

Public Perceptions of Climate Change

A Maryland Statewide Survey | Fall 2016



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Executive Summary

In April 2016, Maryland Governor Larry Hogan signed SB 323, the Greenhouse Gas Emissions Reduction Act. This bipartisan legislation builds upon the 2009 Greenhouse Gas Emission Reduction Act that called for a 25 percent reduction in statewide greenhouse gas emissions from 2006 levels by the year 2020. SB 323 will take effect in October 2016 and calls for a 40 percent reduction in emissions from 2006 levels by the year 2030.¹

Continuing a research partnership that began during the 2015 study, George Mason University (GMU) once again teamed up with the Johns Hopkins Bloomberg School of Public Health to get Marylanders' opinions on climate change, public health and energy sources, and their attitudes towards current or proposed policies that relate to these topics.

Below are some of the findings from the 2016 survey of Maryland residents, the fourth installment of an annual study dating back to 2013.

Key Findings

- 1) Millennials lead older generations in their certainty that climate change is happening, understanding of human causes, and concern over its effects.
 - Eighty-nine percent of Millennials (ages 18-35) and 84 percent of Generation X (ages 36-51) say climate change is currently happening, compared with 75 percent of Baby Boomers (ages 52-70) and 62 percent of the oldest residents from the Silent and Greatest (G.I.) Generations (ages 71 or older).
 - Six in ten Millennials (64%) say that 81-100 percent of climate scientists are in agreement that climate change is occurring. This figure drops to 58 percent among Gen Xers, 51 percent of Boomers and 39 percent of the Silent and Greatest Generations.
 - Millennials are the most likely to say that people, not natural shifts in the environment, are the reason for climate change.
 - They are also the most likely of any age group to say their communities face many risks because of climate change.

¹ From the website of the Maryland General Assembly:
<http://mgaleg.maryland.gov/webmga/frmMain.aspx?pid=billpage&tab=subject3&stab=01&id=sb0323&ys=2016RS>

- 2) Marylanders say crime, schools, jobs and water pollution should be top priorities for state government; more than half say the same for climate change.
- Nearly nine in ten residents say that lowering crime (88%), improving schools (86%) and creating jobs (86%) should be *high* or *very high* priorities for the Maryland General Assembly and the Governor.
 - Seventy-nine percent consider reducing water pollution to be a top priority for the state.
 - A majority (55%) rate addressing climate change as a high or very high priority for the state government, up nine percentage points since 2015 and up four points since 2014.
- 3) Just over three-quarters of Marylanders say climate change is happening.
- Seventy-seven percent say climate change is currently happening, compared with 10 percent who say it is not and a slightly larger share who simply do not know (13%).
 - Among residents who say climate change is happening, 71 percent are very sure (41%) or extremely sure (30%). Twenty-seven percent are only somewhat sure about climate change and two percent are not sure at all.
- 4) Most Marylanders say humans play a role in causing climate change.
- When it comes to causing climate change, residents of the Old Line State point the finger at human activity. Seventy-five percent say that climate change is at least partly due to human activities. Almost half – 45 percent – say human activities are mostly or entirely the reason why climate change is happening.
 - Forty-one percent say natural changes in the environment are the root cause, with 11 percent reporting natural changes are mostly or entirely the reason for climatic changes.
- 5) Marylanders overwhelmingly support government involvement in protecting against climate change.
- Fully three-quarters are in favor of state and local governments taking action to protect their communities against the harmful effects caused by climate change. Nearly half, or 47 percent, strongly support government action. Just one in seven Marylanders stand in opposition to governments taking these steps and another 12 percent do not know if they support or oppose government involvement.
 - Overall support for environmental protection by state and local governments has remained steady among residents of the Chesapeake State throughout the last few

years. However, strong support for government action has increased over the last two years.

- 6) Significant shares of Maryland residents are unsure how many other people in their region, state, and country think that climate change is happening, but for the first time since this research began in 2013, a majority say virtually all scientists agree that climate change is happening.
 - Fifty-three percent of residents correctly say that more than 80% of climate scientists agree that climate change is occurring. This latest finding shows an increase of seven points since 2015, 28 points since 2014 and 30 points since 2013.
 - Residents largely underestimate the social consensus of the public on climate change.
 - Roughly three in ten adults say they “don’t know” what percentage of people in their region in Maryland, people statewide or people in the overall U.S. think that climate change is happening.
- 7) Most say that hotter weather due to climate change will likely occur in their community in the next decade or two.
 - Seventy-two percent say that hotter weather will occur over the next 10 to 20 years.
 - Six in ten (63%) say their communities will face more severe storms because of climate change.
 - Majorities also say that they will be dealing with increased air pollution (53%) and heavier rains (52%).
 - Nine percent do not think there will be any likely effects from climate change over the next 10-20 years.
- 8) Marylanders are worried that the Chesapeake Bay and people’s health will be harmed by climate change within the next several years.
 - Sixty percent of Old Line State adults think the Chesapeake Bay could be harmed by climate change. About six in ten say the same about people’s health in general.
 - Fifty-seven percent of residents are also concerned about the negative impact on aquatic life and the fishing or seafood industry.
 - About one in ten (11%) do not think there will be any local risks due to climate change in the next several years.

These are just some of the findings from the 2016 survey, executed by Princeton Survey Research Associates International (PSRAI). Results are based on a mail survey in English with 907 adults ages 18 or older who live in the state of Maryland. Data collection, administered by the Scantron Corporation, ran from May 21 to August 1, 2016.

The margin of sampling error for the complete set of weighted data is ± 4.3 percentage points. For more details on the design, execution and analysis of the survey, please see the full methodological report, which can be found in Appendix 2 of this report.

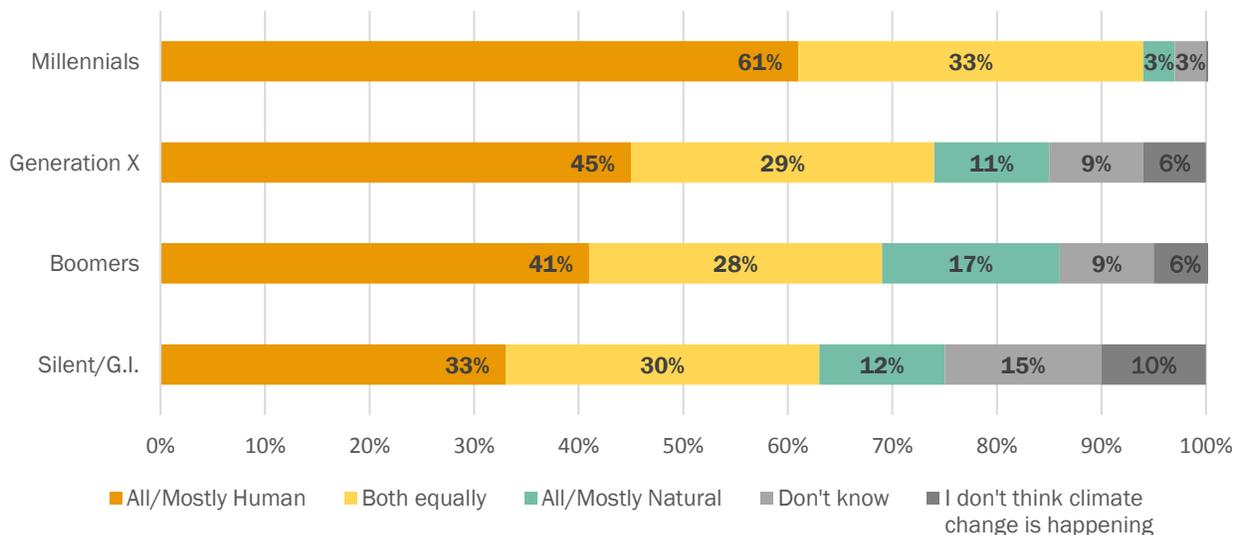
Chapter 1: Millennials lead older generations in their certainty that climate change is happening, understanding of human causes, and concern over its effects

Views on climate change are related to age, with younger Marylanders most likely to say that climate change is happening and each older generation sharing this view less and less. Eighty-nine percent of Millennials (ages 18-35) and 84 percent of Generation X (ages 36-51) say climate change is currently happening, compared with 75 percent of Baby Boomers (ages 52-70) and 62 percent of the oldest residents from the Silent and Greatest (G.I.) Generations (ages 71 or older).

Moreover, they are the generation most likely to say that climate scientists are in consensus on this. Six in ten Millennials (64%) say that 81-100 percent of climate scientists are in agreement. This figure drops to 58 percent among Gen Xers, 51 percent of Boomers and 39 percent of the Silent and Greatest Generations. These oldest Marylanders tend to report being unsure of the opinions of the scientific community on this subject, with 31 percent saying they do not know what percentage of climate scientists say climate change is happening.

Not only are Millennials the most likely of any other generation to say that climate change is happening, these youngest Marylanders are also the most likely to say that people, not natural shifts in the environment, are the reason for climate change.

Figure 1: If you think climate change is happening, what do you think is causing it?



A solid majority of Millennials (61%) feel strongly that climate change is human-induced, with 41 percent saying humans are mostly the cause and another 20 percent saying they are entirely the cause. One-third say climate change is the result of a mix of human and natural changes. Just three percent say natural environmental shifts cause climate change and another three percent just do not know.

A plurality among each generation of older residents – Gen X, Boomers, and Silent/Greatest Generation – also say climate change is human-caused but by a much smaller margin than their younger counterparts. At 15 percent, Maryland's oldest residents (ages 71 or older) are the most likely to be uncertain what causes climate change.

Millennials are uneasy about climate change effects

The state's youngest adult inhabitants, Millennials (ages 18-35), presumably have the most years left to live and therefore the most time exposed to the negative impacts resulting from climate change, compared with their older counterparts. They are also the generation most likely to have children who will ultimately have to deal with these environmental changes.

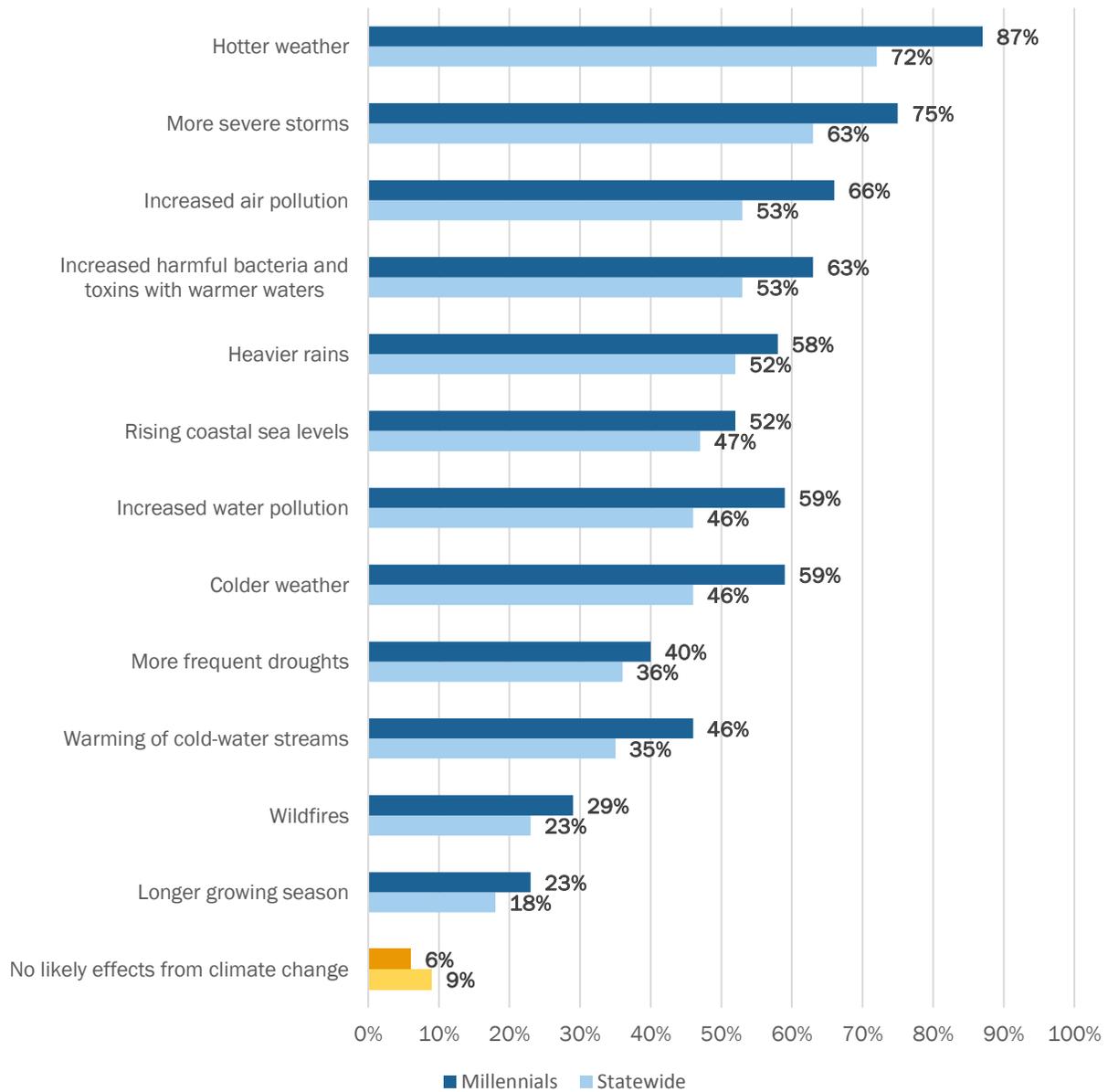
Of the twelve possible environmental effects asked about in the current survey, a majority of Millennials say that eight of them will likely happen in their communities over the next 10 to 20 years.

