



**EVALUATION OF THE 2019-2020 PIMA COUNTY
CLEAN AIR PROGRAM CAMPAIGN
AND
CLEAN WATER CAMPAIGN SURVEY**

(May 2020)

Executive Summary

Prepared for:

PIMA COUNTY DEPARTMENT OF
ENVIRONMENTAL QUALITY

Tucson, Arizona

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FMR ASSOCIATES, INC.

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Methodology Overview and Tracking – This split-methodology annual tracking survey, conducted for the Pima County Department of Environmental Quality (PDEQ), is comprised of a 500-person, randomly-selected and statistically-projectable sample of adult (16 or older) residents of Pima County, Arizona. Similar to the past five years, the 2020 project included a dual-methodology sample, with 250 Telephone interviews and 250 Internet surveys. All projects conducted prior to 2015 were exclusively Telephone interviews.

This project analyzed and tracked the overall effectiveness of the “Clean Air” Program after 30 campaign sessions. For the eight consecutive year, the project measured and tracked key issues related to stormwater management, perceptions, behaviors and actions impacting stormwater quality for PDEQ’s “Clean Water” Program.

One unique challenge of the 2020 survey is the impact of the COVID-19 outbreak in Pima County. The survey was fielded in the midst of the pandemic (late May) and the various restrictions it imposed on lifestyle and other behaviors (especially employment and commute-related patterns). To yield the most complete results, the 2020 survey measured both current (during the COVID-19 restrictions) and pre-COVID-19 employment/commuting patterns.

Once again, the Telephone and Internet survey instruments and screening criteria for each methodology were identical. Fielding for this project was conducted during late May 2020. A Spanish-language version of the final questionnaire design was prepared and made available to Telephone or Internet survey respondents who requested it.

All interviews were conducted among randomly-selected adults (16 years or older) who reside in Pima County.

Telephone interview respondents were further randomized by interviewing only “the male or female in your household who is 16 or older and most recently celebrated a birthday.” There was only one Telephone interview conducted per household.

Internet surveys were fielded utilizing a questionnaire administered by FMR Associates and hosted on an independent website. Potential survey respondents were contacted through a third party database Internet panel sample company that emailed invitations to their “opt in” panelists who reside in Pima County zip codes.

Regardless of methodology, all surveys were distributed on the basis of geographic population density in Pima County, with specific steps taken to ensure a proportionate number of interviews (based on population estimates) in each of four zip code-defined survey “regions” (Northwest, Central, South and East). These geographic quotas were adjusted for the 2020 survey to reflect the population growth occurring in the South and Northwest regions. The geographic composition of the 2020 sample is highly representative of these adjusted quotas: 32% South, 30% Northwest, 23% Central and 14% East.

Awareness of the Pima County “Clean Air” Program – Consistent with last year (43%), 42% in the 2020 study indicate an awareness of the Pima County “Clean Air” Program. Program awareness is directly related to the perception of a more serious air quality or stormwater pollution problem, and higher among households impacted by a breathing-related medical problem. Overall, there are fewer differences in awareness with respect to sex, age (lower only among those 66+) or ethnicity (marginally higher among non-Whites). Awareness is highest in the South or East zips and among those with some college (but no degree).

Awareness of Various Clean Air Events or Activities – Consistent with last year, 82% are familiar with at least one event or activity used to promote clean air in the Tucson area. Despite many being cancelled due to the COVID-19 outbreak, five of the six individual “Clean Air” events or activities evaluated in the 2020 survey have the same or higher awareness as compared to last year.

At least four of ten overall are familiar with the following “Clean Air” events/activities:

- **“Earth Day Festival”** (58% awareness, up slightly from 57% last year [when tested as “Earth Day Festival and Parade”]. East zone residents indicate the highest degree of familiarity.)
- **“Bike to Work Day”** (55% awareness, up from 52% last year. Awareness is generally consistent regardless of geography.)
- **“Walk and Bike to School Day”** (42% awareness, down from 46% last year. This event is more highly familiar to South zip residents.)
- **“Bike Fest”** (41% awareness, unchanged since last year. East region residents are more likely to indicate increased awareness.)

Consistent with last year, 28% are familiar with **“Cycloviva.”** These tend to be Central residents.

Compared to when it was first tested last year, awareness of the **“Travel Reduction Program”** has increased from 21% to 28%. Awareness is marginally higher among South zip residents.

Clean Air Campaign Event Participation and Actions Taken – Among the 82% of survey respondents familiar with at least one “Clean Air” campaign event, two of ten indicate that they or someone in their household participated in at least one such activity. This is the highest participation level recorded since 2015 (compared to 12%-18% in recent years). Participation is marginally higher in the South or Northwest zips, as well as among men, 16 to 45 year-olds and non-Whites.

Among the 20% who report past participation in a “Clean Air” event or activity, six of ten indicate they have changed (or are considering changing) their daily routines or behaviors to help improve air quality. This compares to 75% last year and 64% in 2018. Among the combined sample, this means that 10% report a change in their behavior after participating in a “Clean Air” event. This compares to 9% in 2019. Who is more likely to indicate a change in behavior after attending a “Clean Air” event? Central or East residents, non-Whites and 16 to 25 or 56 to 65 year-olds.

Opinion of Activities/Events – Overall, 88% familiar with at least one “Clean Air” event have a positive opinion of “events and activities that encourage people to use other modes of transportation or work from home instead of driving alone.” This is up slightly from last year (86%), although the percentage “very favorable” remains unchanged at 47%. Central or East residents most likely to be highly favorable towards events and activities to encourage use of alternative transportation modes. As we have found in past surveys, less than one of ten (7%) have a negative opinion (to any degree) of air quality related events and activities.

Steps Taken to Reduce Air Pollution – Allowing for multiple responses, the steps most often taken to help reduce air pollution in the Tucson area include:

- **Generally reduced driving** (47%, up significantly from recent surveys [35%-38%]. This is the case regardless of geography.)
- **Keeping tires properly inflated** (42%, representing an incrementally progressive increase since the 2019 [40%], 2018 [34%] and 2017 [31%] studies. These are more likely to be Northwest residents, 56 to 65 year-olds and Whites.)
- **Keep car tuned** (41%, unchanged since last year. Geographically, only East residents are somewhat less likely to indicate keeping their car tuned.)
- **Carpool/Less driving alone** (35%, down from 43% last year [but still consistent with 32%-38% in past surveys]. Carpooling is higher in the South or Central zips.)
- **Planted trees** (25%, up from 17%-20% in the past two studies. South region residents are more likely to have planted trees.)
- **Avoid excessive idling** (22%, basically unchanged since last year [23%]. These are more apt to be Northwest or East residents.)

