vehicle you were driving or riding in", "Rather than keep a cigarette butt in the car, you or someone in the vehicle you were in threw the cigarette butt out the window", and "Someone in a vehicle you were in threw out a can, bottle, or other litter out onto the side of the road."

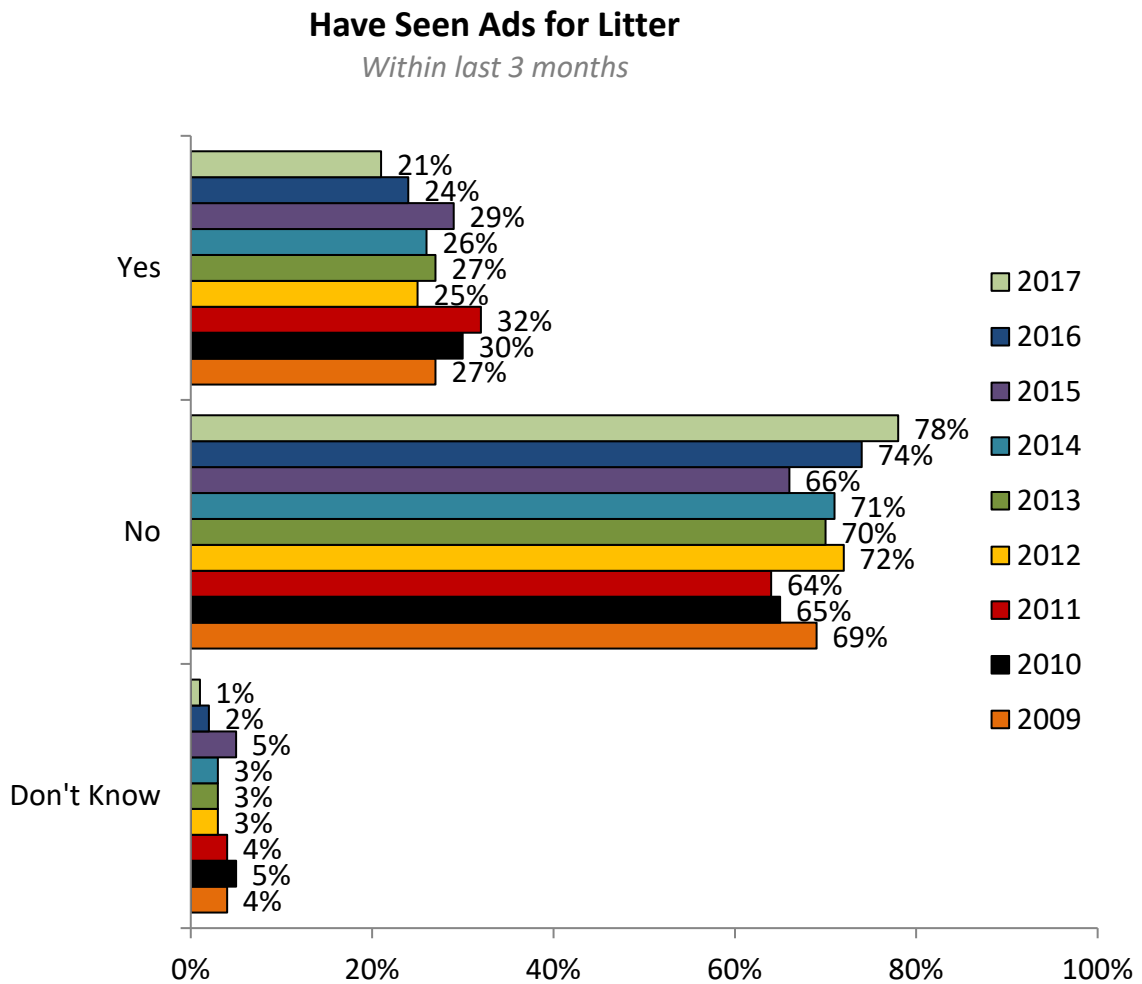


IV. CAMPAIGN AWARENESS

A. Awareness of Campaign

1. General Awareness

One in five (21%) residents reported having seen litter-related advertising in the past three months. This represents the lowest level of awareness recorded since the study began in 2006. Awareness varied from 24% to 32% over the past ten waves of research. While still higher than the awareness among the general population, as shown in Appendix A, awareness of the campaign among the target group of males 18 to 34 also declined slightly this year from 39% in 2016 to 35% currently.



2017 n=401; 2016 n=502; 2015 n=401; 2014 n=401; 2013 n=451; 2012 n=600; 2011 n=602; 2010 n=601; 2009 n=637; Q11: In the past three months, have you seen, heard or read any advertisements related to litter or littering?



Among those who indicated they had seen or heard litter-related advertising in the past three months, the “slogans” residents were most likely to recall on an unaided basis were *Do not litter* (19%) and *Don’t Trash Arizona* (11%). These results are consistent with previous findings.

Encouragingly, males and residents ages 18 to 34 were somewhat more likely to recall *Don’t Trash Arizona* than their counterparts (13% of men vs. 8% of women and 18% of those under 35 vs. 5% of those 35 and older).

A lower proportion of residents than in prior years indicated they *don’t know* or *could not recall* (37% down from 41% in 2016 and 53%-57% between 2013 and 2015).