Almost nine in ten Millennials say climate change will cause hotter and hotter weather over the next several years. Seventy-five percent expect more severe storms and 58 percent expect heavier rains. Two-thirds think increased air pollution is a likely effect.

Millennials are also concerned about aquatic impacts from climate change. Sixty-three percent say climate change will cause an increase in harmful bacteria or toxins with warmer water temperatures, and almost as many, 59 percent, say there will be more water pollution. About half, 52 percent, expect coastal sea levels to rise.

Six in ten Millennials predict colder weather will ensue from climate change, compared with less than half of Gen Xers and Boomers (48% each) and 28 percent of those age 71 or older.

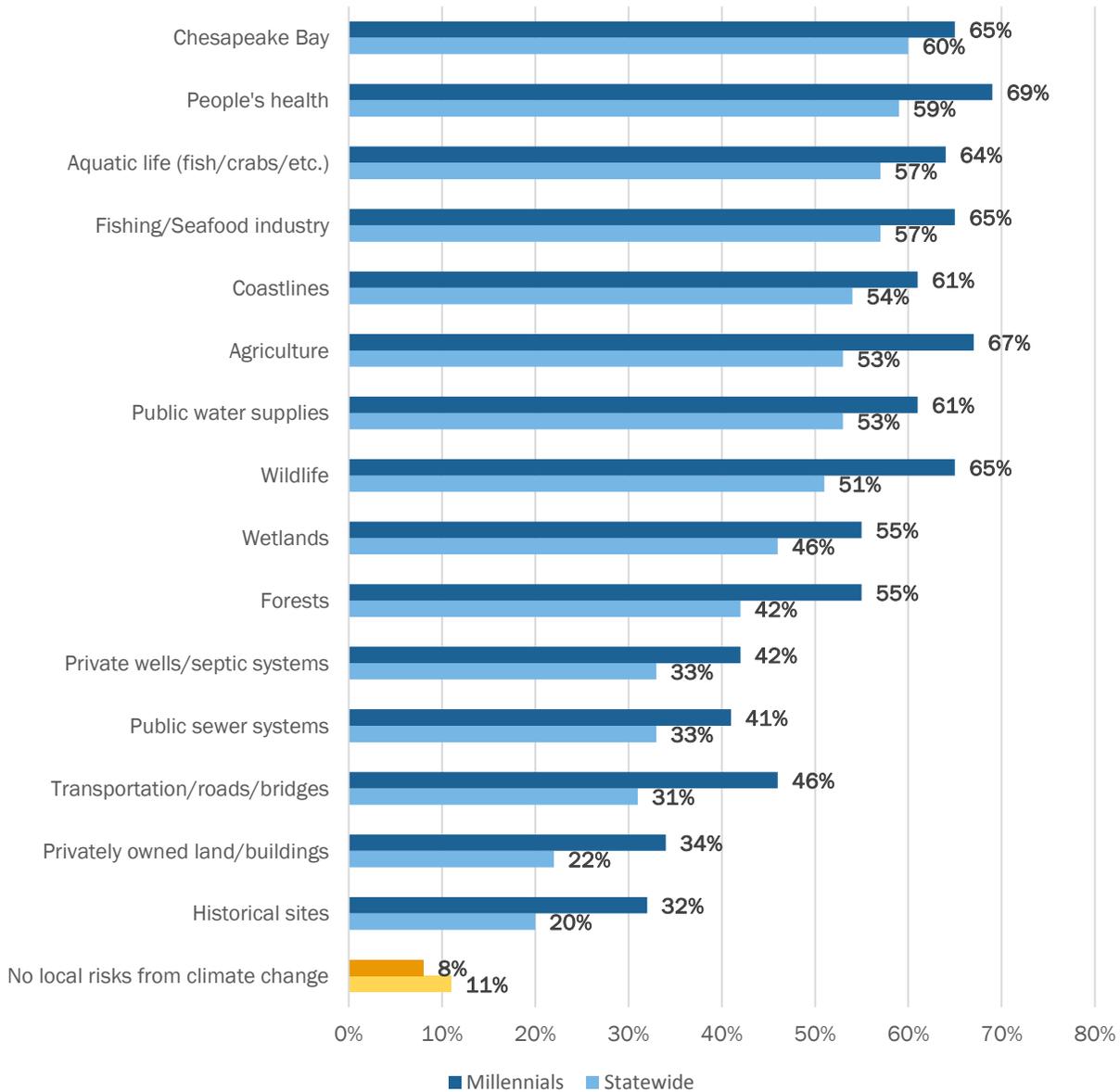
Figure 2: Effects of climate change in the next 10-20 years



Millennials say climate change will harm community resources

Just as they expressed alarm that climate change would negatively impact various aspects of the environmental landscape, from temperatures to air quality to severe weather, Millennials (ages 18-35) are also the most likely of any age group to say their communities face many risks because of climate change.

Figure 3: Resources harmed by climate change in next several years



Among these young residents, 69 percent say people may endure health problems due to climate change. Almost as many Millennials, 67 percent, say the state’s agricultural industry may be harmed.

Roughly two-thirds of Millennials report many other community resources may be hurt by effects from climate change, including harm to Maryland’s wildlife (65%), the Chesapeake Bay (65%), the state’s fishing industry (65%) and aquatic life like crabs and fish (64%).

Fewer but sizeable shares of Millennials say the state’s man-made infrastructure like its bridges and roads (46%) or public sewer system (41%) may be damaged by climate change.

Chapter 2: Marylanders say crime, schools, jobs and water pollution should be top priorities for state government; more than half say the same for climate change

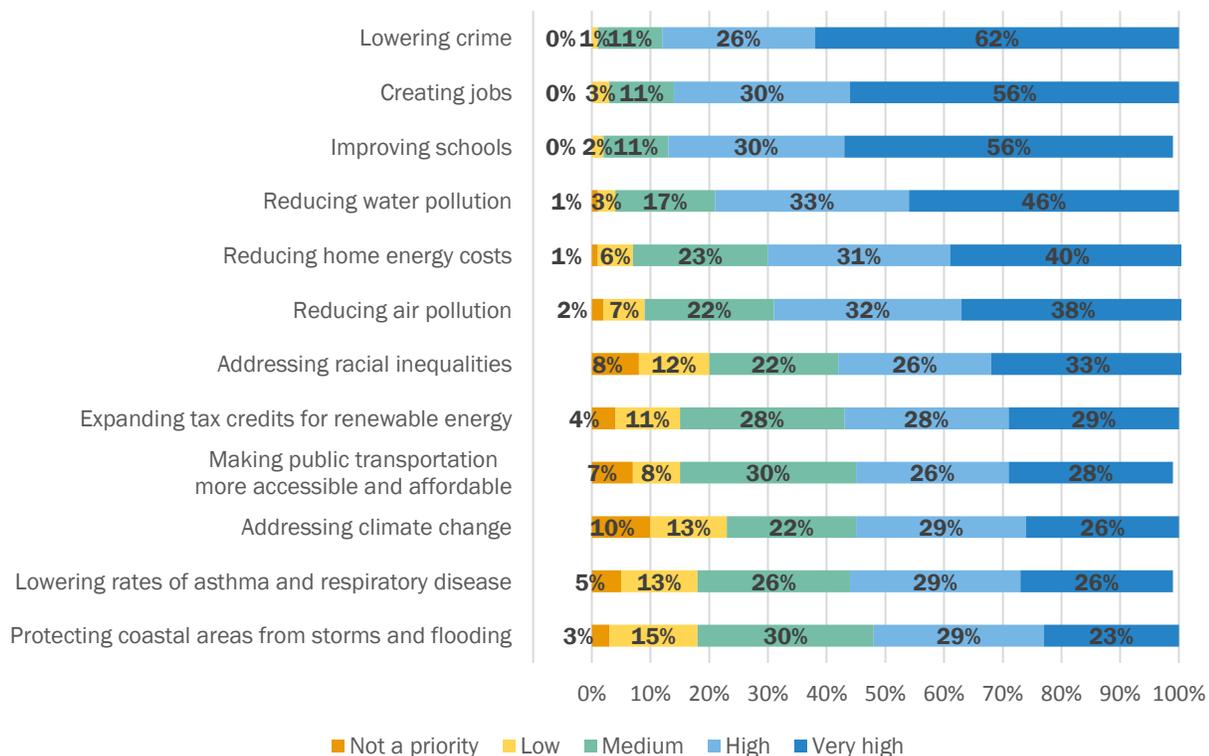
Many Marylanders want their elected officials to address environmental matters, but they tend to give other issues like crime, education and jobs greater priority. At the top of the list of priorities for the state government is lowering crime, followed closely by improving schools and job creation, according to the latest installment of the joint GMU-Johns Hopkins poll.

The importance of addressing climate change has climbed a few rungs since 2015, considered as a high or very high priority by 55 percent of Maryland adults.

Crime, schools and jobs are chief concerns

When asked to rate how high a priority twelve (12) items should be for Maryland's General Assembly and the Governor, lowering crime is at the top of the list. Eighty-eight percent say that lowering crime should be a high or very high priority, with more than six in ten (62%) rating this as a very high priority. Improving schools and creating jobs are close behind, each rated as a high or very high priority by 86 percent of Marylanders.

Figure 4: How much of a priority should these topics be for Maryland's General Assembly and the Governor?



Addressing climate change reaches a new priority high

Climate change may not surpass other priorities like crime, jobs and education, but more Maryland residents today point to it as a top priority for the state government. Fifty-five percent of Old Line State adults consider climate change to be a high or very high priority. Another one in five consider it a medium priority.

Ratings of climate change by subgroup

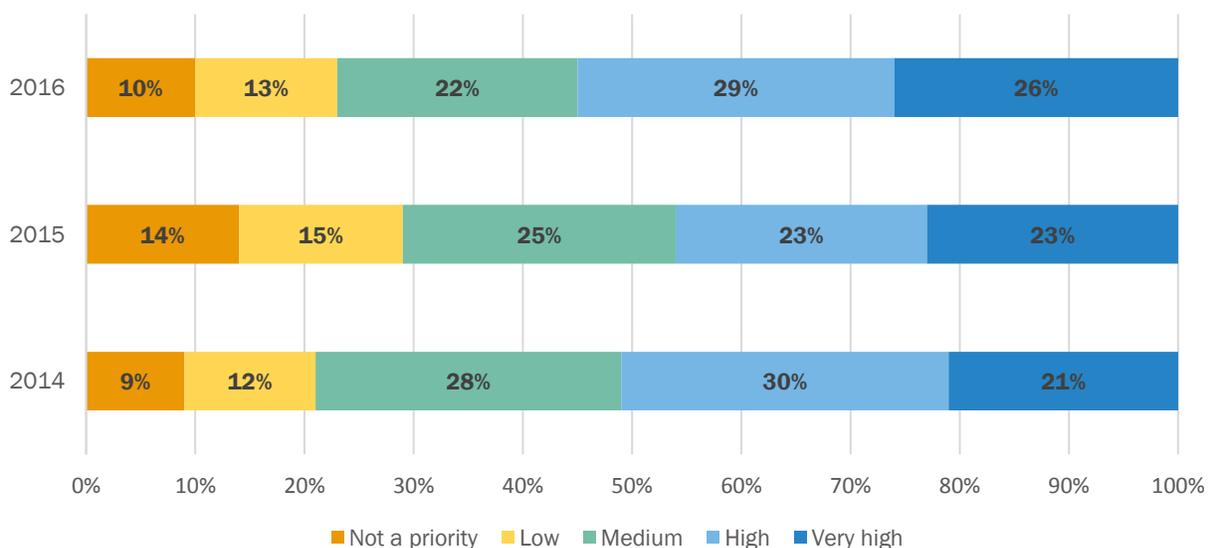
Climate change is an issue that is more important to women than men, the 2016 survey finds. Six out of 10 women think climate change should be a high or very high priority, compared with one-half of men. In contrast, men are almost twice as likely as women to say that the issue does not amount to more than a low priority (32% Men, Low/Not a priority v. 17% Women, Low/Not a priority).

By race, seven in ten minorities want the General Assembly to prioritize climate change, compared with less than half of white Marylanders (46%). Whites (32%) are three times more likely than minorities as a whole (10%) and almost five times as likely as black or African-American residents (7%) to say that climate change should be low or no priority.

Climate change is a higher priority for Marylanders today

Over the last twelve months, climate change has crept up in importance. A majority currently rate climate change as a high or very high priority, up nine percentage points since 2015. We have also seen a drop in the percentage of adults who think climate change is a low priority, or not a priority at all (23% in 2016 v. 29% in 2015).