- **Bought more fuel efficient car** (21%, up progressively from 17% in 2019 and 13% in 2018. There are few differences based on geography.)
- **Chosen one day a week not to drive** (17%, up from 12%-13% in the last two surveys. This is the case regardless of geography [lower only in the Central zips].)
- **Bought bicycles** (17%, up from 14%-15% in recent years. These tend to be South zip residents.)

Compared to last year, more say they are **using their BBQ grill less** (11%, up from 10%), **adjusted the emission control on their vehicle** (11%, up from 7%), **moved closer to work** (10%, up from 6%) and/or **using their fireplace/wood stove less** (8%, up from 7%). New to the current survey, 4% (more often South zip residents) report that they **purchased a battery-powered lawn mower**.

Overall, 11% say they have done **nothing** to reduce air pollution in the Tucson area (down from 15% last year). Once again, these tend to be residents who think that Tucson has a “minor” air quality problem.

School Materials Recall Among Children 5-18 – One-third report that they have children between the ages of 5 and 18 living in their household. This represents an incremental and progressive increase since 2016 (24%). South zip code residents, men, 16 to 45 year-olds and non-Whites are more likely to indicate that they have young children living in their household.

Among these households with young kids, four of ten report that these children have “talked about or brought home materials from school about improving air quality.” This is up slightly from last year (38%). Recall in the current survey is higher in the South or Northwest zips.

Gasoline-Powered Lawn Mower Usage and Characteristics – Up slightly from last year (7%), 8% overall indicate they or someone in their household uses a gasoline-powered lawn mower to care for their home property. Usage is lower only in the East zip codes (1% versus 8%-10% elsewhere), and higher among men, 16 to 25 year-olds and Hispanics. Among these users who know, more say their gas-powered mower has a 2-stroke (42%) than 4-stroke (25%) engine – with average monthly usage of 38 minutes.

Statement Evaluations – The following is a summary of the percentage of agreement/disagreement with a series of statements related to program awareness, pollution awareness, topics and general knowledge.

PDEQ and Sun Rideshare Awareness –

- **You are aware of the Pima County Department of Environmental Quality (PDEQ)** (59% agreement. While basically unchanged since last year [60%], awareness remains lower than 2015-2018 levels [63%-68%]. South zip residents indicate the highest awareness in the 2020 study.)

- **You are aware of the services provided by Sun Rideshare** (48% agreement, compared to 51%-58% in recent surveys. Awareness is highest in the East zips.)

PDEQ Program and Campaign Awareness –

- **You have seen or heard information about the importance of keeping your tires properly inflated** (76% agreement. This is down from 82%-88% in past years. Still, awareness is generally consistent regardless of geography [elevated in the Central zips].)
- **You have seen or heard the phrase “Healthy Air Is in Our Hands”** (35% agreement, up from three of ten last year. South region residents indicate increased awareness.)

Air Pollution Evaluations –

- **You are aware that the majority of our air pollution comes from motor vehicle use** (75% agreement, down slightly from 77% last year. There are few differences in agreement based on geography.)
- **You have seen or heard information regarding clean air or air pollution** (73% agreement, down from 80%-84% in the past three surveys. Agreement is higher in the East or Northwest zip codes.)
- **You have seen or heard information that vehicle engine idling causes air pollution** (72% agreement, reflecting an incremental and progressive decline from 2017 [90%]. Agreement is consistent regardless of geography.)
- **Because you want to reduce air pollution, you are generally driving less** (53% agreement, up slightly from last year [52%]. More apt to agree are South or Northwest region residents.)

COVID-19 Outbreak Driving Patterns –

- **Because of the COVID-19 outbreak, you are generally driving less** (74% agreement. East zip residents are more likely to indicate driving less due to the pandemic. Because of the outbreak, how many daily miles are not being driven that otherwise might? Self-reported estimates range from 1 to 100+ miles – for an average of 21.6 miles per day not driven due to the COVID-19 outbreak.)

Travel Behavior for Shopping – Prior to the COVID-19 outbreak, 57% of survey respondents said that they would generally **drive alone** to go shopping. This is down from last year (61%), but consistent with our 2018 findings (56%). Instead, a few more said that they (pre-pandemic) would **carpool with 1 to 4 other adults** (29%, up from 25% last year). While pre-pandemic **bus** ridership was unchanged from last year at 4%, a few more reported they used a **bicycle** (from 1% to 3%), **motorcycle** (from 1% to 2%) or **vanpool with 5 or more other adults** (from 0% to 1%). The share who said they **walk** (1%) has dipped from last year’s record of high of 7%.

Travel Behavior for Leisure Purposes – Before the pandemic outbreak, and consistent with 2019 findings, more continued to say they would generally drive alone (48%) than carpool with 1 to 4 other adults (38%) for leisure purposes (“such as dining out, meeting with friends, going to the movies, going to the gym, etc.”). In line with prior surveys, fewer overall say they would ride the bus (unchanged since last year at 4%), bicycle (3%, up from 0%), vanpool with 5 or more other adults (2%, up from 1%), motorcycle (unchanged at 2%) or walk (unchanged at 2%).

Perceived Seriousness of Air Quality Problem – Like we found last year, two of ten (19%) think that Tucson has a “major” air quality problem. At the same time, a few more now perceive that air quality is a just “minor problem” (from 21% to 25%). Down from 54%-55% since 2016, one-half believe that the air quality problem is “moderate” issue (50%). The remaining 5% remain unsure.

South region residents, men, 16 to 25 year-olds and non-Whites are more likely to think that Tucson has a “major” air quality problem. In line with past surveys, the perception of a “major” air quality issue is higher among those aware of the “Clean Air” Program (27% versus 14% of those unfamiliar) – as well as residents who perceive a progressively more severe stormwater pollution problem. On the other hand, those who perceive a “minor” air quality problem are more apt to be Northwest region residents, older (56+), college graduates and high income types (\$80,000 or more).

Work Commuting Behavior During the COVID-19 Outbreak – Allowing survey respondents to select more than one category of response, 30% say that they are currently employed full-time (30 hours or more each week) during the COVID-19 outbreak. Full-time employment is lower only in the East area, and is greater among men, 26 to 55 year-olds, non-Whites and those with a college degree or better. Another 12% are employed part-time (less than 30 hours each week), with little difference based on geography. Another 12% report being currently unemployed, with another 7% who say they are now furloughed due to the COVID-19 outbreak. More than one of four (27%) say they are retired, more often East area respondents and those 56+. The balance (17%) are students (9%) or homemakers (8%).