Table 7: Main Slogan of Recalled Advertising
Among those who indicated they remember seeing ads related to litter or littering in the past 3 months

Top Responses	2017 n=84	2016 n=118	2015 n=118	2014 n=104	2013 n=121
Do not litter	19%	13%	12%	12%	12%
Don’t Trash Arizona	11%	11%	2%	12%	3%
You will be fined	5%	8%	5%	5%	2%
Littering is unlawful	4%	6%	3%	1%	2%
No cups cans or butts	2%	2%	<1%	4%	2%
\$500 fine for throwing a wrapper out of your vehicle	2%	3%	2%	1%	--
Adopt a Highway	2%	5%	--	--	<1%
Keep our freeways clean	1%	2%	3%	2%	2%
Keep Arizona Beautiful/Arizona Clean and beautiful	--	6%	5%	4%	2%
Don’t know	37%	41%	53%	52%	57%

Q12: [If yes in Q11] What was the main slogan used in the ads?

Note: response categories with less than 2% mentions in 2017 not listed in this table, unless relevant to tracking or campaign.

▲▼Indicates significant difference compared to 2016 at 95% confidence level.



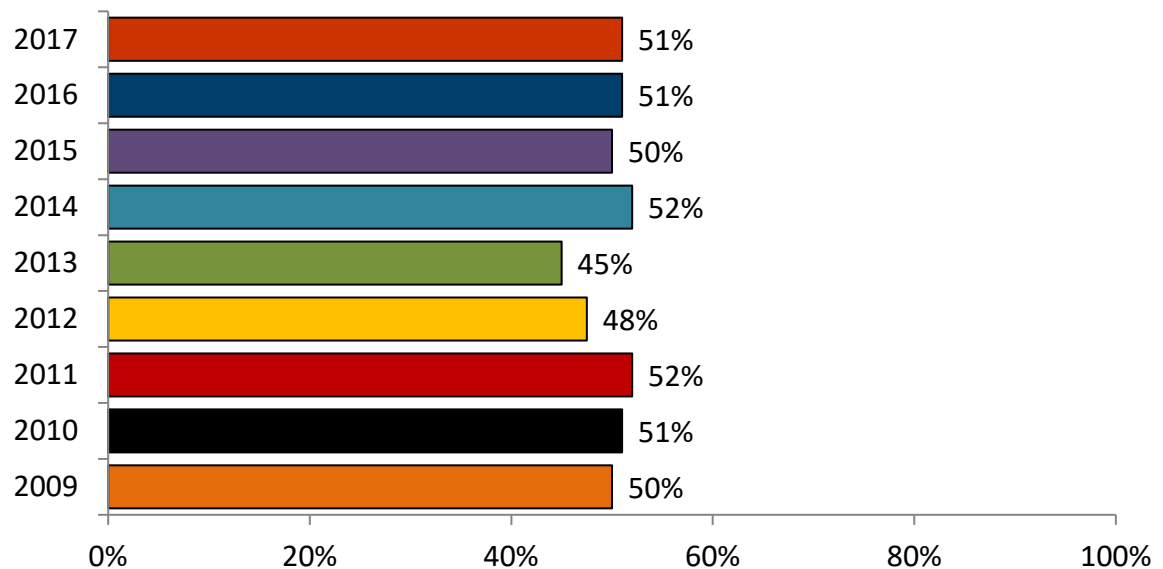
B. “Don’t Trash Arizona” Awareness

One-half (51%) of residents surveyed indicated they have heard the slogan “Don’t Trash Arizona” in either an aided (49%) or unaided (2%) fashion. While this is comparable to figures recorded in recent years, it should be pointed out that male residents were significantly more likely to be aware of the slogan (61% net aware vs. 41% for females). Likewise, younger residents were significantly more likely than those ages 55 or older to be aware (61% net awareness of those ages 18 to 34 and 54% of those ages 35 to 54 vs. 39% of those ages 55 and older).

As shown in Appendix A, total awareness of *Don’t Trash Arizona* continues to be significantly higher among the target group than the non-target group.

Net Awareness of Don't Trash Arizona

Unaided + Aided



2017 n=401; 2016 n=502; 2015 n=401; 2014 n=401; 2013 n=451; 2012 n=600; 2011 n=602; 2010 n=601; 2009 n=637

Q12: [If yes in Q11] What was the main slogan used in the ads?