Figure 5: How much of a priority should climate change be for Maryland's General Assembly and the Governor?



Compared with two years ago, it is interesting to note that the shift towards higher priority may be largely due to fewer rating climate change as a medium priority and more as a very high priority.

Environmental concerns rank high among residents and their views have remained steady

In addition to increased support for addressing climate change, residents of the Old Line State place high priority on addressing environmental concerns that are affected by climate change: water and air pollution, respiratory illnesses, higher home energy costs, and coastal areas prone to storm or flood damage. Marylanders also would like to see the state tackle public transportation and renewable energy, two policy areas tied to climate change.

About eight in ten want the state government to prioritize reducing water pollution, and seven in ten place high value on prioritizing a reduction in air pollution. More than half also want the General Assembly and Governor to work on ways to lower rates of asthma and respiratory disease, cited as a high or very high priority by 55 percent of Marylanders.

Also high on the list are energy priorities that could help residents ease financial burdens. Seventy-one percent would very much like to see legislators work towards lowering their home energy costs. Almost six in ten say expanding tax credits for renewable energy should be a high or very high priority.

Residents' views on prioritizing environmental issues has remained relatively steady over the last two years.

Table 1: Top environmental priorities by year (Rated "High" or "Very high")			
	2016	2015	2014
Reducing water pollution	79%	76%	81%
Reducing air pollution	69%	68%	73%
Addressing climate change	55%	46%	51%
Protecting coastal areas from storms and flooding ²	53%	66%	55%

Maryland adults are unhappy with water pollution and want the General Assembly and the Governor to work together to find solutions. For a state which identifies itself with the Chesapeake Bay, more three-quarters of residents have rated reducing water pollution as a high or very high priority since 2014.

² In 2014, the item wording was "Protecting coastal areas from sea-level rise." The 2015 wording matches the current survey.

Seven in ten Marylanders say reducing air pollution is a top priority, unchanged from the previous two years. Protecting coastal areas from storms and flooding has seen a sharp decline in the last twelve months, down 13 percentage points since 2015 but similar to the 2014 finding.

Top priorities among different demographic groups

For all twelve priorities asked about in the 2016 survey, strong majorities of key demographic subgroups across sex, generation, race, education and income say that each should be at least a medium priority for the state government. In fact, majorities of almost all demographic subgroups rate each of the priorities as high or very high. However, there are some noteworthy differences.

Black or African-Americans are more likely than whites to regard every topic on the list as a high or very high priority. They are twice as likely as white Marylanders to consider addressing racial inequalities and improving the accessibility and affordability of public transportation as top state priorities. Black residents are also often more likely than other minorities to prioritize these topics so highly.

Table 2: Top priorities by race (Rated “High” or “Very high”)			
	White	Black	Other
Lowering crime	86%	95%	81%
Improving schools	83%	96%	86%
Creating jobs	81%	97%	85%
Reducing water pollution	75%	88%	83%
Reducing home energy costs	63%	86%	79%
Reducing air pollution	64%	79%	76%
Addressing racial inequalities	42%	91%	72%
Expanding tax credits for renewable energy	50%	70%	67%
Lowering rates of asthma and respiratory disease	47%	75%	60%
Addressing climate change	46%	72%	63%
Making public transportation more accessible and affordable	41%	82%	67%
Protecting coastal areas from storms and flooding	46%	68%	57%

There are also sharp differences by educational attainment. For all but two items on the list,³ those who have a high school diploma or less are more likely than college graduates to place a high premium on these social, environmental and health issues.

Table 3: Top priorities by education (Rated “High” or “Very high”)		
	HS grad or less	College graduate
Lowering crime	92%	82%
Creating jobs	90%	81%
Reducing water pollution	85%	75%
Reducing home energy costs	83%	60%
Reducing air pollution	77%	65%
Addressing racial inequalities	70%	53%
Expanding tax credits for renewable energy	63%	50%
Lowering rates of asthma and respiratory disease	71%	44%
Addressing climate change	65%	51%
Protecting coastal areas from storms and flooding	67%	44%

When it comes to Maryland’s working class – that is, those with household incomes of under \$50,000 – it should come as no surprise that these adults are more likely than those with higher incomes to rate issues that directly affect their bottom line as high or very high. Eighty-six percent of working class Marylanders want the General Assembly to prioritize reducing their home energy costs, compared with 61 percent of higher-income adults.

Climate change and its impacts are important to likely voters

Elected officials may be particularly interested in which issues voters place the most importance. Interestingly, the concerns of likely voters⁴ line up with those of the general public.

Lowering crime, creating jobs and improving schools are the three top priorities among likely voters, as they are for the general adult population.

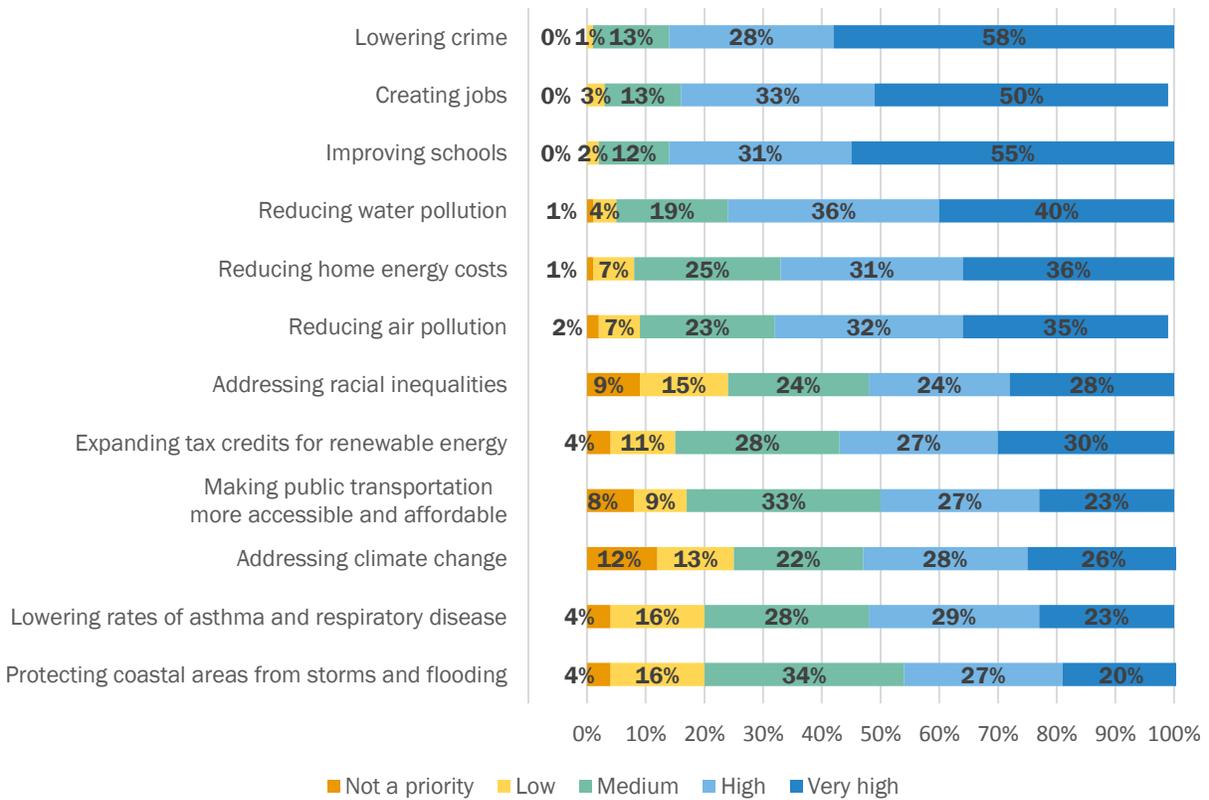
Reducing water pollution should be a high or very high priority for the state government, say three-quarters of likely voters. Two-thirds of likely voters place high value in reducing air pollution.

A majority of the general adult public in Maryland considers each of the twelve topics listed in the survey to be a high or very high priority. Likely voters do as well, except for one area that perhaps surprisingly fails to garner majority support: protecting coastal places from storms and flooding.

³ There are no differences in terms of education for the following two issues: “Improving schools” and “Making public transportation more accessible and affordable”

⁴ Likely voters are defined as those who know where people in their neighborhood go to vote and say they always or nearly always vote.

Figure 6: How much of a priority should these topics be for Maryland's General Assembly and the Governor?
(Among Likely Voters)

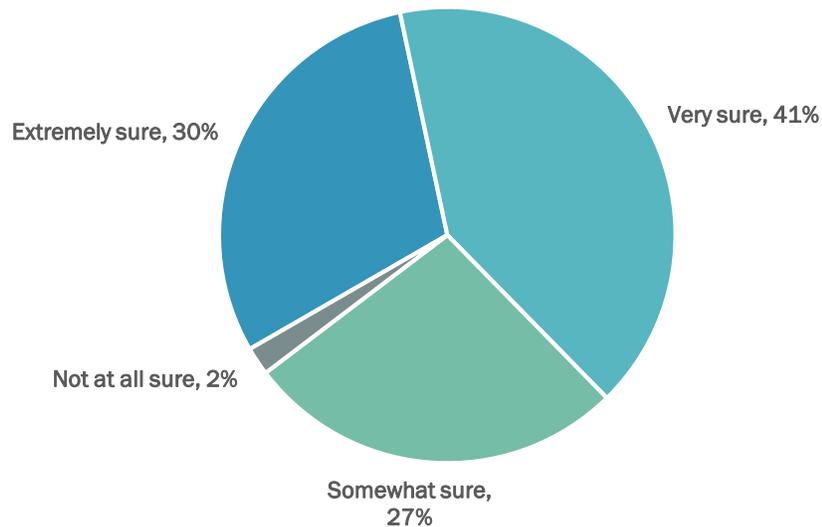


Chapter 3: Most Marylanders say climate change is happening

Nationally, 70 percent of Americans say global warming is happening, according to the Yale Program on Climate Change Communication.⁵ Three-quarters of Marylanders (77%) say they believe that climate change is currently happening. One in ten say it is not happening and 13 percent say they are unsure.

Among residents who say that climate change is happening, virtually all of them say they are at least somewhat sure that their belief is true. Three in ten say they are extremely sure climate change is currently happening and another 41 percent say they are very sure. Just a handful are not at all sure in their conviction that climate change is happening.

Figure 7: How sure are you that climate change is currently happening?



In contrast, those who say climate change is not happening express less confidence. Less than half, or 46 percent, say they are extremely or very sure that climate change is not happening. Another 40 percent say they are somewhat sure and 14 percent are not sure at all.

⁵ Yale Program on Climate Change Communication: <http://climatecommunication.yale.edu/publications/climate-change-american-mind-march-2016/>

Residents divide along educational and ideological lines

There is a relationship between education and understanding of climate change. The more education obtained, the more likely the adult is to say that climate change is happening. Eighty-two percent of college graduates and 79 percent of those with some college education say that that climate change is happening, compared with 70 percent of those with a high school diploma or less. Marylanders with a high school education or less are more than twice as likely as college graduates to report that they are not sure if climate change is happening or not (22% high school graduate or less v. 9% college graduate).

Climate change has long been a partisan and ideological issue. Among those who describe themselves as politically liberal, 93 percent believe in climate change. That drops to 79 percent among moderates and 62 percent among conservatives.

Understanding of climate change rises slightly

The percentage of Marylanders who say climate change is happening has risen slightly in the last twelve months, from 72 percent in 2015 to 77 percent in 2016. The current finding is consistent with 2014 estimates when 77 percent said climate change was happening but falls short of the high of 86 percent in 2013.

	2016	2015	2014	2013
Yes	77%	72%	77%	86%
No	10%	13%	10%	11%
Don't know	13%	15%	13%	3%

Over the last three years, from 2013 to 2016, we have seen relatively stable percentages for Marylanders who do not think climate change is happening, ranging from 10 to 13 percent. The last two years of polling have shown steady numbers for those who are unsure if climate change is happening, ranging from 13 to 15 percent. In 2013, the share of those who were uncertain was at its lowest levels, four to five times less than what we have seen since 2014.

Chapter 4: Most Marylanders say humans play a role in causing climate change

When it comes to what is causing climate change, most residents of the Old Line State point the finger at human activity, while far fewer say natural changes in the environment are the root cause. Forty-five percent believe human activities are mostly (31%) or entirely (14%) the reason why climate change is happening. Just one in ten (11%) say natural changes in the environment cause climate change (9% mostly and 2% entirely caused by natural changes).