Among those working full-time or part-time during the COVID-19 outbreak (42% of the total sample), 24% work exclusively for a home-based business. Among the rest, 73% work for another company exclusively, while 3% work both for another company and for a home-based business. South area residents are more apt to work exclusively for a home-based business, while few East area residents do (8%). Instead, employed East region residents are most apt to work exclusively for another company (83%).

Six of ten full-time employees report working a “standard” schedule (8 hour days five days a week) during the COVID-19 outbreak. Another 11% work 10 hour days, 4 days a week, while 4% work 12 hour days, either 3 or 4 days a week. Just 2% say they work 80 hours over 9 days with the 10th day off. Meanwhile two of ten work some “other” workweek option or say their schedule varies (21%). South or East residents are more apt to utilize some type of compressed workweek during the COVID-19 outbreak.

With the various stay-at-home orders in place, it is not surprising that 41% of those who work outside the home or attend school **work at home instead of driving to work** (with a frequency of usage of 3.9 days). Teleworking is somewhat higher in the Northwest (45%) and East (48%) zips. Another 16% **attend classes at home instead of going to school**, with an average of 4.4 days. South and Central residents are more apt to attend classes from home instead of going to school. Others **walk to work or school** (19% usage for 2.6 days on average) and/or **carpool/vanpool** (18% usage for 2.5 days on average). Still, during the COVID-19 outbreak, 61% utilize **single passenger commuting to work or school**. The average frequency of use is 3.8 days.

Most Used Mode of Transportation for Work/School Commute During the COVID-19 Outbreak – Overall, 42% say that **single-passenger vehicle commuting** is their **most-used** method of transportation during the COVID-19 outbreak.

Another 27% say their current primary commute mode is **telecommuting**, while one of ten indicate **attending classes from home instead of going to school** is their most-used commute method during the COVID-19 outbreak. Only South area residents are less apt to primarily telework. As might be expected, those who primarily take classes from home tend to be younger (16 to 25). At the same time, 6% each are either primarily **carpooling** or **walking** during the COVID-19 outbreak. Another 4% **take the bus** as their primary mode of transportation to work or school during the COVID-19 outbreak, while nearly as many report primarily **riding a bike** (3%). Few are primarily **taking the streetcar** or **riding a motorcycle** (1% each).

Miles Traveled to Work or School During the COVID-19 Outbreak – During the COVID-19 outbreak, one of four (26%) say that they have a commute of 5 miles or less. Another 37% indicate they commute between 6 and 10 miles, and 10% say their commute is between 11 and 14 miles. The balance (27%) travel 15 miles or more. Geographically, Northwest area residents are most apt to report a commute of 15 or more miles (48%), while three of four East (74%) or Central (76%) zip code residents commute 10 miles or less.

Telecommuting During the COVID-19 Outbreak – Among those working outside the home during the COVID-19 outbreak (32% of the total sample), one-half say they have the option of telecommuting or teleworking (“working from home as an alternative to going in to your office or place of business during regular business hours”). COVID-19 telecommuters tend to be Northwest or East residents (54% each). Among teleworkers during the COVID-19 outbreak, 48% do so 5+ days per week, while most of the rest (42%) telecommute 2 to 4 days a week. Among the rest, 5% telecommute about once a week and 4% do so 2 to 3 times a month, with the remaining 1% teleworking once a month.

Daily Commuter Miles Saved Through Alternate Modes During the COVID-19 Outbreak – Based on the combination of results related to the modes of commuter travel and distances traveled with April 2020 employment estimates (Source: Arizona Office of Employment and Population Statistics), **we estimate that the reduction of single-occupant vehicles commuting through the use of alternative methods of travel saves 4,632,871 vehicle miles per day during the COVID-19 outbreak – or 55% of total miles driven/not driven.** This is primarily due to the high number of workers and students telecommuting or attending classes from home during the outbreak.

2020 Estimated Number of Work/School Miles Saved Through Alternative Modes During the COVID-19 Outbreak

Mode	(A) % Take Mode	(B) # Daily Commuter Trips	(C) Average Commuter Miles	(D) Total Miles Traveled	(E) Miles Driven	(E) Miles Not Driven
Drive alone	61%	295,122	12.1	3,570,976	3,570,976	-0-
Motorcycle	3%	10,145	8.2	83,189	83,189	-0-
Carpool	18%	57,221	10.1	577,932	199,287	378,645
Bus	9%	31,460	7.8	245,388	7,011	238,377
Bicycle	10%	29,763	9.4	279,772	-0-	279,772
Walk	19%	62,806	4.2	263,785	-0-	263,785
Streetcar	4%	10,791	7.4	79,853	-0-	79,853
Telecommute	41%	202,514	11.9	2,409,917	-0-	2,409,917
School from home	16%	89,162	9.1	811,374	-0-	811,374
Compressed workweek	11%	14,628	11.7	171,148	-0-	171,148
TOTALS:	--	803,612	--	8,493,334	3,860,463	4,632,871

- (A) From Table 26.
- (B) Based on number of work/school commuters in survey, percentage using mode and number of days/week mode used.
- (C) From Table 26c.
- (D) (D) = (B) x (C).
- (E) Carpool: based on workers average carpool/vanpool of 2.9 (from Table 26b). Bus: based on average of 35 riders/bus. Walk/bicycle/streetcar/telecommute/compressed workweek: no polluting vehicles used.

Work Commuting Behavior Prior to the COVID-19 Outbreak – When asked about their employment status *prior* to the COVID-19 outbreak, and again allowing survey respondents to select more than one category, 42% say that they were employed full-time (30+ hours each week). This compares to 38% full-time employment in 2019. Pre-pandemic full-time employment was lower only in the East region. Consistent with prior years, 12% report working part-time prior to the COVID-19 outbreak. Part-time employment was lower only in the South region. Unchanged since 2018, 9% say they were unemployed prior to the COVID-19 outbreak, with little difference based on area of residence. Similar to last year, 26% in the current survey were retired prior to the COVID-19 outbreak, more often East region respondents. In line with the past two years, about one of ten each were students (10%) or homemakers (8%).

Among those who worked full-time or part-time prior to the COVID-19 outbreak (54% of the total sample), 19% worked exclusively for a home-based business. This is down slightly from last year (21%). Of those who worked outside the home prior to the COVID-19 outbreak, 76% worked for another company exclusively, while 5% worked for both another company and a home-based business. South zip code residents were more apt to work exclusively for a home-based business.