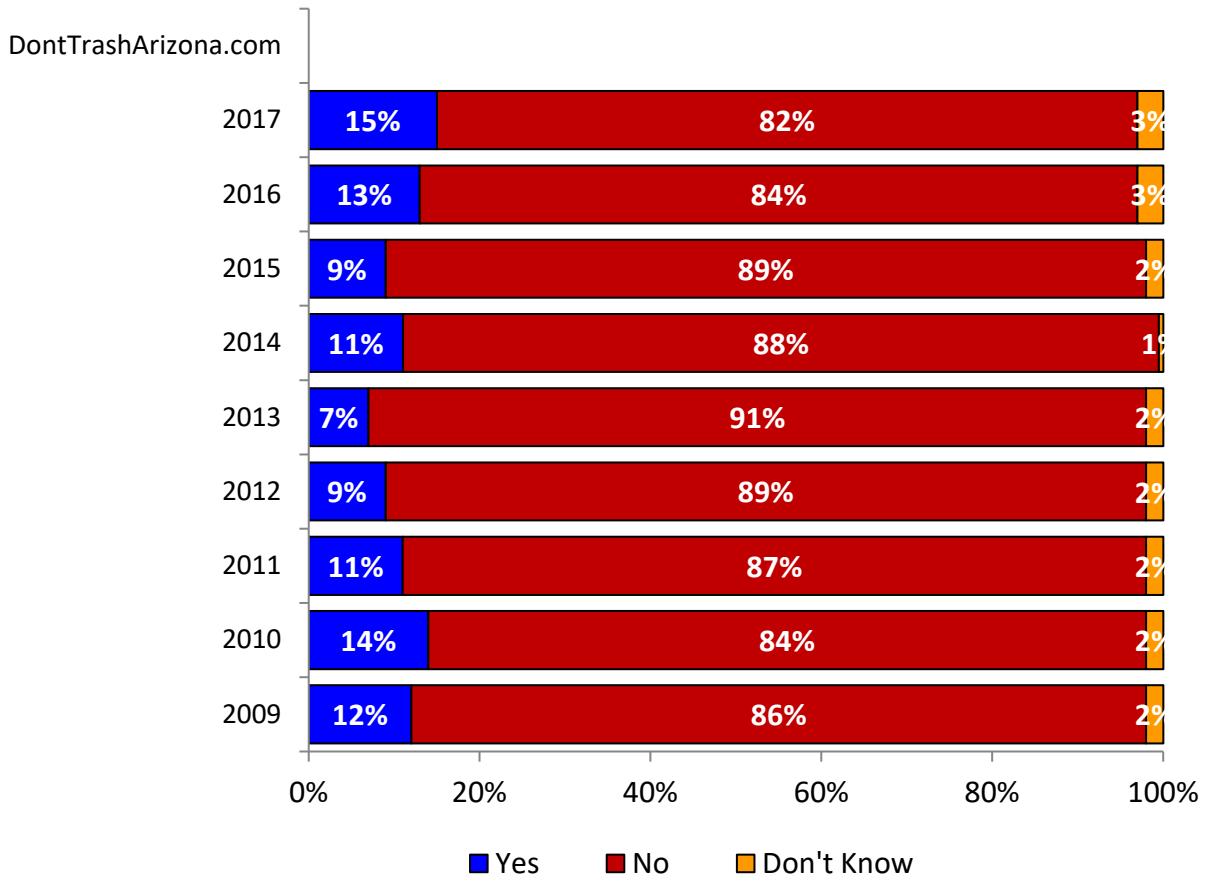
Q13: [if not mentioned in Q12] Have you seen or heard the slogan, “Don’t Trash Arizona?”



C. Awareness of Website

Awareness of the website DontTrashArizona.com increased to 15% this year which is the highest level measured for at least the past ten years. Male residents were significantly more likely than female residents to report awareness (20% vs. 10%) and younger residents were significantly more likely than older residents to report awareness (17% of those ages 18 to 34 and 20% of those ages 35 to 54 vs. 8% of those ages 55 and older).

Aided Awareness – DontTrashArizona.com



2017 n=401; 2016 n=502; 2015 n=401; 2014 n=401; 2013 n=451; 2012 n=600; 2011 n=602; 2010 n=601; 2009 n=637
 Q14: Have you heard of www.DontTrashArizona.com?

▲▼ Indicate significant difference compared to 2016 at 95% confidence level



V. PROFILES OF LITTERERS

Residents were segmented into three categories based on their reported littering behavior.

- **“Admitted Litterers”** are defined as those who specifically mentioned items that they recall littering in the past year.
- **“Accidental Litterers”** are defined as residents who indicated they had not littered in the past year, but responded that they had experienced at least one of the five littering scenarios in the past year.
- **“Non-Litterers”** are those who indicated they had not littered personally in the last year and also indicated they had not experienced any of the five littering situations presented in the past year.

The proportions for 2017 are: 28% Admitted Litterers, 33% Accidental Litterers, and 39% Non-Litterers.

For reference, historical data is shown below and on the following page. However, due to the substantial changes made to the content of the questions that determine who is categorized as an accidental or non-litterer, the 2017 proportions cannot be statistically compared to prior years. **The definition of an Admitted Litterer did not change and the 28% incidence in 2017 is within the normal range of prior years.** (The definition change is very likely the reason for the substantial decrease in the incidence of Accidental Litterers and the increase in the proportion of Non-Litterers).

A breakdown of littering behavior demographics follows on the next page.