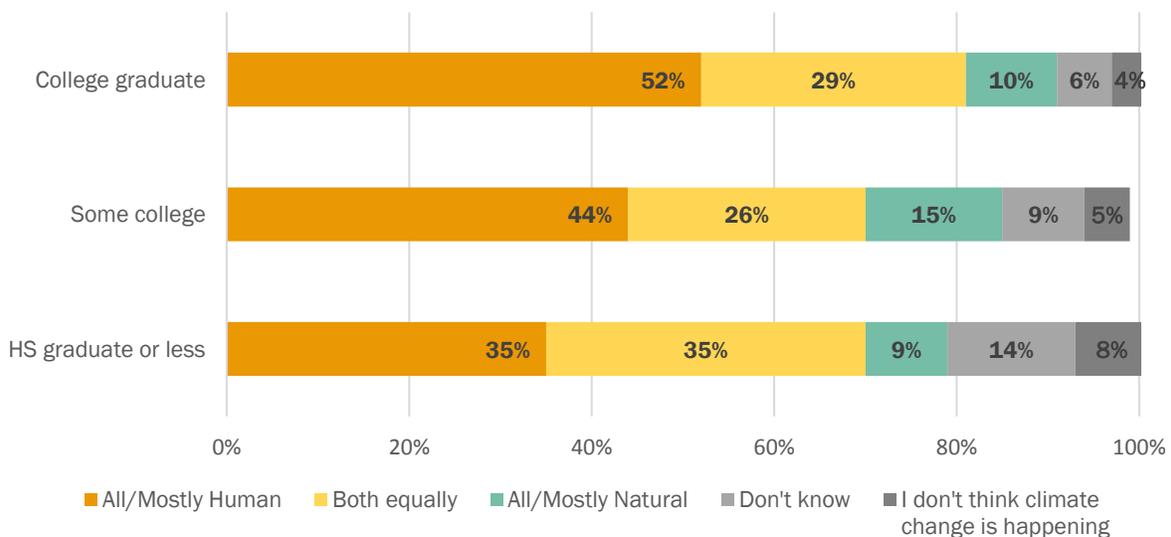
A sizeable percentage (30%) say that climate change is due equally to human activities and natural environmental changes. Altogether, 75 percent of residents say climate change is at least partly triggered by humans, compared with 41 percent who believe the changes are natural.

Perhaps unsurprisingly, among those who believe climate change is happening, a majority, or 53 percent, ascribe causation to human factors. One-third of this group (33%) say climate change is equally caused by humans and natural shifts, and ten percent say environmental changes are the result of natural causes.

A majority of college graduates say climate change is caused by humans

Education is linked to how Marylanders understand the science of climate change. The higher the level of education, the more likely that human activity is seen as the major contributing factor to climate change.

Figure 8: If you think climate change is happening, what do you think is causing it?



One-half of college graduates say climate change is mostly or entirely caused by human activities. Another 29 percent hand equal responsibility to humans and natural changes. Ten percent think natural changes are mostly or entirely the source for climate change and fewer (6%) simply do not know.

Among those with a high school diploma or less, about a third attribute climate change to human activities and another third attribute it equally to humans and natural shifts. Of the three educational levels, high school graduates more often report not knowing enough to say what the cause of climate change is.

Views on how to legislatively prioritize climate change make a difference

Marylanders say government intervention is needed to address climate change, with a majority stating that the General Assembly and the Governor should make climate change a high or very high priority. Those who consider climate change a major legislative priority are more apt to understand that humans are the primary reason for these environmental changes. Nearly six in ten of those who say climate change should be a high or very high priority for elected officials say that people are mostly (41%) or entirely (17%) responsible for climate change.

Of those who would rate climate change as a low priority or no priority for state legislators, opinions about what causes climate change are more split. Twenty-eight percent say the causes are both human- and naturally-induced. A similar share, 27 percent, say climate change is mostly or entirely caused by natural changes in the environment.

Climate change is...	Climate change is a high or very high priority	Climate change is a medium priority	Climate change is a low or no priority
Caused mostly or entirely by humans	58%	36%	19%
Caused equally by humans and natural causes	26%	40%	28%
Caused mostly or entirely by natural causes	6%	9%	27%

Views on human-caused climate change are unchanged since 2015 and up since 2014

The lion's share of Maryland residents, 45 percent, say that climate change is caused in most part by human activities. This 2016 finding remains unchanged since 2015 when 45 percent also held this opinion. Other 2016 results on this measure also remain consistent with findings from a year ago.

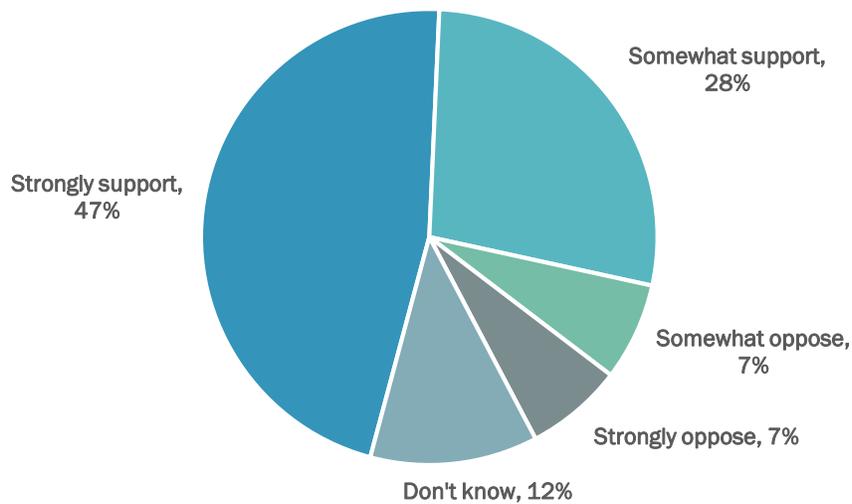
Table 6: Causes of climate change			
Climate change is...	2016	2015	2014
Caused mostly or entirely by humans	45%	45%	37%
Caused equally by humans and natural causes	30%	33%	36%
Caused mostly or entirely by natural causes	11%	9%	11%

However, compared with 2014, current opinion on the subject has shift more substantially. Two years ago, fewer Marylanders attributed climate change to human activity (37%) and more adults thought it was caused equally by a humans and natural shifts in the environment (36%).

Chapter 5: Marylanders overwhelmingly support government protection against climate change

Marylanders overwhelmingly support government involvement in taking protections against climate change. Fully three-quarters are in favor of state and local governments taking action to protect their communities against the harmful effects caused by climate change. Nearly half, or 47 percent, strongly support government action. Just one in seven Marylanders stand in opposition to governments taking these steps and another 12 percent do not know if they support or oppose government involvement.

Figure 9: How much do you support or oppose state or local governments taking action to protect your community against harm caused by climate change?



Overall support for environmental protection by state and local governments has remained steady among residents of the Chesapeake State throughout the last few years. However, strong support for government action has increased over the last two years.

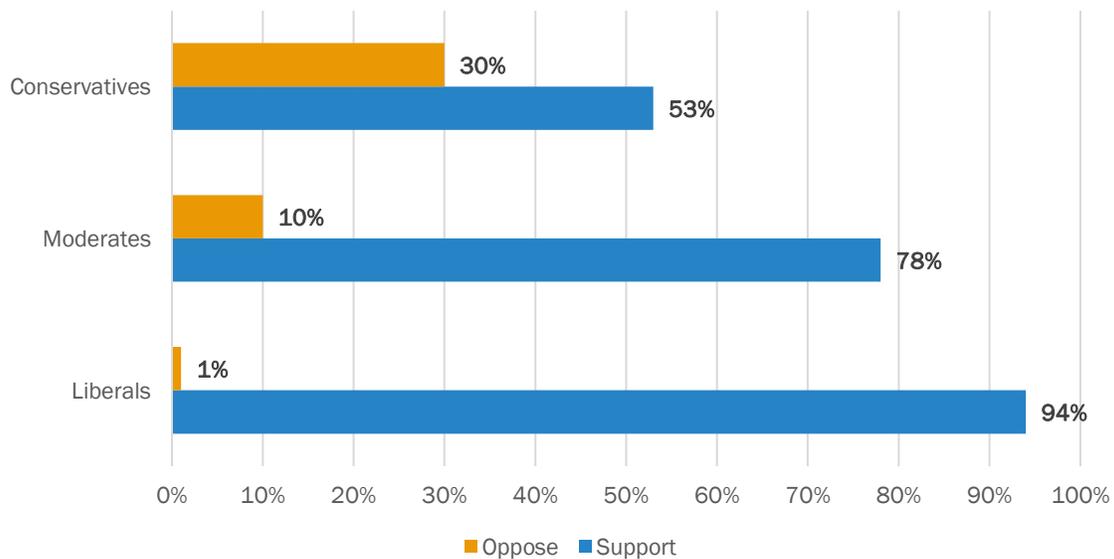
Table 7: Support for government involvement				
	2016	2015	2014	2013
NET Support	75%	71%	73%	76%
<i>Strongly support</i>	47%	46%	39%	40%
<i>Somewhat support</i>	28%	25%	34%	36%
NET Oppose	14%	14%	13%	13%
<i>Somewhat oppose</i>	7%	5%	5%	6%
<i>Strongly oppose</i>	7%	9%	8%	7%
Don't know	12%	15%	14%	11%

Over the last two to three years, the public's strength in support for state and local government protection when it comes to climate change has seen a boost. Currently, 47 percent strongly support government involvement, up eight points since 2014 and seven points since 2013. The shift in percentages, as we can see in the previous table, is due to fewer proclaiming moderate support and more coming out in strong favor of government protection of communities from climate change.

Liberals back government help by a substantial margin

Conservatives have long been anti-big government while liberals tend to be proponents of government assistance. Even so, a majority of conservatives and moderates support government protections against the effects of climate change.

Figure 10: Support for government protection by ideology



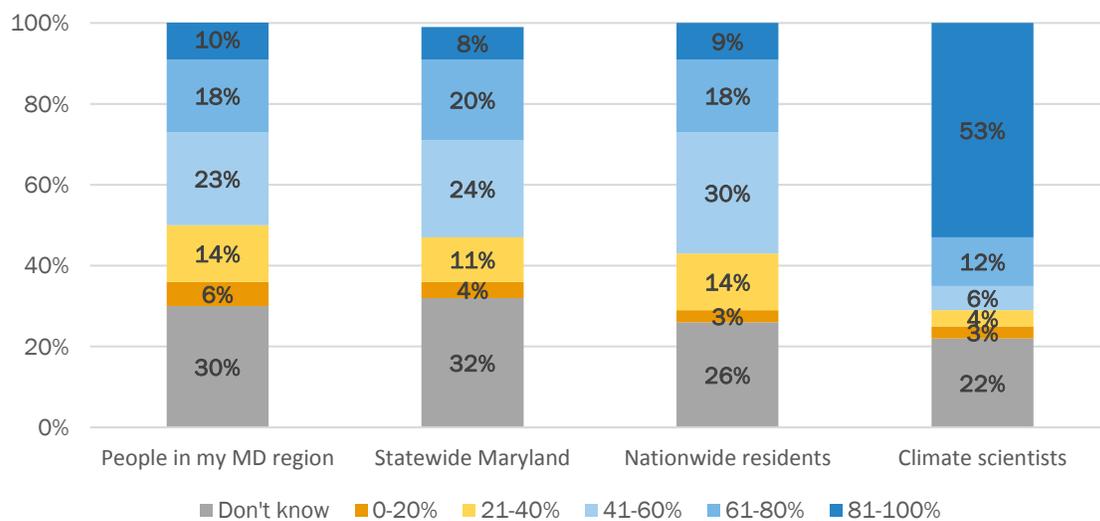
Almost all liberals, 94 percent, are in favor of governments protecting their local communities from the harmful effects of climate change. A negligible one percent is opposed. In contrast, 53 percent of conservatives support government protection and 30 percent are opposed. It is notable that a majority of conservatives, albeit a slim margin, support government protection of local communities against climate change.

Chapter 6: Public understanding of the scientific consensus on climate change reaches a high

Significant percentages of Maryland residents are unsure where the general public stands on climate change, but for the first time since this research began in 2013, a majority say climate scientists are in agreement that climate change is happening.

Roughly three in ten adults say they “don’t know” what percentage of people in their region in Maryland, people statewide or people in the overall U.S. think that climate change is happening. However, less than a third say that the number is above 60 percent.

Figure 11: To the best of your knowledge, what percentage of the following people think climate change is happening?



On the other hand, there is wider agreement that climate scientists are in consensus that climate change is happening. Currently, 53 percent of state residents say that 81-100 percent of climate scientists take the position that Earth is currently experiencing climate change. Just one-quarter say that the percentage of climate scientists who hold these views is 80 percent or less. About another quarter (22%) are not sure what the scientific community thinks about this topic.

Many underestimate the social consensus on climate change

Are Marylanders correct in their estimates of the consensus, or are they aiming too low or too high? It depends on whether they are evaluating the general public or the scientific community. Residents largely underestimate the social consensus of the public but most are correct about the scientific community.

Between 39 percent and 47 percent of Marylanders underestimate the social consensus on climate change for their region, the state of Maryland and nationwide. Only about two in ten residents can identify the correct range.

Table 8: To the best of your knowledge, what percentage of the following people think climate change is happening?⁶				
	Under-estimate	Correct	Over-estimate	Don't know
People in my region in Maryland (Correct: 61-80%)	43%	18%	10%	30%
Statewide Marylanders (Correct: 77%)	39%	20%	8%	32%
People in the United States (Correct: 70%)	47%	18%	9%	26%
Climate scientists (Correct: 97%)	25%	53%	--%	22%

However, a majority, 53 percent, can correctly identify the scientific consensus, up seven points from the 2015 finding (46%). Just one-quarter in this year's study underestimate the percentage of climate scientists who think climate change is happening.