Prior to the COVID-19 outbreak, 69% of full-time employees report working a “standard” schedule (8 hour days five days a week). This is down somewhat from last year (75%), but consistent with 2018 (69%). Another 9% worked 10 hour days, 4 days a week (up from 6% last year), and 3% worked a 12 hour day, either 3 or 4 days a week (down slightly from 5% last year). Generally consistent with last year, 2% report working 80 hours over 9 days with the 10th day off. Up from 2019, 17% indicate some “other” workweek options or say their workweek varied prior to the COVID-19 outbreak. East or Northwest area residents are more apt to have utilized some type of compressed workweek.

Down from last year (80%), 71% utilized **single passenger commuting to work or school** prior to the COVID-19 outbreak. The average frequency of use was 4.5 days, down just slightly from 4.6 last year. South area residents were somewhat *less* likely to drive alone at least one day per week prior to the COVID-19 outbreak (61% versus 69%-82% in other areas). At the same time, Northwest (49%) and Central (47%) residents were most apt to drive alone 5+ days per week.

Use of Alternative Work/School Commute Travel Methods Prior to the COVID-19 Outbreak – The following is a summary of the pre-pandemic usage of alternative modes for commute travel as measured in this survey:

- **Walk to work or school** (Up from last year [20%], 23% say they walked to work or school prior to the COVID-19 outbreak, with an increase in average days [from 2.4 to 2.8 days]. Walking to work or school was more common among South area residents.)

- **Carpool/Vanpool** (Up from last year [19%], 21% indicate they carpooled or vanpooled at least one day per week prior to the COVID-19 outbreak. Average frequency has also upticked [from 3.1 to 3.2 days]. Only Northwest area residents were *less* likely to carpool at least one day a week [18% versus 21%-23% in other areas].)
- **Work at home instead of driving to work** (Down slightly from last year [20%], 18% say they telecommuted prior to the COVID-19 outbreak – although frequency of usage has increased [from 2.8 to 3.0 days]. East zip residents were more apt to telework.)
- **Take the bus to work or school** (Bus ridership has rebounded to 2018 levels [15%, up from 12% last year], with an increase in average days as well [from 2.6 to 3.2]. South and Central area residents are more apt to take the bus.)
- **Ride a bike to work or school** (Down slightly from last year [13%], 11% indicate riding a bike to work or school prior to the COVID-19 outbreak. The frequency has ticked slightly upward [from 2.5 to 2.6 days]. Only East area residents are *less* apt to ride a bike to work or school.)
- **Attend classes at home instead of going to school** (About one of ten [9%] report attending classes at home instead of going to school prior to the COVID-19 outbreak, with a 3.5 day average frequency.)
- **Take the streetcar to work or school** (Up from last year [4%], 7% say they took the streetcar prior to the COVID-19 outbreak. However, the frequency of usage has decreased [from 3.2 days to 1.7 days].)
- **Ride a motorcycle to work or school** (Up from last year [4%], 6% indicate riding a motorcycle to work or school, with a slight decline in frequency [from 2.9 to 2.8 days].)

Most Used Mode of Transportation for Work/School Commute Prior to the COVID-19 Outbreak – Down from two-thirds in 2018 and 2019, 59% of pre-pandemic commuters indicate that **single-passenger vehicle commuting** was their *most-used* method of transportation.

Returning to pre-2017 levels, 11% were primarily **carpooling** prior to the COVID-19 outbreak. Carpool primaries were more apt to be South zip residents. Up from last year (5%), 8% report that **taking the bus** was their most used method of transportation prior to the COVID-19 outbreak. Another 7% say they primarily **telecommuted** prior to the COVID-19 outbreak (unchanged from 2019 levels). In line with last year, 5% were **walking** for their most used mode of commute transportation prior to the COVID-19 outbreak, regardless of area of residence. Down slightly from last year (5%), 4% were **riding a bike** as their primary mode of transportation to work or school. As many were primarily **riding a motorcycle** (4%, up from 1%).

Miles Traveled to Work or School Prior to the COVID-19 Outbreak – Before the COVID-19 outbreak, one of four (26%) indicate they had a commute of 5 miles or less (down from 30% in 2019). Another one-third say their pre-pandemic commute was between 6 and 10 miles (compared to 23% last year), while 11% commuted 11 to 14 miles (down from 17%). Similar to last year, 30% traveled 15 miles or more. Geographically, Northwest area residents were most apt to have a pre-pandemic commute of 15+ miles (44%). Meanwhile, the vast majority of East (70%), Central (66%) and South (64%) zip code residents commuted 10 miles or less.

Telecommuting Prior to the COVID-19 Outbreak – Up slightly from last year (17%), two of ten who worked outside the home prior to the COVID-19 outbreak indicate that they telecommuted. Teleworkers prior to the outbreak were more apt to be East area residents (28%). Among pre-pandemic telecommuters, seven of ten say they did so more than once a week. This represents progressive improvement from 58% last year and 44% in 2018. Another 26% teleworked (prior to the outbreak) about once a week (up from 12% last year).

Daily Commuter Miles Saved Through Alternate Modes Prior to the COVID-19 Outbreak – Based on the combination of results related to the modes of pre-pandemic commuter travel and distances traveled with February 2020 employment estimates (Source: Arizona Office of Employment and Population Statistics), **we estimate that the reduction of single-occupant vehicles commuting through the use of alternative methods of travel saves 3,776,177 vehicle miles per day – or 38% of total miles driven/not driven prior to the COVID-19 outbreak.** The percentage of miles saved has increased from last year (30%), but tracks with results from 2018 (38%). This is due to a decrease in single-passenger travel (from 80% to 71%) and an increase in the participation rate and/or frequency of use of many of the alternate modes – as well as the addition of the alternate use category for attending classes from home.