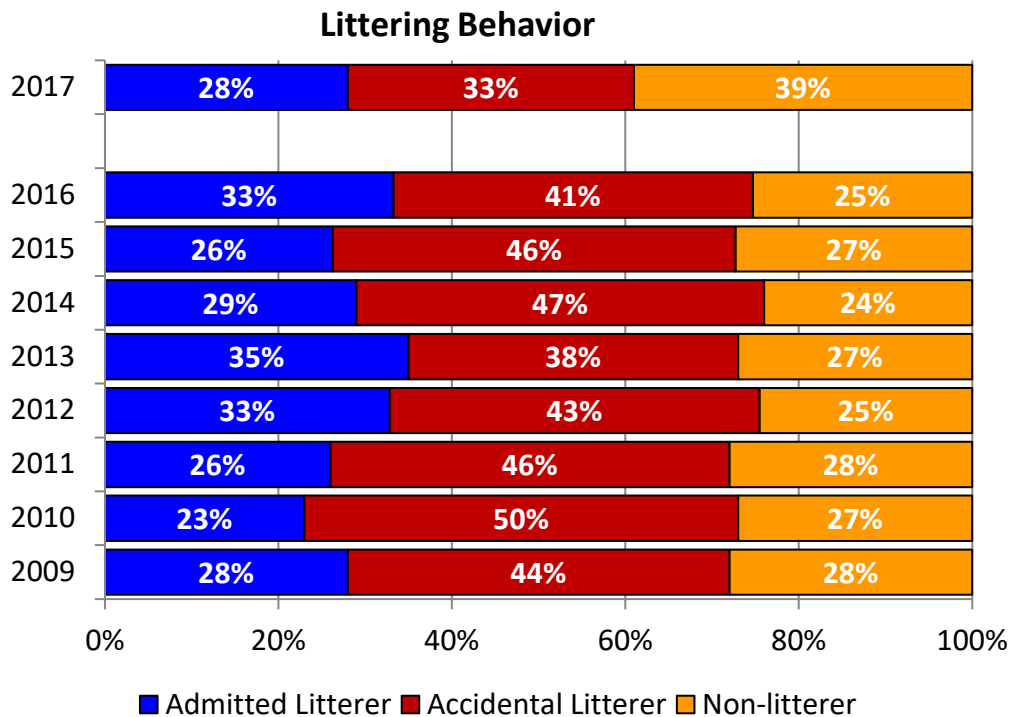


Table 8: Demographic Comparison Based on Littering Behavior

Characteristic	2017			2016*		
	Admitted Litterers n=111 A	Accidental Litterers n=133 B	Non-Litterers n=157 C	Admitted Litterers n=167 A	Accidental Litterers n=208 B	Non-Litterers n=127 C
Gender						
Male	56%	5%	40%	59% ^C	51%	41%
Female	44%	47%	54%	41%	49%	59% ^A
Age						
18 to 34	55% ^{BC}	31%	22%	52% ^{BC}	31% ^C	16%
35 to 54	32%	34%	33%	35%	32%	30%
55+	13%	35% ^A	46% ^A	13%	37% ^A	54% ^{AB}
Average	36.2 yrs	44.3 yrs ^A	47.8 ^{AB}	36.9 yrs	44.6 yrs ^A	50.0 ^{AB}
Household Language*						
English only	73%	80%	85% ^A	76%	70%	80%
Spanish only	--	--	--	--	--	--
Mostly Spanish + some English	1%	2%	--	2%	--	1%
Equally Spanish and English	6%	3%	2%	6%	8%	6%
Mostly English + some Spanish	13%	10%	9%	12%	13%	10%
English + Other	8%	5%	4%	4%	9%	3%
Refused	--	--	<1%	<1%	--	--

^{ABC} Indicates significantly higher than corresponding sub-group in the same year. Direct year to year comparisons are not possible due to the changes to the questionnaire as outlined below.

*Prior to 2017, **Accidental Litterers** were categorized as such because they selected either "Have experienced within the past 3 months" or "Have experienced over 3 months ago" for at least one of nine littering scenarios. (Note: in 2017 there were only five littering scenarios and the time was changed to past year only).

*Prior to 2017: **Non-Litterers** were designated as such because they did not personally litter in the past year, and had NEVER experienced any of the nine littering scenarios. (Note: in 2017 there were only five littering scenarios and the time was changed to past year only).



APPENDIX A

SUPPLEMENTAL RESULTS FOR MALES AGED 18 TO 34



BACKGROUND

Beginning in 2013, WestGroup Research oversampled the target audience (males ages 18 to 34) until a threshold of at least n=200 was achieved. Those results were pulled out separately in order to monitor changes within the target audience as well as to compare the target audience to the non-target audience. Beginning in 2015, we included the option of a web survey in order to achieve the oversample of the target group; however a vast majority of surveys were still completed by phone. In 2017, the methodology included using an online panel to more effectively reach the target audience. Thus for the first time most respondents in the oversample of males 18 to 34 were completed via a web survey with members of an online panel (169 of the 227 total surveys with the target). Only 58 surveys with the target group were completed over the phone via RDD enhanced wireless sample.

DRIVER CHARACTERISTICS

Table A1: How often Drivers Secure Loads – Target vs. Non-Target

Frequency	2017 Target n=227	2016 Target n=194	2017 Non-Target n=343	2016 Non-Target n=308
Always	53%	52%	41%	39%
Sometimes	9%	5%	1%▼	7%
Never	4%	5%	3%▼	8%
I don't haul	34%	39%	55%▲	45%

Q10: When putting items into the bed of your truck, how often, on average, do you secure your load (either with ties, bungees, a tarp, etc.)?