More Marylanders than ever understand the consensus

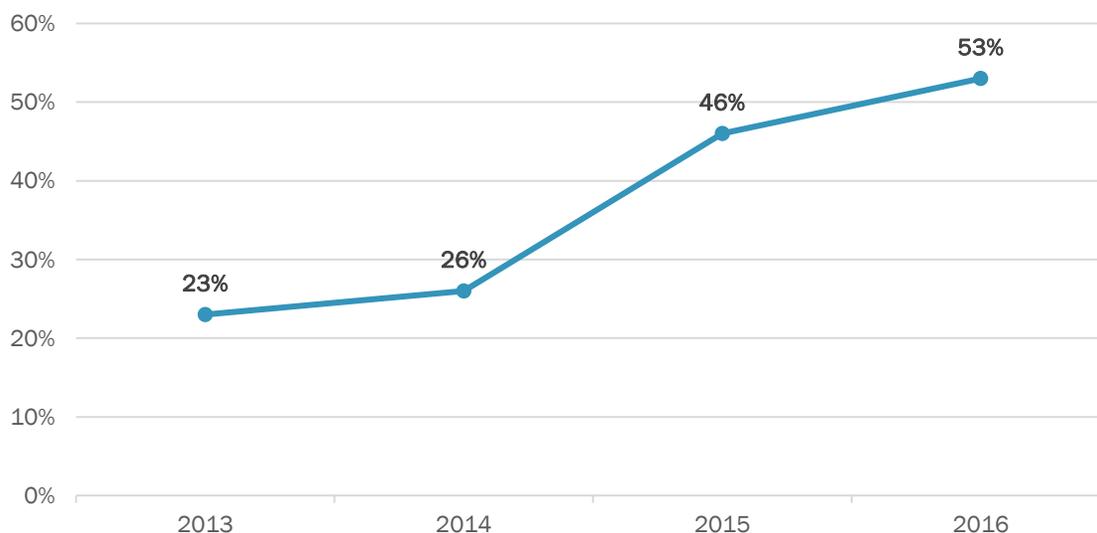
Over the last twelve months, there has been no real change in what Marylanders believe to be the percentage of the regional, state and national public that say climate change is happening. More importantly, significant percentages of residents say they do not know what others think about climate change, with uncertainty largest at the state and regional levels. These findings have remained stable since 2015.

⁶ Figures for the correct social or scientific consensus come from the following sources:
 [1] Regional figure: Akerlof, K., Winch, P., Parker, C., & Buckland, A. (2015). Public perceptions of climate change, fall 2015. Fairfax, VA: Center for Climate Change Communication, George Mason University.
 [2] National figure: Yale Program on Climate Change Communication:
<http://climatecommunication.yale.edu/publications/climate-change-american-mind-march-2016/>
 [3] Scientific consensus: American Association for the Advancement of Science (AAAS):
<http://whatwewknow.aaas.org/>

Table 9: Uncertainty about others' climate change views		
	2016	2015
Don't know what percentage of people in my region in Maryland think climate change is happening	30%	29%
Don't know what percentage of statewide Marylanders think climate change is happening	32%	28%
Don't know what percentage of people in the United States think climate change is happening	26%	24%
Don't know what percentage of climate scientists think climate change is happening	22%	25%

However, even though many residents cannot speak to where the general public is on climate change, Marylanders are increasingly convinced that the scientific community agrees these changes are happening. Fifty-three percent of residents say that more than 80 percent of climate scientists believe in climate change. This latest finding shows an increase of seven points since 2015 and staggering increases of 28 points since 2014 and 30 points since 2013.

Figure 12: More Marylanders now say 81-100% of climate scientists think climate change is happening

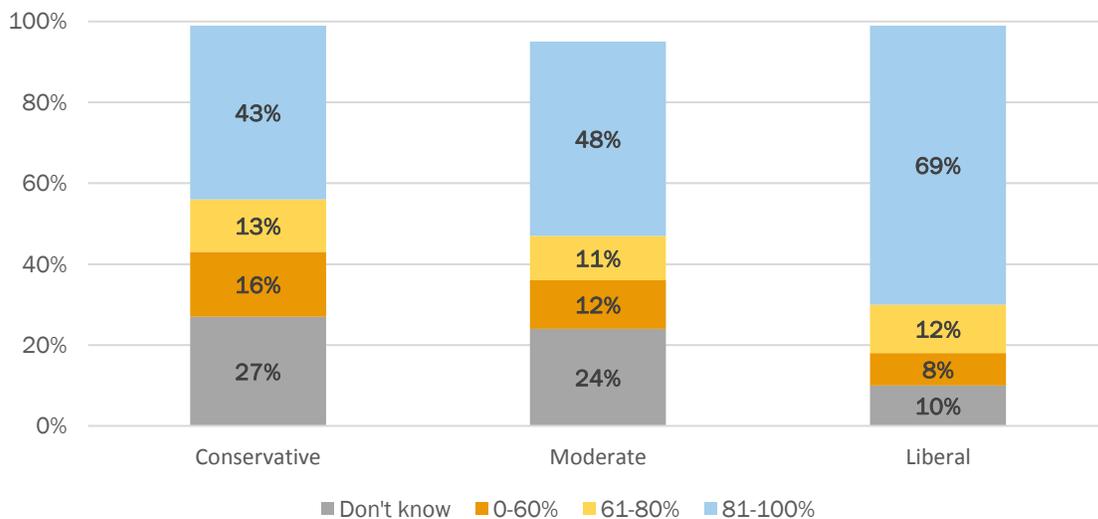


More educated, liberals say there is a scientific consensus on climate

Sixty-four percent of college graduates report that there is agreement among more than 80 percent of climate scientists when it comes to climate change. This certainty drops to less than half among those with lower levels of education (48% some college and 41% high graduates or less).

Residents with liberal political views not only say climate change is happening in higher numbers than moderates or conservatives, they are also more likely to say that climate scientists are in agreement on climate change, too. Equal shares of moderates and conservatives express they do not know enough to say.

Figure 13: To the best of your knowledge, what percentage of **climate scientists** think climate change is happening?



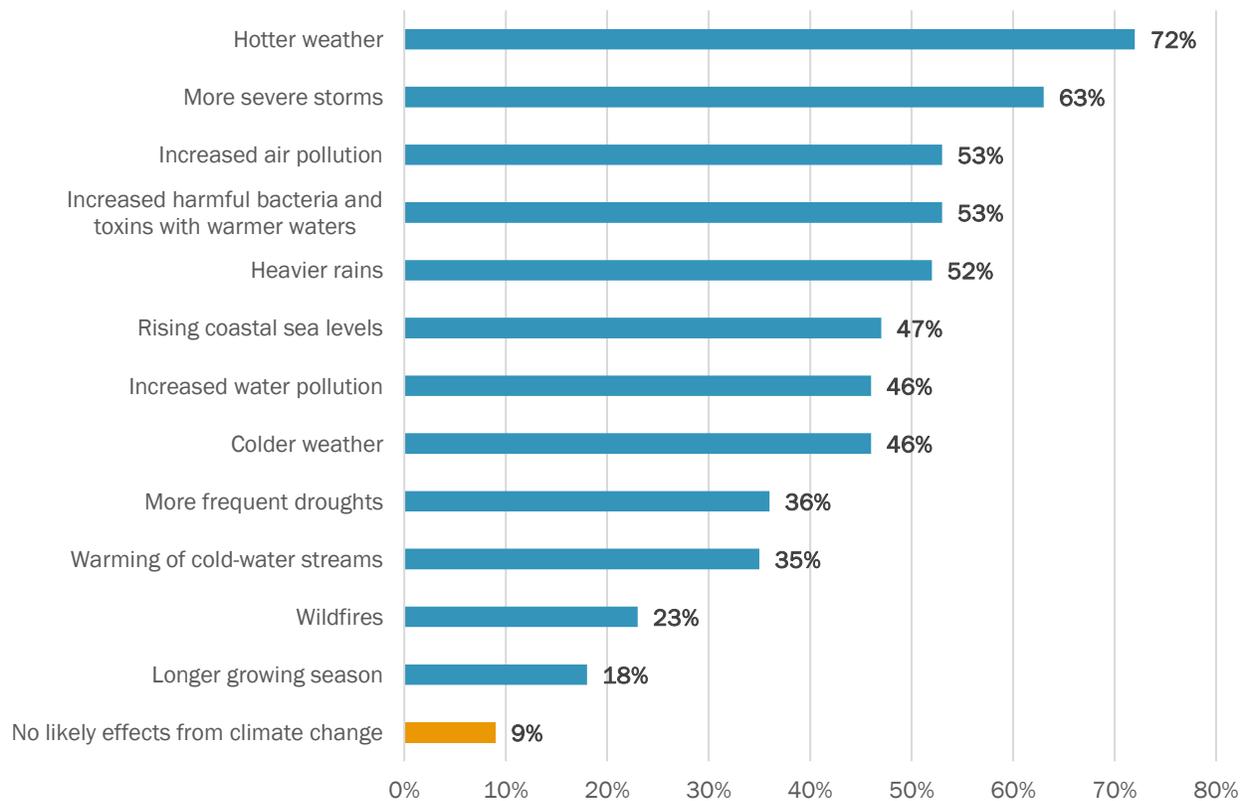
Chapter 7: Most think that hotter weather due to climate change will likely occur in their community in the next decade or two

Many point to planetary warming trends as the biggest concerns stemming from climate change. In fact, July 2016 was the warmest month on record in 136 years of record-keeping, according to NASA's Goddard Institute for Space Studies.⁷

“It wasn’t by the widest of margins, but July 2016 was the warmest month since modern record keeping began in 1880,” said GISS Director Gavin Schmidt. “It appears almost a certainty that 2016 also will be the warmest year on record.”

In this year’s study, residents were once again asked what they think are the likely effects on their community as a result of climate change. Hotter weather tops the list.

Figure 14: Effects of climate change in the next 10-20 years



Most Marylanders (72%) say that hotter weather due to climate change will occur in their community in the next decade or two. Six in ten (63%) say their communities will face more severe storms because of climate change. Majorities also say that they will be dealing with increased air

⁷ NASA's Goddard Institute for Space Studies: <http://climate.nasa.gov/news/2479/nasa-analysis-finds-july-2016-is-warmest-on-record/>

pollution (53%), increased levels of harmful bacteria and toxins with warmer waters (53%) and heavier rains (52%).

Almost half predict their communities will be dealing with rising coastal sea levels as well as increased water pollution, which is unhappy news for a state with one of the busiest shipping ports in the country and \$67 million fishing industry.⁸

Warmer weather is not the only temperature concern. Forty-six percent of residents say they will see colder weather as a result of climate change over the next 10 to 20 years.

Nine percent think there will be no likely effects from climate change over the next decade or two.

There are noteworthy shifts in likely effects since 2015 and 2014

Seventy-two percent say that hotter weather will occur over the next 10 to 20 years, roughly equal to 2014 and 2015.

Six in ten of today's residents say their communities will face more severe storms, up four points over the last twelve months but not as high as the 70 percent we saw in 2014.

	2016	2015	2014
Hotter weather	72%	70%	74%
More severe storms	63%	59%	70%
Increased air pollution	53%	46%	47%
Heavier rains	52%	42%	57%
Rising coastal sea levels	47%	48%	49%
Colder weather	46%	52%	65%
More frequent droughts	36%	42%	41%
Warming of cold-water streams	35%	34%	28%
Wildfires	23%	28%	22%
Longer growing season	18%	15%	16%

For the first time, a majority of Marylanders (53%) expect there to be an increase in air pollution because of climate change, six to seven percentage points more than in years past.

More than half say heavier rains will affect their communities in the next decade or two, jumping 10 points since 2015 and down five points since 2014.

⁸ <http://msa.maryland.gov/msa/mdmanual/01glance/economy/html/economy.html>

This year's study has also seen a decrease in the share of residents who say climate change will cause colder weather in their communities. Just shy of half (46%) cite colder weather as a likely effect of climate change, down a bit from 2015 (52%) and more significantly from 2014 (65%).

Fewer today expect more frequent droughts (36% v. 42% in 2015 and 41% in 2014).

Concerns about rising coastal sea levels, wildfires and longer growing seasons have been more or less stable over the last two years.