2020 Estimated Number of Work/School Miles Saved Through Alternative Modes Prior to the COVID-19 Outbreak

Mode	(A) % Take Mode	(B) # Daily Commuter Trips	(C) Average Commuter Miles	(D) Total Miles Traveled	(E) Miles Driven	(E) Miles Not Driven
Drive alone	71%	439,685	12.8	5,627,968	5,627,968	-0-
Motorcycle	6%	22,757	9.1	207,089	207,089	-0-
Carpool	21%	92,684	11.4	1,056,598	422,639	633,959
Bus	15%	64,962	9.6	623,635	17,818	605,817
Bicycle	11%	39,901	10.1	403,000	-0-	403,000
Walk	23%	87,236	4.6	401,286	-0-	401,286
Streetcar	7%	16,510	7.6	125,476	-0-	125,476
Telecommute	18%	74,479	14.4	1,072,498	-0-	1,072,498
School from home	9%	43,694	8.2	358,291		358,291
Compressed workweek	10%	14,068	12.5	175,850	-0-	175,850
TOTALS:	--	895,976	--	10,051,691	6,275,514	3,776,177

- (A) From Table 32.
- (B) Based on number of work/school commuters in survey, percentage using mode and number of days/week mode used.
- (C) From Table 32c.
- (D) (D) = (B) x (C).
- (E) Carpool: based on workers average carpool/vanpool of 2.5 (from Table 32b). Bus: based on average of 35 riders/bus. Walk/bicycle/streetcar/telecommute/compressed workweek: no polluting vehicles used.

Daily Shopping/Leisure Miles Saved Through Alternate Modes Prior to the COVID-19 Outbreak – Combining trip frequency/length estimates provided by Pima Association of Governments with the “most used” methods of pre-pandemic transportation (Tables 18/19 in our report), we can further estimate daily vehicle miles saved through the use of alternative modes for shopping and leisure purposes. As indicated below, we estimate that the reduction of single-occupant vehicles commuting through the use of alternative methods of pre-pandemic travel for **shopping** saves 533,175 vehicle miles per day, or 27% of total miles driven/not driven (down slightly from 29% in 2019). The number of **leisure** travel miles saved daily is 2,877,275 – 33% of total miles driven/not driven (down slightly from 35% last year, due primarily to increased single passenger travel and less carpooling). These compare to a savings of 3,776,177 vehicle miles per day in pre-pandemic **travel to work or school** (or 38% of total miles driven/not driven).

2020 Estimated Number of Shopping Miles Saved Through Alternative Modes (Prior to the COVID-19 Outbreak)

Mode	(A) % Take Mode Most Often	(B) # Daily Shopping Trips	(C) Average Shopping Miles	(D) Total Miles Traveled	(E) Miles Driven	(E) Miles Not Driven
Drive alone	57.4%	398,487	5.00	1,143,658	1,143,658	0
Motorcycle	2.0%	398,487	5.00	39,849	39,849	0
Carpool/Vanpool	30.8%	398,487	5.00	613,670	245,468	368,202
Bus	4.2%	398,487	5.00	83,682	2,391	81,291
Walk	1.2%	398,487	5.00	23,909	0	23,909
Bicycle	2.8%	398,487	5.00	55,788	0	55,788
Streetcar	0.2%	398,487	5.00	3,985	0	3,985
TOTALS:	--	--	--	1,964,541	1,431,366	533,175

- (A) From Table 18.
- (B) Source: Pima Association of Governments.
- (C) Source: Pima Association of Governments.
- (D) = (A) x (B) x (C).
- (E) Carpool: based on workers average carpool/vanpool of 2.5 (from Table 32b). Bus: based on average of 35 riders/bus. Walk/bicycle/streetcar: no polluting vehicles used.

2020 Estimated Number of Leisure Miles Saved Through Alternative Modes (Prior to the COVID-19 Outbreak)

Mode	(A) % Take Mode Most Often	(B) # Daily Leisure Trips	(C) Average Leisure Miles	(D) Total Miles Traveled	(E) Miles Driven	(E) Miles Not Driven
Drive alone	47.8%	1,518,736	5.78	4,196,025	4,196,025	0
Motorcycle	2.0%	1,518,736	5.78	175,566	175,566	0
Carpool/Vanpool	39.8%	1,518,736	5.78	3,493,761	1,397,504	2,096,257
Bus	3.6%	1,518,736	5.78	316,019	9,029	306,990
Walk	2.0%	1,518,736	5.78	175,566	0	175,566
Bicycle	2.8%	1,518,736	5.78	245,792	0	245,792
Streetcar	0.6%	1,518,736	5.78	52,670	0	52,670
TOTALS:	--	--	--	8,655,399	5,778,124	2,877,275

- (A) From Table 19.
- (B) Source: Pima Association of Governments.
- (C) Source: Pima Association of Governments.
- (D) = (A) x (B) x (C).
- (E) Carpool: based on workers average carpool/vanpool of 2.5 (from Table 32b). Bus: based on average of 35 riders/bus. Walk/bicycle/streetcar: no polluting vehicles used.

Final Air Quality Campaign Observations

Awareness of the Pima County “Clean Air” Program (42%) is basically unchanged from the 2019 survey (43%). Similarly, 82% remain familiar with at least one “Clean Air” event (up slightly from 81% last year). As we have found in past surveys, there continues to be a significant difference in key attitudes and behaviors related to air quality among those familiar of the “Clean Air” Program and those who are not (42% and 48%, respectively). This relationship is once again readily apparent, as summarized in the comparative displays below.

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (42%)	<u>Unaware</u> (48%)
<i>Air Quality Event Awareness</i>			
• <u>Travel Reduction Program</u>			
2020	+133%	42%	18%
2019	+250%	35%	10%
• <u>Walk and Bike to School Day</u>			
2020	+100%	58%	29%
2019	+71%	60%	35%
• <u>Cyclovia</u>			
2020	+81%	38%	21%
2019	+82%	40%	22%
• <u>Bike to Work Day</u>			
2020	+80%	74%	41%
2019	+62%	68%	42%
• <u>Bike Fest</u>			
2020	+77%	55%	31%
2019	+83%	55%	30%
• <u>Earth Day Festival</u>			
2020	+59%	73%	46%
2019	+52%	73%	48%
• <u>Participation in a “Clean Air” event</u>			
2020	+278%	34%	9%
2019	+144%	22%	9%

✓ **On average, there is a 115% higher awareness and/or participation in “Clean Air” events or programs among those familiar with the “Clean Air” Program (compared to 106% in 2019).**

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Air” Program</u>	
		<u>Aware</u> (42%)	<u>Unaware</u> (48%)

PDEQ and Sun Rideshare Awareness

- Aware of PDEQ

2020	+124%	83%	37%
2019	+89%	83%	44%
 - Aware of Sun Rideshare services

2020	+54%	60%	39%
2019	+42%	64%	45%
- ✓ **On average, there is a 89% greater awareness of PDEQ and Sun Rideshare services among those aware of the “Clean Air” Program (compared to 66% in 2019).**

PDEQ Activity Understanding

- Seen or heard information that vehicle engine idling causes air pollution

2020	+25%	80%	64%
2019	+21%	85%	70%
 - Seen or heard information regarding clean air or air pollution

2020	+21%	81%	67%
2019	+21%	92%	76%
 - Aware that majority of air pollution comes from motor vehicle use

2020	+10%	79%	72%
2019	+17%	84%	72%
 - Seen or heard information about the importance of keeping tires properly inflated

2020	+9%	81%	74%
2019	+10%	88%	80%
- ✓ **On average, there is a 16% higher understanding of PDEQ activities among those aware of the “Clean Air” Program (compared to 17% in 2019).**

Once again, we conclude that these survey findings and tracking results suggest that the “Clean Air” Program increases awareness, belief and actions related to improving air quality. Subsequently, targeting those *unfamiliar* with the program continues to be a key recommendation of this project.