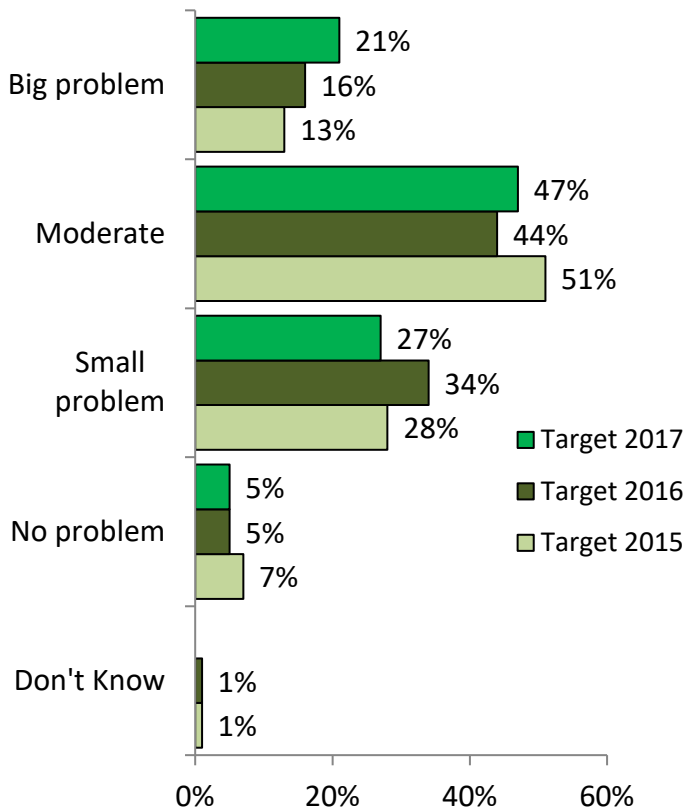
▲▼ Indicates significant difference compared to 2016 at 95% confidence level.

Note: Prior to 2016, question was limited to drivers who reported primarily driving in pickup-trucks. Historical data, therefore, is not comparable and is not shown in Table A1.

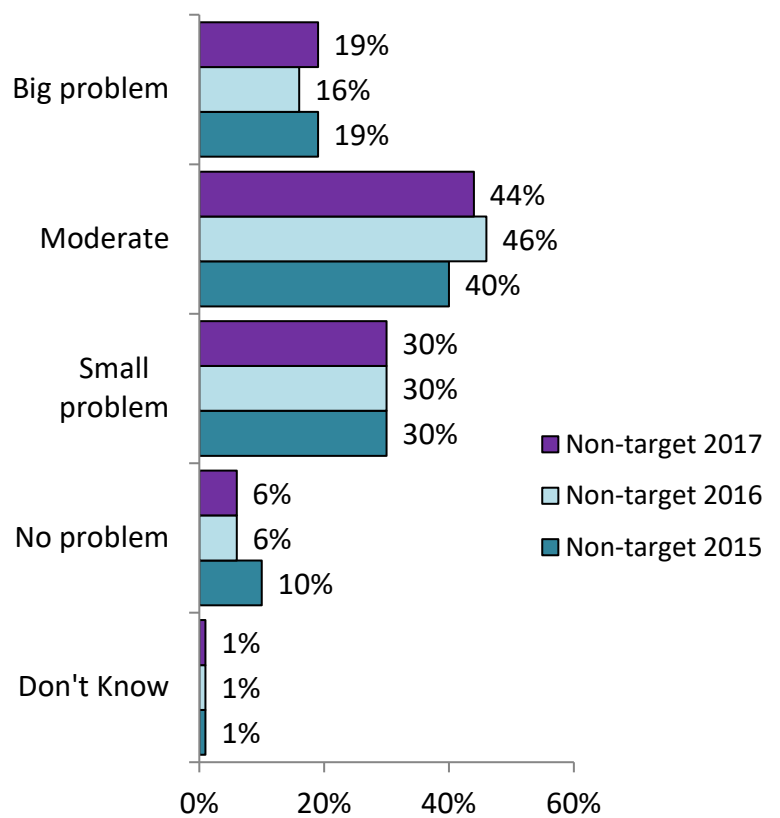


LITTER AWARENESS AND BEHAVIOR

Target Audience Perceptions



Non-Target Audience Perceptions



Q6: In your opinion, how big of a problem is litter along freeways in Maricopa County? Would you say it is a...

Target 2017 n=227; 2016 n=194; 2015 n=200

Non-Target 2017 n=343; 2016 n=308; 2015 n=353

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.



Table A2: Items Personally Discarded as Litter – Target vs. Non-Target

Top Items Mentioned	2017 Target n=227	2016 Target n=194	2015 Target n=200	2017 Non-Target n=343	2016 Non-Target n=308	2015 Non-Target n=353
Have not littered in past year.	40%	47%	36%	74%▲	66%	74%
Small pieces of paper	34%▲	20%	22%	5%	6%	6%
Food/organic material	22%	19%	24%	14%	14%	14%
Cigarette butts	17%▲	9%	8%	2%	3%	1%
Other food wrappers	14%	9%	6%	2%	2%	4%
Don't know	--	2%	2%	3%	5%	2%

Q8: Can you think of items that you yourself might have discarded as litter (by litter we mean items that you did not put in a trash receptacle) in the past year? **NOTE: web participants select from a list, vs. previous years telephone respondents were not read the list. This likely explains the increase in reported litter of small pieces of paper and cigarette butts.**

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.