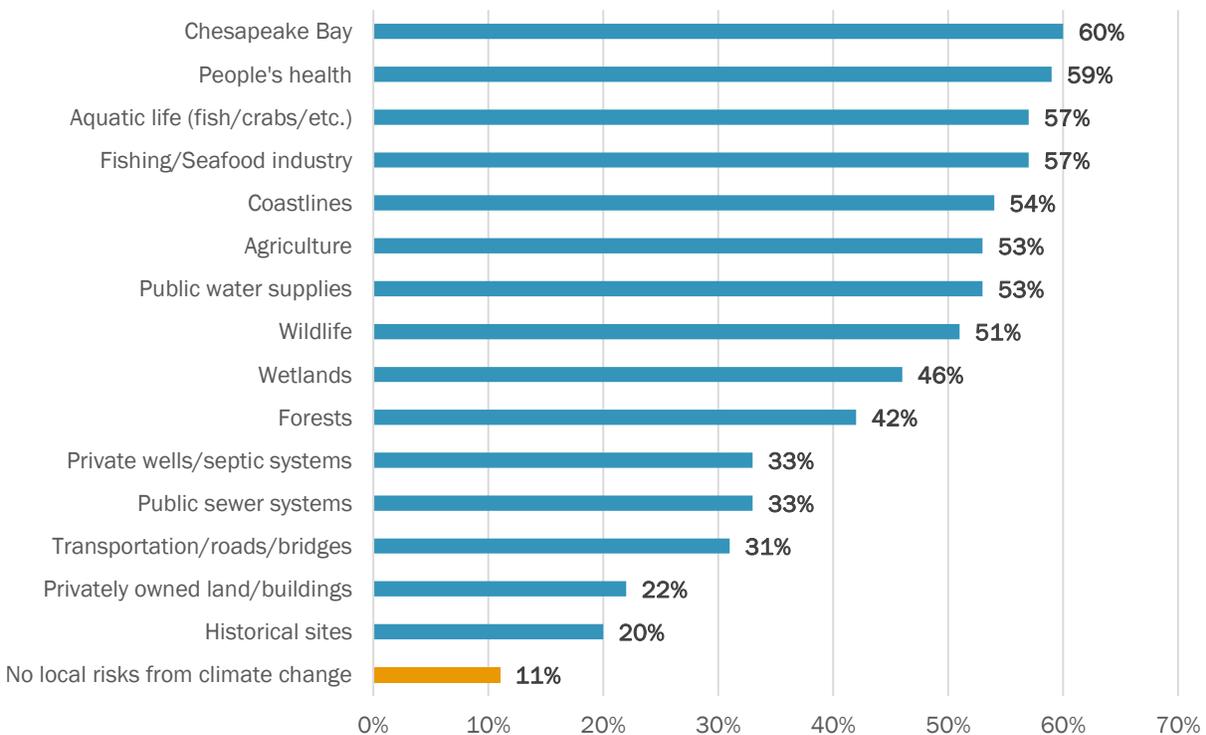
Chapter 8: Residents anticipate harm from climate change

Residents of the Old Line State report apprehension about a multitude of potential negative impacts on the environment that they expect will stem from the continued accumulation of greenhouse gases in the atmosphere. They also say a number of community resources will deteriorate over the next several years because of climate change.

Topping the list, Marylanders are worried that the Chesapeake Bay and people's health will be harmed by climate change within the next several years. Sixty percent of Maryland's adults say the Chesapeake Bay will be harmed by climate change. Six in ten say the same about people's health in general.

Fifty-seven percent of residents are also concerned about the negative impact on aquatic life and the fishing or seafood industry.

Figure 15: Resources harmed by climate change in next several years



Over half say that Maryland's coastlines, agriculture, public water supplies and wildlife will be harmed by climate change. Somewhat fewer residents express that the state's wetlands and forests will suffer from climate change.

About one in ten (11%) do not think there will be any local risks due to climate change in the next several years.

Views on harms from climate change remain largely unchanged in the last 12 months

What concerned Marylanders about climate change in 2015 still concerns them today. Across the board, there are very few differences. Those who say the Chesapeake Bay and people’s health might be harmed by climate change are both up slightly from 2015.

	2016	2015	2014	2013
Chesapeake Bay	60%	58%	n/a	n/a
People’s health	59%	57%	55%	67%
Aquatic life, such as fish and crabs	57%	62%	n/a	n/a
Fishing/seafood industry	57%	53%	n/a	n/a
Coastlines	54%	54%	53%	65%
Agriculture	53%	53%	56%	70%
Public water supplies	53%	53%	50%	57%
Wildlife	51%	57%	47%	62%
Wetlands	46%	48%	47%	59%
Forests	42%	47%	47%	62%
Private wells/septic systems	33%	31%	34%	39%
Public sewer systems	33%	31%	37%	38%
Transportation/roads/bridges	31%	31%	41%	40%
Privately owned land/buildings	22%	20%	25%	28%
Historical sites	20%	20%	24%	27%

The fishing industry has seen a slight uptick from 53 percent in 2015 to 57 percent in 2016.

Though a majority today (53%) still feel that the state’s agriculture may suffer because of climate change, this represents a significant drop from just three years ago when 70 percent expressed worry about Maryland’s agricultural industry.

Damage to their local roads and bridges is less of concern now than it was in both 2013 and 2014.

⁹ In the 2013 and 2014 studies, “Forests/Wildlife” were asked as one item.

Appendices

Appendix 1: Topline Results

HEALTHY PEOPLE, HEALTHY PLACES:
A SURVEY OF MARYLANDERS ON PUBLIC HEALTH, ENERGY, AND THEIR ENVIRONMENT

PRINCETON SURVEY RESEARCH ASSOCIATES INTERNATIONAL FOR
GEORGE MASON UNIVERSITY AND
THE JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

TOPLINE RESULTS
AUGUST 31, 2016

Total N=907 Maryland adults ages 18 or older
Margins of Error: \pm 4.3 percentage points for results based on Total [N=907]
Mail data collection dates: May 21-August 1, 2016
Questionnaire language: English only

*Topline notes: Unless otherwise indicated, percentages are based on Total answering.
Because percentages are rounded, they may not total 100%.
An asterisk (*) indicates less than 0.5%.*

INTRODUCTION

Dear Fellow Marylander,

The Johns Hopkins Bloomberg School of Public Health, in cooperation with George Mason University, welcomes a select number of households in Maryland, yours among them, to take this 15-20 minute survey about our health, environment and the energy we use.

Please have an adult in your household fill out the questionnaire. If there is more than one adult in your household we ask that the person who has had the **most recent birthday** fill out the survey, if possible. This method will provide us with a random sample of participants from the state of Maryland and each of its four regions. Answers to the questionnaire will help organizations in the state, like non-profits and local and state government agencies, better provide services to improve the health and well-being of our communities.

Thanks for taking the time to help us protect, and improve, our quality of life here in Maryland.

Sincerely,
Peter Winch, MD, MPH
Johns Hopkins Bloomberg School of Public Health

STUDY INFORMATION

Research procedures: This research is being conducted to inform the work of local and state government agencies, universities, and non-profit organizations in promoting healthy people and places in Maryland. No state funds are being used in this project; it is being funded by the Town Creek Foundation of Easton, Maryland. If you agree to participate, this questionnaire will take about 15-20 minutes to complete.

Benefits: There are no benefits to you as a participant in completing this survey other than to further understanding of Marylanders' beliefs about public health, energy and the environment.

Confidentiality: Your information will be kept completely confidential. Only the George Mason University research investigators will have access to the surveys; these will be kept in a locked cabinet on the university's Fairfax campus. Both Mason and Johns Hopkins researchers will have access to the final electronic database with the survey information, in which all personal identifiers have been removed (such as addresses and contact information). Other researchers may apply to the George Mason research team to obtain access to the information.

Participation: Your participation is voluntary. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party. A \$2 thank you has been included with this survey.

Risks: There are no risks to you from participating in this research.

Contact: For more information, contact Karen Akerlof at (XXX) XXX-XXXX or XXXXXXXX@XXX.XXX. If you have questions regarding your rights as a research participant, please contact the George Mason University Office of Research Integrity & Assurance at (XXX) XXX-XXXX, or the Institutional Review Board for Johns Hopkins Bloomberg School of Public Health at (XXX) XX-XXXX.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

1. How much of a priority should these topics be for Maryland's General Assembly and the Governor?

	Not a priority	Low	Medium	High	Very high	Unwt. N ¹⁰
a. Making public transportation more accessible and affordable	7	8	30	26	28	(896)
b. Lowering rates of asthma and respiratory disease	5	13	26	29	26	(893)
c. Reducing home energy costs	1	6	23	31	40	(897)
d. Creating jobs	*	3	11	30	56	(899)
e. Improving schools	*	2	11	30	56	(897)
f. Lowering crime	*	1	11	26	62	(895)
g. Reducing water pollution	1	3	17	33	46	(895)
h. Addressing racial inequalities	8	12	22	26	33	(891)
i. Protecting coastal areas from storms and flooding	3	15	30	29	23	(889)
j. Reducing air pollution	2	7	22	32	38	(897)
k. Addressing climate change	10	13	22	29	26	(892)
l. Expanding tax credits for renewable energy	4	11	28	28	29	(892)

2. Below is a list of potential risks to people's health and well-being. How much of a risk do you feel each of the following poses to your health and well-being?

	No risk at all	Minor risk	Moderate risk	Major risk	Don't know	Unwt. N
a. Second-hand smoke from tobacco	11	19	28	40	2	(899)
b. Exposure to chemicals, including pesticides, in food and other products	1	15	25	54	5	(903)
c. Air pollution	2	13	38	43	3	(900)
d. Extreme heat	9	24	38	26	3	(901)
e. Severe storms	8	32	36	21	3	(898)
f. Obesity	17	16	24	39	3	(896)
g. Polluted drinking water	6	19	18	50	6	(901)
h. Food-borne illnesses	6	23	30	35	7	(899)
i. Climate change	14	23	32	27	4	(899)
j. Insect-borne diseases	5	19	35	35	6	(902)
k. Flooding	15	35	32	16	2	(899)
l. Sea level rise	21	33	23	18	4	(901)
m. Pollution of local streams, rivers, and other water bodies	3	16	30	45	6	(900)

¹⁰ "Unwt. N" reflects the unweighted N, or the number of respondents who provided an answer.

3. In the last 12 months, how much has your health been harmed by the following?

	Not at all harmed	Slightly harmed	Moderately harmed	Severely harmed	Unwt. N
a. Pollen	31	35	25	10	(896)
b. Extreme heat	57	25	13	5	(895)
c. Severe storm(s)	67	22	8	3	(892)
d. Tick-borne disease, such as Lyme disease	80	7	7	5	(896)
e. Mosquito-borne disease, such as West Nile virus	84	6	6	4	(894)
f. Flooding	81	12	4	3	(897)
g. Poor outdoor air quality from air pollution	52	31	12	5	(895)
h. Waterborne illness	83	9	4	3	(896)
i. Food-borne illness	71	19	6	4	(895)
j. Poor indoor air quality from mold	67	22	7	5	(895)

4. In the last 12 months, have you experienced one or more of the following?

UNWEIGHTED N=907

	% Yes
a. Water damage of your home caused by heavy rains or flooding	15
b. Impassable roads due to flooding or storm damage	17
c. Sewage overflows after strong rains or storms	6
d. Septic system failure due to higher groundwater or flooding	3
e. A storm-related power outage	45
f. No household water	8
g. No household heat (when needed)	8
h. No household air conditioning (when needed)	11
i. Lack of access to transportation	10
j. Lack of access to medical care	6
k. Lack of access to high quality/nutritious food	7
l. Insufficient financial resources to cover bills if unable to work for 1-2 weeks	21
m. None of the above	28
None selected	3

5. The following statements are possible descriptions of your community. How strongly do you disagree or agree?

	Strongly disagree	Some-what disagree	Neither disagree nor agree	Some-what agree	Strongly agree	Unwt. N
a. My community has the resources it needs to take care of community problems (resources include money, information, technology, tools, raw materials, and services).	11	13	21	35	19	(894)
b. People in my community are able to get the services they need.	9	15	20	37	20	(896)
c. My community works with organizations and agencies outside the community to get things done.	9	8	36	31	16	(895)

6. The next statements are possible descriptions of communication in your community. How strongly do you disagree or agree?

	Strongly disagree	Some-what disagree	Neither disagree nor agree	Some-what agree	Strongly agree	Unwt. N
a. My community keeps people informed (for example, via television, radio, newspaper, Internet, phone, neighbors) about issues that are relevant to them.	9	11	15	38	28	(895)
b. I get information/communication through my community to help with my home and work life.	16	13	29	28	13	(891)
c. People in my community trust public officials.	17	18	32	26	7	(892)

People's responses to life events may differ. Below are some statements that people have made.

7. For each of the following, how strongly do you disagree or agree?

	Strongly disagree	Some-what disagree	Neither disagree nor agree	Some-what agree	Strongly agree	Unwt. N
a. There is no sense in planning a lot—if something good is going to happen, it will.	41	25	17	13	3	(894)
b. I am responsible for my own successes.	3	5	5	33	54	(894)
c. I have little control over the bad things that happen to me.	18	32	21	23	6	(897)
d. I am responsible for my failures.	2	10	12	41	36	(895)

8. People deal with difficult events in different ways. Typically, when you experience stress, what do you do?

	Not at all	A little bit	A medium amount	A lot	Unwt. N
a. I concentrate my efforts on doing something about it.	1	9	36	53	(891)
b. I turn to work or other activities to take my mind off of it.	10	23	38	29	(887)
c. I try to come up with a strategy for what to do.	1	12	36	52	(890)
d. I just give up.	78	18	2	2	(889)
e. I talk to someone to find out more about the situation.	7	24	42	28	(892)
f. I sleep more than usual.	57	23	12	7	(889)
g. I look for something good in what is happening.	7	28	37	28	(888)
h. I learn to live with it.	16	36	33	16	(887)
i. I put my trust in God.	19	17	16	49	(888)

The next questions address new options in Maryland for managing our generation and use of electricity.