Those unfamiliar with (or unsure of) the “Clean Air” Program (including specific campaign events or activities) are more apt to live in the Central or Northwest regions – as well as be older (66+), from low income households (below \$15,000 annually) and the newest (for less than two years) Pima County residents.

Accordingly, promotional, communication and awareness-building efforts should be targeted towards these groups. We continue to recommend increased development and usage of social media to help reach lower income and newer residents. This could be supplemented (as the budget allows) with traditional media (such as television, print and/or radio, especially those specific to the Central or Northwest regions) to reach the older target. The “Clean Air” events that appear to have the strongest relationship to “Clean Air” Program awareness are “Earth Day” and the various biking activities (“Bike to Work Day,” “Walk & Bike to School Day” and “Bike Fest”). These events should be given priority for increased promotion, if possible and practical.

As possible, we further recommend an increased emphasis for “Cyclovia.” While it is a newer event (relative to the more established ones), its awareness has increased over the past two years (and is highest among Central residents, non-Whites and 16 to 45 year-olds). “Cyclovia” perhaps benefits from its association with the current “Clean Air” biking events (as well as other Tucson cycling events). However, we would suggest adding a tag line or slogan to the event name to help increase understanding of its purpose (such as “Cyclovia – Bringing People Together to Walk, Bike and Socialize for Healthy Air”).

Tire Inflation Education Campaign – Three of four (76%) say they “have seen or heard information about the importance of keeping your tires properly inflated” (down from 82% last year). Despite this dip in general awareness, a record 42% report that they are keeping their tires properly inflated to help reduce air pollution in the Tucson (representing progressive and incremental growth from 31% in 2017).

What is the direct impact of this action taken to keep tires properly inflated?

There are an estimated 681,226 working vehicles (automobiles, vans and trucks of one-ton capacity or less for household use) in Pima County (source: 2018 American Community Survey). According to PDEQ, a vehicle will save 144 gallons of gasoline per year with properly inflated tires.

If 42% are keeping their tires properly inflated, this yields an annual reduction of 41,200,548 gallons of gasoline not purchased (along with the pollutants this gasoline would release).

Stormwater Perceptions and Practices

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

In line with past years, all survey participants were informed that “some streets in the Tucson area are equipped with storm drains.” Immediately afterwards, respondents were asked to specify where (to the best of their knowledge) water that flows into these storm drains ends up. Allowing for more than one answer, ranked responses include:

- **River or wash** (51%, up slightly from last year [49%], and just short of the record high mention of 53% recorded in 2018. East region residents more likely to think that water that flows into storm drains ends up in a river or wash. Consistent with last year, there is no difference based on the perception of Tucson’s stormwater pollution problem.)
- **Groundwater** (17%, a slight increase over the past two surveys [15% each]. These tend to be those who perceive a “major” stormwater pollution problem. There are fewer differences based on geography [slightly lower only in the Northwest zips].)
- **Water treatment plants** (14%, up incrementally from 2018 [10%] and 2019 [12%] levels. Northwest residents are more likely to believe that stormwater ends up in water treatment plants.)
- **Sewage plants** (13%, up slightly 11% last year. This perception is elevated in the South zip codes, as well as among those who think that Tucson has a progressively more serious stormwater pollution problem.)
- **Canals** (9%, slight increase from 7% in the last two surveys. Similar to past years, these tend to be South region residents – as well as those who perceive a “serious” stormwater pollution problem.)

Consistent with the last two surveys, one of four indicate that they **do not know** where stormwater that flows into a storm drain ends up. These are more apt to be Central or East zip code residents and those who perceive a “moderate” or non-existent stormwater pollution problem.

Green Infrastructures Implemented/Installed at Home or Business – Consistent with past years, the most often implemented Green Infrastructure is **landscaping with native plants** (53%). This is down from last year’s record mention (65%), but in line with years prior (52%-55%). In the current survey, use of native plants is lower only in the South zips (41% versus 57%-61% elsewhere) and is elevated among residents who perceive a “moderate” stormwater pollution problem.

One of four or so (especially those who perceive a “serious” stormwater pollution problem) indicate that these three Green Infrastructures have been implemented or installed at home or their place of business:

- **Landscaped depressions that collect stormwater** (27%, highly consistent with recent surveys [24%-29%]. Implemented more often by East residents.)
- **Connecting runoff from a roof or paved surface to a basin or to water plants** (26%, down just slightly from 29% last year. These tend to be South zip code residents.)
- **Porous pavements or bricks** (24%, returning to 2018 levels after a record mention in 2019 [34%]. Implementation is higher in the South region.)

Other Green Infrastructures implemented at home or business include:

- **A trench that is filled with gravel to collect stormwater** (19%, generally consistent with the last three surveys [18%-21%]. Once again, these tend to be East region residents – with few differences based on the perceived severity of the stormwater pollution problem.)
- **Natural areas protected from clearing and grading** (16%, down from 20%-24% in the last two studies. South or East zip residents and those who perceive a “serious” stormwater pollution problem are more likely to have implemented this Green Infrastructure.)
- **Water harvesting using rain barrels or cisterns** (16%, down incrementally from 2019 [19%] and 2018 [22%] findings. More likely to have utilized rain barrels or cisterns are South area residents and those who think Tucson has a “serious” stormwater pollution problem.)

Awareness of the “Clean Water Starts With Me” Campaign – Similar to last year, four of ten indicate awareness of the “Clean Water Starts With Me” campaign. These tend to be South zip residents, non-Hispanic minorities and those who perceive a “serious” stormwater pollution problem. There are fewer differences in awareness based on sex or age (somewhat higher among 16 to 25 year-olds). As we found last year, there is significantly greater campaign awareness among residents familiar with the “Clean Air” Program (59% versus 26% unfamiliar).