Table A3: Littering Circumstances – Target vs. Non-Target
Among those who indicated they have littered in the past year

Top situations	2017 Target n=136	2016 Target n=103	2015 Target n=127	2017 Non-Target n=91	2016 Non-Target n=106	2015 Non-Target n=93
Driving/riding/traveling in vehicle.	48%	48%	41%	44%	32%	50%
Opened door/window–flew out.	32%▲	16%	12%	11%	8%	5%
Walking outside.	27%▲	11%	13%	3%	6%	8%
No trash can around.	14%	11%	9% ^C	10%▲	3%	4%
In a parking lot.	13%	11%	10% ^C	4%	3%	4%
Cleaning out car.	12%	5%	3%	3%	4%	2%
Just threw it/anywhere I could.	7%	12%	7%	10%	9%	8%
Don't know/can't remember.	5%	7%	6%	15%	16%	16%

Q9: To the best of your knowledge, what were the general circumstances in terms of where and what you were doing when you discarded litter? Any other circumstances? **NOTE: web participants select from a list, vs. previous years telephone respondents were not read the list.**

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.



Table A4: Experience with Littering Scenarios in Past Year – Target vs. Non-Target

Littering Scenarios	Target 2017 (n=216)	Non-Target 2017 (n=343)
You noticed that trash or some other item fell out of a pickup truck or other vehicle you were driving or riding in	49%▲	28%
Someone in a vehicle you were in threw trash out of the window. This could include things like a small wrapper, cup, can, or any other litter	41%▲	15%
You or someone in the vehicle you were in threw a cigarette butt out the window	39%▲	10%
You had problems with a vehicle and left debris like tire, part of a tire, or other stuff on the roadside	28%	22%
You or someone you were with got a ticket or warning for littering	4%	--

Q7: I am going to read you a few statements pertaining to littering from a vehicle, whether it is accidental or deliberate.

For each of the following statements, please respond by telling me if this is something you experienced in the last year

▲▼ Indicates significant difference between Target and Non-Target group at 95% confidence level.

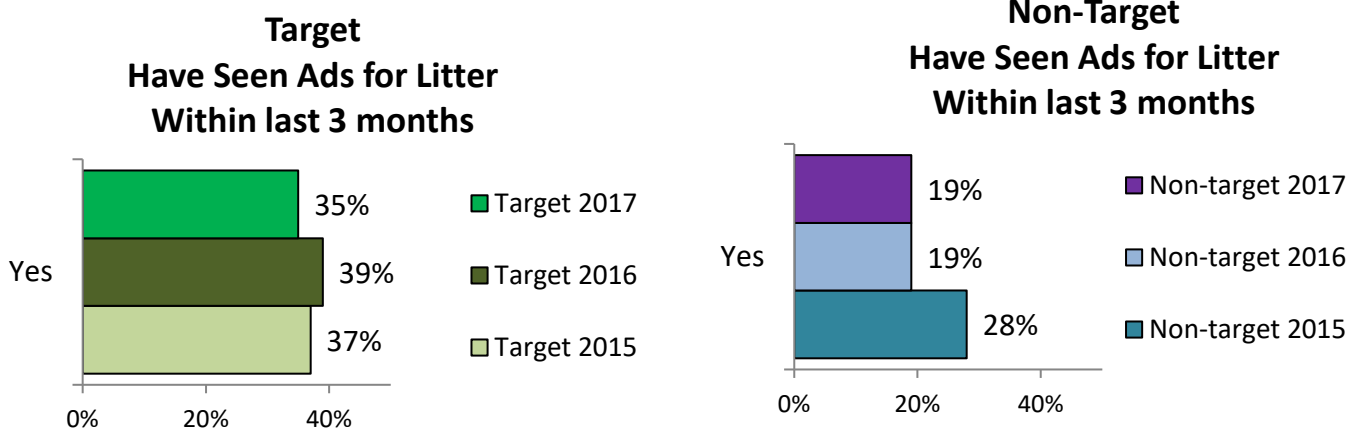


**Table A4b: Experience with Littering Scenarios –Target vs. Non-Target
2013-2016 Tracking for Reference Only**

Scenario	Past 3 months	3+ months	Never
Rather than keep a cigarette butt in the car, you or someone in the vehicle you were in threw the cigarette butt out the window			
Target 2016	15%	16%	69%
Target 2015	21%	16%	63%
Target 2014	28%	17%	55%
Non-target 2016	9%	12%	79%
Non-target 2015	6%	14%	80%
Non-target 2014	5%	10%	85%
You threw out a small item from your vehicle like a candy wrapper, scrap paper, etc.			
Target 2016	19%	23%	58%
Target 2015	16%	21%	63%
Target 2014	30%	20%	50%
Non-target 2016	7%	7%	86%
Non-target 2015	6%	9%	85%
Non-target 2014	7%	7%	86%
You had problems with a vehicle and left debris like tire, part of a tire, or other stuff on the roadside			
Target 2016	22%	11%	67%
Target 2015	17%	16%	67%
Target 2014	22%	12%	66%
Non-target 2016	14%	10%	76%
Non-target 2015	13%	7%	80%
Non-target 2014	12%	12%	76%
You noticed that some trash fell out of a pickup or other vehicle you were driving in			
Target 2016	29%	33%	38%
Target 2015	36%	33%	31%
Target 2014	44%	19%	37%
Non-target 2016	28%	18%	52%
Non-target 2015	26%	19%	56%
Non-target 2014	30%	19%	51%
You or someone you were with got a ticket or warning for littering			
Target 2016	2%	3%	95%
Target 2015	<1%	2%	97%
Target 2014	4%	4%	92%
Non-target 2016	<1%	-	99%
Non-target 2015	1%	1%	98%
Non-target 2014	<1%	2%	98%