9. Have you ever heard the term, “Smart Grid,” in referring to new ways to generate and manage electricity?

UNWEIGHTED N=894

No	39
Yes	48
Don't know	13

10. Do you have a Smart Meter installed at your home? Smart Meters digitally monitor energy usage, convey the information wirelessly to your energy utility, and provide it to you online. They are installed for free by your electric utility.

UNWEIGHTED N=893

No	42
Yes	42
Don't know	16

11. Smart Grids will mean some changes for consumers. How likely would you be to...

	Very unlikely	Some-what unlikely	Some-what likely	Very likely	Already done	Not applicable	Unwt. N
a. welcome installation of a Smart Meter.	10	9	18	22	33	8	(881)
b. change the timing of activities that use a lot of electricity, like clothes drying, to take advantage of lower electricity costs at night.	9	11	25	36	16	3	(886)
c. buy “smart appliances” that automatically reduce energy use during high demand.	5	10	24	36	20	6	(888)
d. install solar panels either for your home or within your community and sell energy back to the utility.	27	17	19	21	4	12	(886)
e. volunteer to automatically lower energy use during high demand in return for lower bills.	9	11	27	31	17	4	(883)

12. How strongly do you disagree or agree with the following statements?

	Strongly disagree	Some-what disagree	Some-what agree	Strongly agree	Don't know	Unwt. N
a. My home energy choices affect our health and environment.	8	10	42	31	10	(890)
b. I am worried that Smart Meters threaten people’s privacy.	24	18	25	10	23	(882)
c. I am worried that Smart Meters may be harmful.	35	20	11	7	28	(885)
d. Variable electricity rates at different times of day will help me lower my energy bills.	6	8	44	23	19	(887)
e. I can’t afford to install solar panels even if I could sell the electricity back to the utility.	11	11	20	37	21	(884)
f. Generating my own energy is appealing to me.	9	8	31	37	16	(889)

The next questions address the choices about energy sources we make as a state and in our own homes.

13. Over the next several years, do you think Maryland should use less, more, or about the same amount of each of these sources of electrical energy? (Please note, no hydraulic fracturing of natural gas is currently occurring in Maryland.)

	Much less	Some-what less	Same amount	Some-what more	Much more	Don't know	Unwt. N
a. Coal	35	19	14	4	4	24	(884)
b. Petroleum (oil)	26	25	20	7	2	21	(880)
c. Natural gas extracted by hydraulic fracturing ("fracking") in Maryland	25	11	10	11	8	35	(872)
d. Other sources of natural gas	5	11	14	29	17	24	(868)
e. Wind	3	2	6	26	46	16	(884)
f. Nuclear	24	10	16	10	12	28	(879)
g. Solar	2	1	6	20	57	13	(882)
h. Hydroelectric (including dams)	3	5	17	20	29	26	(873)
i. Wood fuel	24	19	18	7	8	25	(878)
j. Incineration of waste	10	12	16	14	19	29	(880)
k. Gas from landfills	5	6	12	20	20	36	(885)

14. Please rate each of the following sources of electrical energy in terms of how harmful they are to people's health.

	Not at all harmful	Not very harmful	Somewhat harmful	Very harmful	Don't know	Unwt. N
a. Coal	2	8	32	41	16	(889)
b. Petroleum (oil)	2	14	42	23	19	(885)
c. Natural gas extracted by hydraulic fracturing ("fracking") in Maryland	4	13	21	24	37	(880)
d. Other sources of natural gas	5	31	22	7	36	(876)
e. Wind	64	17	5	2	12	(888)
f. Nuclear	6	15	24	33	21	(879)
g. Solar	67	16	3	2	12	(887)
h. Hydroelectric (including dams)	35	26	13	2	24	(882)
i. Wood fuel	7	22	36	14	22	(885)
j. Incineration of waste	6	15	35	15	30	(887)
k. Gas from landfills	9	22	23	14	33	(885)

15. How much more would you be willing to pay each month on your electricity bill to purchase 100% of your electricity from these fuel sources?

	Not willing to pay more	\$1-5	\$6-10	\$11-15	\$16-20	More than \$20 a month	Unwt. N
a. Wind	50	17	14	7	7	6	(876)
b. Solar	48	17	14	8	8	6	(878)

Maryland has the longest average commute time in the United States. The questions below ask about your driving habits and transportation preferences.

16. How frequently do you use the following forms of transportation to get to work, school, or other primary daily activity?

	Never	Some- times	Most of the time	Almost always	Not applicabl e	Unwt. N
a. Drive car or truck (single occupant)	5	11	10	67	6	(889)
b. Carpool with others	53	27	3	4	12	(881)
c. Take the Metro, subway, or light rail	55	24	2	6	12	(886)
d. Ride a bus	62	20	2	6	10	(888)
e. Bike	71	14	1	2	12	(887)
f. Walk	44	35	6	6	9	(887)

17. How long is your average daily commute to work, school, or other primary daily activity?

UNWEIGHTED N=880

10 minutes or less	14
11-20 minutes	21
21-30 minutes	15
31-40 minutes	10
41-50 minutes	10
51-60 minutes	7
More than 1 hour	7
Not applicable	15

18. Please answer two questions for each of the items below. Is it hard or easy for you to take the following actions? And, are they actions you would dislike or like doing, whether or not they are feasible?

	Is it hard or easy for you to take this action?			Would you dislike or like doing this?		
	Hard/No t feasible	Easy	Unwt. N	Dislike	Like	Unwt. N
a. Working from home	57	43	(825)	26	74	(774)
b. Biking or walking instead of driving for primary daily activities (work, school, etc.)	81	19	(836)	48	52	(785)
c. Using public transportation	71	29	(830)	63	37	(783)
d. Purchasing or leasing a fuel-efficient car or truck	55	45	(821)	27	73	(792)
e. Purchasing or leasing a plug-in electric vehicle, such as the Nissan Leaf or Chevy Volt	73	27	(819)	48	52	(792)

19. How strongly do you disagree or agree with the following statements?

	Strongly disagree	Some-what disagree	Some-what agree	Strongly agree	Don't know	Unwt. N
a. Driving gasoline- or diesel-fueled cars and trucks is a minimal source of air pollution.	25	28	28	12	7	(887)
b. The tailpipes of gasoline- or diesel-fueled motor vehicles release pollution that contributes to climate change.	5	9	31	43	13	(888)
c. Pollution from these cars and trucks end up in our waterways, where they become a significant source of pollutants in the Chesapeake Bay.	5	13	32	34	16	(888)
d. Pollution from these cars and trucks includes toxic chemicals that harm people's health, including causing cancer.	5	7	35	37	16	(885)
e. Living or working near a highway or major roadway has little to no effect on people's health.	27	37	16	6	14	(882)
f. Plug-in electric vehicles pollute the air less than gasoline- or diesel-fueled vehicles.	4	4	27	48	16	(886)
g. Over the lifetime of the car, it is cheaper to own and operate a plug-in electric vehicle than one powered by gasoline or diesel fuel.	6	12	14	16	52	(887)

20. Maryland has begun implementing policies to alleviate road congestion on highways and improve air quality. For each of the following policies, please answer two questions: Have you heard of this policy? How much do you support or oppose this policy?

	Heard of this policy			Your support for this policy					Unwt. N
	Yes	No	Unwt. N	Strongly oppose	Some-what oppose	Neither	Some-what support	Strongly support	
a. Requiring new cars and other vehicles in Maryland to be less polluting	51	49	(872)	3	6	17	31	43	(878)
b. Variable express lane fees based on road congestion	52	48	(854)	18	13	28	24	17	(877)
c. Extending tax credits and other incentives for purchases or leases of plug-in electric vehicles and charging equipment	44	56	(843)	7	8	25	31	28	(878)
d. Making improvements to bike and pedestrian road access	58	42	(839)	3	3	17	27	50	(877)
e. Promotion of public transportation	59	41	(829)	2	3	24	31	40	(877)

21. Maryland has begun implementing policies to promote new sources of energy and use energy more efficiently. For each of the following policies, please answer two questions: Have you heard of this policy? How much do you support or oppose this policy?

	Heard of this policy			Your support for this policy					Unwt. N
	Yes	No	Unwt. N	Strongly oppose	Some-what oppose	Neither	Some-what support	Strongly support	
a. Expanding rebates to help people purchase energy-efficient lighting and appliances	51	49	(867)	4	2	12	28	55	(873)
b. Updating state and local building codes to increase energy efficiency and enable electric vehicle charging	32	68	(863)	3	4	24	33	36	(871)
c. Encouraging the development of more homes with better access to public transportation, as a means to reduce sprawl, and preserve forests and farmland	29	71	(857)	4	7	22	23	44	(871)
d. Funding energy efficiency and conservation projects that serve low- to middle-income Marylanders	32	68	(856)	4	5	19	25	48	(868)
e. Requiring that Maryland's electricity suppliers provide a percentage of their total electricity from renewable energy sources	37	63	(851)	4	4	18	28	47	(869)
f. Continuing financial incentives for the generation of renewable energy (such as solar and wind)	49	51	(846)	4	3	15	27	51	(872)
g. Modernizing Maryland's electricity grid to better integrate renewable energy and incentivize efficiency	31	69	(847)	2	2	18	28	49	(870)

22. Maryland is required to evaluate the economic impacts, including to jobs and industry, of its energy and greenhouse gas reduction policies that are collectively called the “Greenhouse Gas Reduction Plan.” How likely do you think it is that these policies will accomplish the following?

	Very unlikely	Some-what unlikely	Some-what likely	Very likely	Don't know	Unwt. N
a. The policies will generate between \$2.5 billion and \$3.5 billion in total economic benefits by 2020.	13	17	21	5	44	(880)
b. The policies will create or maintain 26,000 to 33,000 jobs by 2020.	11	16	24	7	42	(880)
c. There will be no projected impacts from these policies on Maryland’s manufacturing industries.	14	18	18	7	43	(881)

23. How much do you disagree or agree with the following? Stricter environmental laws in Maryland...

	Strongly disagree	Some-what disagree	Some-what agree	Strongly agree	Don't know	Unwt. N
a. cost jobs and hurt the economy.	20	21	22	12	25	(882)
b. are worth the cost because of the public health benefits.	5	9	35	33	17	(882)
c. are worth the cost because of the environmental benefits.	6	7	34	35	18	(883)
d. can fuel economic and jobs growth.	7	11	33	21	28	(884)

We are interested in your opinion of how climate change may, or may not be, affecting your community.

24. Do you think that climate change is currently happening?

UNWEIGHTED N=895

Yes	77
No	10
Don't know	13

25. If you answered either yes or no, how sure are you?

	UNWEIGHTED N=676 Climate change is happening	UNWEIGHTED N=107 Climate change is not happening
I'm not at all sure	2	14
I'm somewhat sure	27	40
I'm very sure	41	27
I'm extremely sure	30	19

26. If you think climate change is currently happening, what do you think is causing it?

UNWEIGHTED N=843

Caused entirely by human activities	14
Caused mostly by human activities	31
Caused about equally by human activities and natural changes in the environment	30
Caused mostly by natural changes in the environment	9
Caused entirely by natural changes in the environment	2
I don't think climate change is happening	5
Don't know	9

27. To the best of your knowledge, what percentage of the following people think climate change is happening?

	0 to 20%	21 to 40%	41 to 60%	61 to 80%	81 to 100%	Don't know	Unwt. N
a. People in my region of Maryland (Western, Central, Southern, Eastern counties)	6	14	23	18	10	30	(888)
b. Maryland residents (statewide)	4	11	24	20	8	32	(886)
c. People in the United States	3	14	30	18	9	26	(885)
d. Climate scientists	3	4	6	12	53	22	(885)

28. How much do you think climate change is currently harming...?

	Not at all	Only a little	A moderate amount	A great deal	Don't know	Unwt. N
a. you personally	20	27	30	14	8	(888)
b. people in your community	15	23	33	14	16	(887)
c. people in Maryland	12	19	36	18	16	(893)

29. Which of the following do you think is likely to occur in your community as a result of climate change over the next 10-20 years?

UNWEIGHTED N=907

	% Yes
a. Hotter weather	72
b. Colder weather	46
c. Heavier rains	52
d. More frequent droughts	36
e. Wildfires	23
f. Increased air pollution	53
g. Warming of cold-water streams	35
h. Longer growing season	18
i. More severe storms	63
j. Rising coastal sea levels	47
k. Increased water pollution	46
l. Increased harmful bacteria and toxins with warmer waters	53
m. There are no likely effects from climate change	9
None selected	4

30. Which of the following resources in your community do you think may be harmed by climate change in the next several years?

UNWEIGHTED N=907

	% Yes
a. Public water supplies	53
b. Public sewer systems	33
c. People's health	59
d. Transportation/roads/bridges	31
e. Historical sites	20
f. Coastlines	54
g. Wetlands	46
h. Forests	42
i. Wildlife	51
j. Chesapeake Bay	60
k. Aquatic life, such as fish and crabs	57
l. Agriculture	53
m. Fishing/seafood industry	57
n. Private wells/septic systems	33
o. Privately owned land/buildings	22
p. There are no local risks from climate change	11
None selected	4

31. How much do you support or oppose state and local governments taking action to protect your community against harm caused by climate change (if any)?