Perceived Seriousness of Stormwater Pollution Problem in the Tucson Area – Overall, 87% of survey respondents perceive that there is at least a “moderate” problem in the Tucson area “with polluting materials entering storm drains.” While this is generally consistent with 2019 results (90%), there has been a decline in the share who perceive that such pollution is a “serious problem” (33%, down from 44%). Still, as in past surveys, just 13% think stormwater pollution is “not a problem.” This yields a 5.7 average score on the “1-to-9” rating scale (down from 6.0 in 2019). The perception of a “serious” stormwater pollution problem is (on average) higher among South or East zip residents.

Methods Used to Dispose of Various Types of Household Hazardous Wastes – As we have found in 2018 and earlier (when this question was last asked), the five most often commonly used methods of disposing of household wastes such as “household chemicals, automotive fluids and lawn & garden chemicals” include:

- **Hazardous waste collection site** (49% usage, down from 2017-2018 levels [52%-53%], but higher than was found in 2016 [42%]. Usage in the 2020 survey is higher in the Northwest or East zip codes.)
- **Auto parts store** (39% usage, lower than was found in 2018 [45%] and 2017 [42%]. East zip residents are more likely to dispose of hazardous waste at an auto parts store. There are few differences based on perception of the stormwater pollution problem.)
- **Put in the garbage** (34% usage, nearly unchanged from 2018 [35%]. Once again, these tend to be South area residents. Residents who perceive a progressively more severe stormwater pollution problem are also more likely to utilize this method of disposal.)
- **Service station** (24% usage, down just slightly from 2017-2018 levels [26% each]. As we found in 2018, service station usage is lower only in the Northwest region [20% versus 24%-27% elsewhere] and higher among those who perceive a “serious” stormwater pollution problem.)
- **Landfill** (17% usage, down from 22% in 2018. Landfill users are more apt to be South region residents – with fewer differences based on perceived stormwater pollution problem.)

Overall, 16% report that they dispose of household hazardous wastes by **pouring them down the drain**. This is up slightly from 2018 (14%), but lower than 2017 levels (18%). South residents are more apt to utilize this disposal method.

Up from one of ten in both 2017 and 2018, 14% in the current study say that they **do not use** items such as household chemicals, automotive fluids or lawn & garden chemicals (or finishing them all up when they do). Overall, 5% remain not sure how they dispose of these types of household wastes.

Rating of Various Contributors to Stormwater Pollution Problem – As in prior years, respondents were asked to rate the perceived severity of eight contributors to the problem of stormwater pollution in Tucson. The same “1-to-9” scale was utilized, where “1” means “not a problem” and “9” means a “serious problem.”

- **Chemicals and materials from industrial facilities** (38% “serious” contributor to stormwater pollution, down just slightly from 39% in 2019 – resulting in a 5.5 average score on the “1-to-9” rating scale [identical to last year]. These tend to be 56 to 65 year-olds, non-Hispanics and high income households. Geographically, only Central area residents are less likely to indicate a lower degree of perceived causation.)

- **Automotive fluids such as oil, gasoline and brake fluid** (36% “serious” contributor to stormwater pollution, down from 42% in 2019 – 5.4 average score [down from 5.7]. These are more likely to be South or East area residents.)
- **Pesticides, fertilizers and debris from lawns and gardens** (35% “serious” contributor to stormwater pollution, down from 42% in 2019 – 5.4 average score [down from 5.6]. These tend to be South or East zip residents.)
- **Chemicals and materials from construction sites** (35% “serious” contributor to stormwater pollution, down from 40% in 2019 – 5.4 average score [down from 5.6]. East zone residents are more apt to perceive that chemicals and materials from construction sites are a “serious” contributor to stormwater pollution.)
- **Household trash and bulky items like mattresses, sofas and tires** (36% “serious” contributor to stormwater pollution, down from 39% in 2019 – 5.3 average score [down from 5.6]. Perceived causation is slightly lower only in the Central zip codes.)
- **Household products such as cleaning fluids, detergents, paints, degreasers and bleaches** (34% “serious” contributor to stormwater pollution, down from 40% in 2019 – 5.2 average score [down from 5.5]. South or East region are more apt to say household products contribute to stormwater pollution.)
- **Animal waste from household pets** (22% “serious” contributor to stormwater pollution, up slightly from 20% in 2019 – 4.4 average score [up from 4.3]. Consistent with last year, six of ten perceive that animal waste contributes to stormwater pollution to some extent. This compares to 39% who say it is a non-factor. Geographically, South zip code residents are more likely to say that animal waste is a contributor to stormwater pollution.)
- **Copper from brake pads made with copper** (18% “serious” contributor to stormwater pollution – 4.2 average score [identical to 2019]. As we have found in prior surveys, significantly more think that is “not a problem” [39%] than a “serious” contributor [18%] to the stormwater pollution problem in Tucson.)

Government Entity to Call If Witness to Someone Dumping Trash or Chemicals in a Storm Drain – One of four say they are **unsure** who they would contact if they saw someone dumping trash or chemicals in a storm drain. This is down from 28% in 2019, and nearly equals the all-time low recorded in 2018 (22%). Those unsure in the current survey tend to be less formally educated, with few differences with respect to geography.

Unchanged since last year, 38% indicate that they would contact **911/Police department** to report storm drain dumping. These tend to be Northwest residents.

Others report they would contact these government-oriented agencies or departments:

- **City government** (18%, up from 15%-16% in the last two surveys. Lower only in the South zips [14% versus 18%-20% elsewhere].)
- **County government** (16%, up from 2019 [12%] and 2018 [14%] levels. Northwest residents are more likely to say they would contact county government to report storm drain dumping.)
- **Water department** (15%, up from 11% in 2019. These tend to be South region residents.)
- **Sanitation department** (12%, up slightly from 9%-10% in the last two studies. Lower only in the Central zip codes [6% versus 11%-16% everywhere else].)
- **Health department** (12%, an increase from 8%-9% in 2018-2019. This is generally consistent regardless of geography.)
- **Flood control district** (4%, up from 1% last year.)

Overall, 5% indicate they would **not report** dumping of trash or chemicals in a storm drain. This is up from 2%-3% in the last two years.