CAMPAIGN AWARENESS



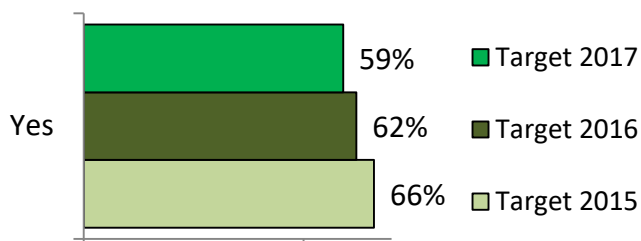
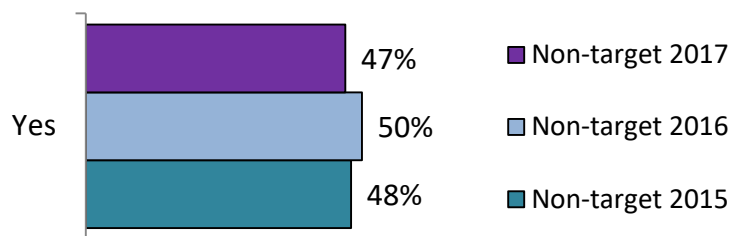
Q11: In the past three months, have you seen, heard or read any advertisements related to litter or littering?

Target 2017 n=227; 2016 n=194; 2015 n=200

Non-Target 2017 n=343; 2016 n=308; 2015 n=353

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.



Table A5: Awareness of Litter Resources – Target vs. Non-Target**Net Awareness of Slogan - Target****Net Awareness of Slogan - Non-Target**

Target 2017 n=227; 2016 n=194; 2015 n=200

Non-Target 2017 n=343; 2016 n=308; 2015 n=353

Q12: [If yes in Q20] What was the main slogan used in the ads?

Q13: [if not mentioned in Q22] Have you seen or heard the slogan, "Don't Trash Arizona?"

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.

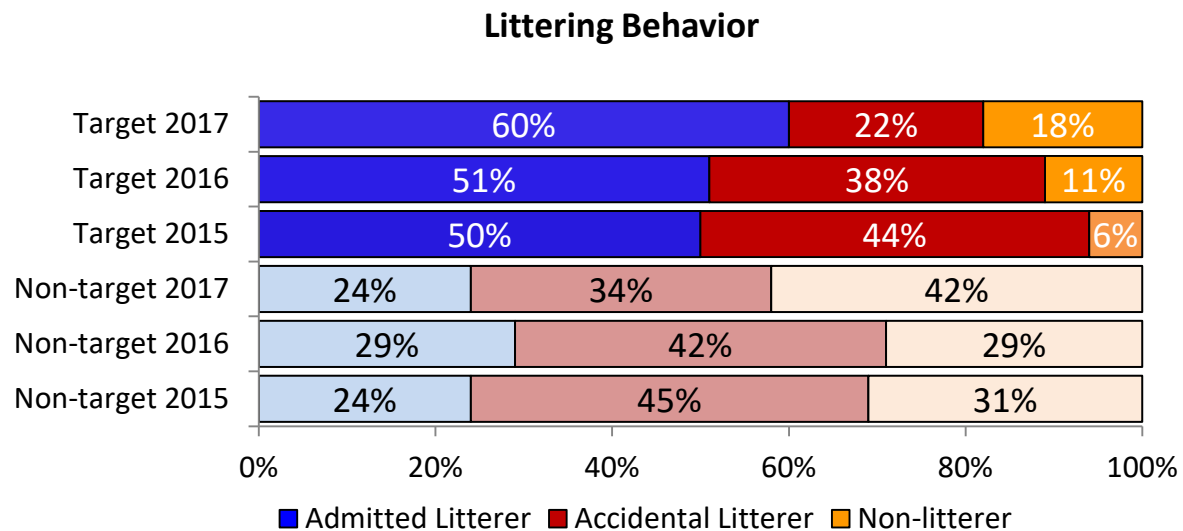
Aided awareness	2017 Target n=227	2016 Target n=194	2015 Target n=200	2017 Non-target n=343	2016 Non-target n=308	2015 Non-target n=353
<i>www.donttrasharizona.com</i>						
Yes	26%	25%	18%	13%	11%	8%
No	64%	72%	78%	84%	87%	89%
Don't know / No answer	10%▲	4%	4%	3%	2%	3%

Q14: Have you heard of *www.DontTrashArizona.com*?

▲▼ Indicates significant difference compared to 2016 at 95% confidence level.

PROFILES OF LITTERERS

For convenience, historical data is shown below. However, due to the significant changes made to the content of the questions that determine who is categorized as an accidental or non-litterer, the 2017 proportions cannot be statistically compared to prior years. ***The definition of an Admitted Litterer did not change and the 60% incidence in 2017 is consistent with prior years.*** (The definition change is very likely the reason for the substantial shifts in the incidence of Accidental Litterers and Non-Litterers for both the Target and Non-Target group).



APPENDIX B

QUESTIONNAIRE



Client: Maricopa Association of Governments
Subject: Litter Survey 2017
Date: July 2017

Introduction

Hello, my name is _____, and I am calling from WestGroup Research an independent research company. We are conducting a brief survey on the topic of litter and would appreciate your input. All information given will remain confidential. No sales calls will result from this interview.

1. First, are you or is any member of your family currently employed in any of the following...? READ LIST; IF YES TO ANY: THANK AND TERMINATE
 - a. Advertising or marketing research
 - b. Arizona Department of Transportation
 - c. Maricopa Association of Governments
 - d. A professional waste collection or recycling company
 - e. The waste management industry

2. Please tell me which of the following age categories includes your age? Please stop me when I read the correct category. READ LIST; ALLOW ONLY ONE RESPONSE
 - a. Under 18 TERMINATE
 - b. 18 to 34
 - c. 35 to 54
 - d. 55+
 - e. Refused TERMINATE

3. *If "Under 18" or "Refused," continue with:* May I please speak to someone in the household who is between the ages of 18 and 65?

4. Do you live in Maricopa County? If no, ask to speak to someone who does.

5. RECORD GENDER (DO NOT ASK; RECORD BY OBSERVATION)
 - a. Male
 - b. Female

Litter Awareness

Today, I would like to talk to you specifically about the topic of litter. When answering the following questions, please be open and accurate about your opinions and actions. We are trying to understand what people really think about litter. All of your responses will remain confidential.



6. In your opinion, how big of a problem is litter along freeways in Maricopa County?
Would you say it is a....
- Big problem
 - Moderate problem
 - Small problem
 - Not a problem at all
 - Don't know / Refused (DO NOT READ)
7. I am going to read you a few statements pertaining to littering from a vehicle, whether it is accidental or deliberate. For each of the following statements, please respond by telling me if this is something you experienced in the last year.
- You noticed that trash or some other item fell out of a pick-up truck or other vehicle you were driving or riding in.
 - Someone in a vehicle you were in threw trash out of the window. This could include things like a small wrapper, cup, can, or any other litter.
 - You had problems with a vehicle and left debris like a tire, part of a tire, or other stuff on the roadside.
 - You or someone you were with got a ticket or warning for littering.
 - You or someone in the vehicle you were in threw a cigarette butt out the window.

Littering Behavior

8. Can you think of items that you yourself might have discarded as litter (by litter we mean items that you did not put in a trash receptacle) in the past year? MULTIPLE RESPONSES ALLOW UP TO THREE. DO NOT READ LIST.
- Small pieces of paper (receipts, lottery tickets, gum wrappers)
 - Cigarette butts
 - Other food wrappers (chip bags/candy)
 - Food / organic material, raw food
 - Other
 - Have not littered in past year
 - Don't know



9. To the best of your knowledge, what were the general circumstances in terms of where and what you were doing when you discarded litter? PROBE: Any other circumstances? DO NOT READ. MULTIPLE RESPONSES ALLOWED UP TO THREE.
- Driving / riding in / traveling in vehicle
 - Walking outside
 - Opened door and it flew out / flew out of window / flew out of cab
 - No trash can around (not while in car)
 - Cleaning out car
 - In parking lot
 - Just threw it out / got rid of it anywhere I could
 - Other
 - Don't know/Can't remember / don't recall
10. On average, how often do you secure the load that you are hauling with ties, bungees, or a tarp when driving in a pick-up truck or when pulling an open-air trailer?
- Always
 - Sometimes
 - Never
 - I don't haul.

Litter Campaign Awareness

11. In the past three months, have you seen, heard or read any advertisements related to litter or littering?
- Yes
 - No
 - Don't know / Refused
12. IF YES IN Q11: What was the main slogan used in the ads? DO NOT READ LIST. MULTIPLE RESPONSES ALLOWED.
- Don't Trash Arizona
 - No cups cans or butts
 - Trash Talk
 - Keep Arizona Beautiful
 - Do not litter
 - You will be fined
 - Littering is unlawful
 - Go green
 - Grow up. Don't Litter
 - Adopt a highway
 - It is your environment
 - Keep our freeways clean
 - None
 - Other _____
 - Don't know / Refused



13. IF NOT MENTIONED IN Q12: Have you seen or heard the slogan, “Don’t Trash Arizona?”

- a. Yes
- b. No
- c. Don’t know / Refused

14. Have you heard of www.DontTrashArizona.com?

- a. Yes
- b. No
- c. Not sure/DK

Demographics

Now I have a few final questions that are for classification purposes only.

15. Thinking about your personal language use including in home and away from home, would you say you speak...? READ LIST; ALLOW ONLY ONE RESPONSE)

- a. English Only
- b. Only Spanish
- c. Mostly Spanish, but also some English
- d. Equally in Spanish and English
- e. Mostly English, but also some Spanish
- f. English plus some other language
- g. Don’t know/refused

Thank you very much – those are all my questions.