Likelihood of Taking Part in Various Activities to Help Keep Stormwater Clean – This question series returns to the 2020 survey after a hiatus last year. Compared to prior surveys, the percentage of respondents “very likely” to take part in activities to help keep stormwater clean trends lower – although most remain highly likely to engage in these four activities:

- **Safely dispose of chemicals** (67% “very likely,” down from 71%-77% in recent years. These tend to be Central or East region residents.)
- **If you have a dog, using a doggie bag to clean up after them** (67% “very likely,” down from 76%-80% in recent years. This is particularly true in the Central or East regions.)
- **Report a spill** (54% “very likely,” down from 58%-63% in recent years. Slightly lower only in the Northwest zips codes [49% versus 55%-59% elsewhere].)
- **Replacing a toxic compound with a non-toxic compound** (52% “very likely,” down from 56%-62% in recent years. These are more apt to be Northwest or East residents.)

Down from about one-half in recent surveys, four of ten in the current study (more often South residents) are “very likely” to say they would **gather stormwater to use for watering plants**. Two of ten are “not at all likely” (compared to 17%-19% between 2016 and 2018).

Compared to recent surveys, fewer indicate that they would be likely (to some degree) to **install Green Infrastructure** – both overall (from 66%-78% to 60%) and the percentage “very likely” (from 33%-43% to 24%). One of four now say they are “not at all likely” (up from 18%-21% the last two years), more often Central residents. On the other hand, South region residents are more apt to be “very likely” to install Green Infrastructure.

Final Clean Water Program Campaign Observations

As we found last year, four of ten are familiar with the “Clean Water Starts With Me” campaign. Awareness was highest in the 2016 and 2017 surveys (55%-57%), with a decline in 2018 (50%). Despite this lower awareness in 2019 and 2020, there continues to be significant positive differences between those aware of the “Clean Water Starts With Me” campaign (40%) and those who are not (60%) with respect to key perceptions and actions related to stormwater pollution.

In line with past studies, residents familiar with the “Clean Water Starts With Me” campaign remain more likely to think that Tucson has a “serious” stormwater pollution problem (39% versus 30% of those unfamiliar, 30% higher).

With respect to resident perceptions of where stormwater that flows into Tucson storm drains end up, there are few differences (again) in the ordinal ranking of survey responses – with the highest percentage (regardless of campaign awareness) who continue to say that stormwater flows in a river or wash (51% overall). However, 31% unfamiliar with the “Clean Water Starts With Me” campaign indicate that they “don’t know” where stormwater ends up. This compares to just 17% among residents aware of the campaign.

As indicated in the displays below, there are key differences related to the perceived factors that contribute to the stormwater pollution problem, the implementation/ installation of Green Infrastructures at home or business and willingness to take specific actions to help keep stormwater clean.

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Water Starts With Me”</u>	
		<u>Aware</u> (40%)	<u>Unaware</u> (60%)
“Serious” Contributors to Stormwater Pollution			
<u>Copper from copper brake pads</u>			
2020	+53%	23%	15%
2019	+85%	24%	13%
<u>Household trash and bulky items</u>			
2020	+41%	45%	32%
2019	+19%	43%	36%
<u>Construction site chemicals/materials</u>			
2020	+25%	40%	32%
2019	+31%	46%	35%
<u>Industrial facility chemicals/materials</u>			
2020	+20%	42%	35%
2019	+17%	42%	36%
<u>Automotive fluids</u>			
2020	+18%	40%	34%
2019	+10%	44%	40%
<u>Animal waste from household pets</u>			
2020	+14%	24%	21%
2019	+22%	22%	18%

- ✓ Identical to last year, there is a 28% higher rating/awareness of “serious” contributors to the stormwater pollution problem in the Tucson area among those aware of the “Clean Water Starts With Me” campaign. Regardless of campaign awareness, about one-third overall perceive that household products (such as cleaning fluids, detergents, paints, degreasers and bleaches) and pesticides, fertilizers and debris from lawns and gardens are a “serious” contributor to stormwater pollution.

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Water Starts With Me”</u>	
		<u>Aware</u> (40%)	<u>Unaware</u> (60%)
<i>Green Infrastructures Implemented/ Installed at Home or Business</i>			
<u>Natural areas protected from clearing and grading</u>			
2020	+62%	21%	13%
2019	+68%	32%	19%
<u>Water harvesting using rain barrels or cisterns</u>			
2020	+62%	21%	13%
2019	+60%	24%	15%
<u>Connecting runoff from a roof or paved surface</u>			
2020	+62%	34%	21%
2019	+17%	34%	29%
<u>Porous pavements or bricks</u>			
2020	+27%	28%	22%
2019	+23%	37%	30%
<u>Landscaped depressions that collect stormwater</u>			
2020	+12%	29%	26%
2019	+28%	32%	25%

- ✓ **There is a 45% higher incidence of Green Infrastructures implemented or installed at home of business among those aware of the “Clean Water Starts With Me” campaign (up from 36% last year). Regardless of campaign awareness, a majority indicate that they are landscaping with native plants (53% overall) – while two of ten continue to say they have excavated a trench that is filled with gravel to collect stormwater.**

<u>Some key differences:</u>	<u>Difference</u>	<u>“Clean Water Starts With Me”</u>	
		<u>Aware</u> (40%)	<u>Unaware</u> (60%)
“Very Likely” to Take Actions to Help Keep Stormwater Clean			
<u>Install Green Infrastructures</u>			
2020	+55%	31%	20%
2018	+31%	42%	32%
<u>Gathering stormwater to use for watering plants</u>			
2020	+22%	44%	36%
2018	+13%	53%	47%
<u>Replacing a toxic compound with a non-toxic compound</u>			
2020	+21%	58%	48%
2018	+3%	63%	61%
<u>Report a spill</u>			
2020	+12%	58%	52%
2018	+12%	65%	58%

- ✓ **There is a 28% higher strong likelihood of taking specific actions to help keep stormwater clean among those aware of the “Clean Water Starts With Me” campaign (compared to 19% in 2018). Regardless of campaign awareness, fully two-thirds are “very likely” to safely dispose of chemicals and use a doggie bag to clean up after a pet.**

These findings do (once again) suggest that “Clean Water Starts With Me” campaign awareness does have a positive impact on the perceptions and willingness to act related to the stormwater pollution problem in Tucson.

Consequently, we suggest targeting those who are currently *less familiar* with the “Clean Water Starts With Me” campaign for future outreach/education efforts. These include Central area residents, lower income households (less than \$40,000 annually) and the newest Pima County residents (for less than two years). Another potential target for outreach might be residents unsure who they would call to report someone dumping trash or chemicals into a storm drain or wash – namely 36 to 45 or 56 to 65 year-olds and newer Pima County residents (for less than six years). Meanwhile, 16 to 25 year-olds and residents in the South zip codes are most apt to say they dispose of household hazardous waste by pouring in the sink or down the drain.