UNWEIGHTED N=856

Strongly oppose	7
Somewhat oppose	7
Somewhat support	28
Strongly support	47
Don't know	12

The information below will be used to ensure that the survey is representative of people in Maryland.

32. Are you:

UNWEIGHTED N=885

Male	44
Female	56

33. How old are you?¹¹

UNWEIGHTED N=790

18-29	15
30-49	36
50-64	29
65 or older	20

34. Do you rent or own your home?

UNWEIGHTED N=871

Rent	28
Own	68
Other (specify)	3

35. Are any children living in your household?

UNWEIGHTED N=892

Yes	35
No	60
Not applicable	5

36. What is the age of the youngest child?

UNWEIGHTED N=730

Less than 1 year	4
1-6 years	16
7-12 years	8
13-18 years	15
No children	57

¹¹ Respondents were asked to write in their exact age. Ages have been grouped into categories in this topline.

37. What is the highest degree or level of school that you have completed?

UNWEIGHTED N=895	
Less than high school	4
High school or GED	26
Some college, no degree	22
Associate's degree	8
Bachelor's degree	17
Advanced degree beyond a bachelor's degree	22

38. Which of the following broad categories describes your household's total approximate annual income before taxes?

UNWEIGHTED N=839	
Less than \$10,000	5
\$10,000 – \$14,999	5
\$15,000 – \$24,999	9
\$25,000 – \$34,999	7
\$35,000 – \$49,999	12
\$50,000 – \$74,999	18
\$75,000 – \$99,999	13
\$100,000 – \$149,999	18
\$150,000 or more	13

39A/B. Think of this ladder as representing where people stand in their communities. People define community in different ways, please define it in whatever way is most meaningful to you. Where would you place yourself on this ladder, first for your community, and then for Maryland?

	UNWEIGHTED N=846 Q39A Your standing in your community	UNWEIGHTED N=841 Q39B Your standing in Maryland
10 - Highest standing	6	5
9	6	5
8	14	12
7	18	15
6	13	15
5	19	18
4	7	8
3	9	6
2	4	8
1 - Lowest standing	4	7

40. Generally speaking, do you think of yourself as politically...

UNWEIGHTED N=888	
Very conservative	11
Somewhat conservative	22
Moderate, middle of the road	39
Somewhat liberal	20
Very liberal	9

41. Do you happen to know where people who live in your neighborhood go to vote?

UNWEIGHTED N=896

No	6
Yes	80
Don't know	14

42. How often would you say you vote?

UNWEIGHTED N=898

Never	9
Seldom	6
Part of the time	10
Nearly always	25
Always	48
Don't know	2

43. What ethnicity do you consider yourself?

UNWEIGHTED N=858

Hispanic or Latino	7
Not Hispanic or Latino	93

44. What is your race?¹²

UNWEIGHTED N=877

White	62
Black or African American	27
Asian	4
American Indian or Alaska Native	*
Native Hawaiian or other Pacific Islander	*
Other	5
Mixed race	2

Race/Ethnicity Summary table

43. What ethnicity do you consider yourself?

44. What is your race?

UNWEIGHTED N=878

White, non-Hispanic	59
Black or African American, non-Hispanic	26
Hispanic	7
Other/Mixed race, non-Hispanic	8

¹² Respondents were allowed to select 1 or more races. Those who selected more than one are coded as "Mixed race."

45. How would you describe your primary current occupation, or former occupation, if retired?

UNWEIGHTED N=886

Blue collar or service industry	22
Clerical	7
Managerial or professional	44
Student	4
Homemaker	7
Other/not applicable	15

46. In the last 12 months, have you personally experienced one or more prolonged periods of stress of 1 month or longer in relation to circumstances in everyday life, such as work, health, or a family situation? (Stress refers to feelings of irritability, tension, nervousness, fear, anxiety, or sleep disturbances.)

UNWEIGHTED N=885

I have not experienced a prolonged period of stress	41
One period of prolonged stress	20
More than one period of prolonged stress	26
Constant stress	14

47. Have you ever been told by a doctor or health care provider that you have one or more of these conditions?

UNWEIGHTED N=907

	% Yes
a. Asthma	12
b. COPD	5
c. Hypertension	24
d. Coronary heart disease	5
e. Stroke	2
f. Diabetes	12
g. Cancer	9
h. Weak or failing kidneys	2
i. Arthritis	21
j. Hepatitis	2
k. None of the above	46
None selected	3

Please provide any additional comments for us below.

UNWEIGHTED N=907

Wrote comment	17
No comment	83

INFO1. Would you like any additional information about some of the topics in the survey? If so, please mark the topics of interest...

UNWEIGHTED N=907

	% Yes
a. Home energy efficiency	13
b. Flooding protection	5
c. Protection against heat waves	7
d. Energy bill assistance	12
e. Energy fuel choices and health	10
f. Home and community renewable energy generation	10
g. Smart grid	13

Thank you for completing the survey!

Please use the enclosed postage-paid envelope to return this survey.

**GEORGE MASON UNIVERSITY AND
THE JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC
HEALTH**

**HEALTHY PEOPLE, HEALTHY PLACES:
A SURVEY OF MARYLANDERS ON PUBLIC HEALTH,
ENERGY, AND THEIR ENVIRONMENT**

METHODOLOGICAL REPORT

**PREPARED BY:
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SUMMARY

The Healthy People, Healthy Places Survey, jointly sponsored by the Center For Climate Change Communication at George Mason University (GMU) and the Johns Hopkins Bloomberg School of Public Health, obtained interviews with a sample of 907 households in the state of Maryland. The survey was conducted by Princeton Survey Research Associates International (PSRAI). Data were collected by postal mail by the Scantron Corporation from May 21 to August 1, 2016.

Details on the design, execution and analysis of the survey are discussed below.

DESIGN AND DATA COLLECTION PROCEDURES

Sample and Questionnaire Design

A sample of 4,201 Maryland households were randomly selected from Survey Sampling International's household address databases, based primarily on U.S. Postal Service delivery route information. In contrast to the previous waves of this study where sampling took place at the regional level, sampling for the 2016 study was a simple random selection of households at the state level. Sample was provided to PSRAI by GMU.

In addition to sample design, George Mason University also developed all mailing materials including the mail questionnaire. Prior to printing or mailing any materials, GMU submitted and received approval for all mailing materials from Johns Hopkins' IRB. The Scantron Corporation, with a location based out of Columbia, PA, supplied, printed and distributed all mailings, developed the scannable questionnaire form, and processed and scanned all returned questionnaires into an electronic data format in accordance with an approved data codebook. PSRAI coordinated the mailings and data collection with Scantron, cleaned, processed and weighted the survey data, and produced the reporting and analysis.

Contact Procedures

Data were collected by mail from May 21 to August 1, 2016. Requests for participation were sent to a total of 4,201 Maryland households. Each household was sent up to four mailings. All mailings were freighted to Maryland and distributed by a local Maryland post office. Progress was monitored regularly throughout the data collection period.

On April 20, 2016, advanced letters on Johns Hopkins letterhead were mailed to all 4,201 sampled households. The letter was signed by Dr. Peter Winch, a Professor in the Social and Behavioral Interventions Program in the Department of International Health at the Johns Hopkins Bloomberg School of Public Health. The letter explained that a survey about public health, energy and Maryland's environment would be arriving soon and encouraged the household's participation. *(All letters can be found in the Appendix.)*

On May 21, 2016, the initial survey mailings on Johns Hopkins letterhead were mailed to 4,200 sampled households.¹³ Each packet contained a questionnaire booklet, a postage paid return envelope, a \$2 bill, and a cover letter signed by Dr. Peter Winch. This cover letter explained the survey and encouraged participation by an adult member of the household, age 18 or older. If there was more than one adult in the household, instructions indicated that the person in the household who has had the most recent birthday should complete the enclosed questionnaire.

On June 16, 2016, postcard reminders to non-responders were mailed to 3,626 households. Excluded from the postcard mailing were households that had already completed the survey, refused to participate, or had both previous mailings returned as undeliverable.

On June 29, 2016, a follow-up survey mailing on Johns Hopkins letterhead was mailed to 3,589 households. Excluded from the follow-up survey mailing were households that had already completed the survey, refused to participate, or had the first two mailings returned as undeliverable. Each packet contained a questionnaire booklet, a postage paid return envelope, and a cover letter signed by Dr. Peter Winch. Affixed to each cover letter was a sticky note indicating a study deadline of July 15 and offering participants a chance to be entered into a raffle for a gift card.

WEIGHTING AND ANALYSIS

Weighting is generally used in survey analysis to compensate for sample designs and patterns of non-response that might bias results. The sample was weighted to match Maryland adult general population parameters.

The weighting adjusted sample demographics to known population parameters. The sample was balanced to match parameters for sex, age, education, race/ethnicity, region and population density. The basic weighting parameters came from an analysis of the U.S. Census Bureau's 2014 American Community Survey data. The population density parameter was derived from Census 2010 data at the county level.

Weighting was accomplished using SPSSINC RAKE, an SPSS extension module that simultaneously balances the distributions of all variables using the GENLOG procedure. Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate the demographic characteristics of the national population. Table 1 compares weighted and unweighted sample distributions to population parameters.

¹³ Upon receiving the advance letter, one household indicated they are part-time residents and were removed from further mailings for this study.

Table 1: Sample Demographics

	<u>Parameter</u>	<u>Unweighted</u>	<u>Weighted</u>
	<u>Gender</u>		
	Male	47.4	32.9
	Female	52.6	64.7
	missing	2.4	2.7
	<u>Age</u>		
	18-34	30.1	11.4
	35-44	16.8	9.9
	45-54	19.0	12.7
	55-64	16.7	20.7
	65+	17.4	32.4
	missing	12.9	14.3
	<u>Education</u>		
	HS Grad or less	36.2	16.0
	Some College/Assoc Degree	28.4	26.1
	College Graduate	35.4	56.6
	missing	1.3	1.5
	<u>Race/Ethnicity</u>		
	White/not Hispanic	55.0	69.8
	Black/not Hispanic	28.4	15.4
	Hispanic	8.2	3.9
	Other/not Hispanic	8.4	7.7
	missing	3.2	3.6
	<u>Region</u>		
	Capital	35.9	31.9
	Central	46.2	51.6
	Southern	5.7	4.2
	Eastern shore	7.8	7.2
	Western	4.4	5.2
	<u>County Pop. Density</u>		
	1 - Lowest	2.5	2.8
	2	14.0	12.6
	3	12.7	16.3
	4	60.0	57.3
	5 - Highest	10.8	11.0

Effects of Sample Design on Statistical Inference

Post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. PSRAI calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called "design effect" or *deff* represents the loss in statistical efficiency that results from unequal weights. The total sample design effect for this survey is 1.71.

PSRAI calculates the composite design effect for a sample of size n , with each case having a weight, w_i as:

$$deff = \frac{n \sum_{i=1}^n w_i^2}{\left(\sum_{i=1}^n w_i \right)^2} \quad \text{formula 1}$$

In a wide range of situations, the adjusted *standard error* of a statistic should be calculated by multiplying the usual formula by the square root of the design effect (\sqrt{deff}). Thus, the formula for computing the 95% confidence interval around a percentage is:

$$\hat{p} \pm \left(\sqrt{deff} \times 1.96 \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} \right) \quad \text{formula 2}$$

where \hat{p} is the sample estimate and n is the unweighted number of sample cases in the group being considered.

The survey's margin of error is the largest 95% confidence interval for any estimated proportion based on the total sample—the one around 50%. For example, the margin of error for the entire sample is ± 4.3 percentage points. This means that in 95 out every 100 samples drawn using the same methodology, estimated proportions based on the entire sample will be no more than 4.3 percentage points away from their true values in the population. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as respondent selection bias, questionnaire wording and reporting inaccuracy, may contribute additional error of greater or lesser magnitude.

Response rate

Table 2 reports the disposition of all sample records released. The response rate estimates the fraction of all eligible sample that was ultimately interviewed. The response rate is based on AAPOR response rate #3 as set forth by the American Association for Public Opinion Research. Thus the response rate for the sample was 24 percent.

Total Sample Released	4201
Non-response, unknown eligibility U	3178
Refused R	23
Ineligible IN	93
Completed I	907
e= estimated eligibility $(I+R)/(I+R+IN)$	90.9%
Response Rate $I/[I+R+(e*U)]$	23.7%

CODING AND EDITING

The completed questionnaires were returned to Scantron and scanned into an electronic data file. All handwritten open-end question responses were recorded verbatim by Scantron coders and entered into the electronic data file. PSRAI thoroughly examined completed questionnaires to ensure proper completion and checked to ensure the data responses matched the responses in the questionnaire booklets. Any notes from respondents, problems or inconsistencies were dealt with by PSRAI staff. Problems were reconciled whenever possible and cleaned in the data file.

- If there are multiple response to a question that should only have one response and that question has no 'other specify' option, the question was recoded as 'No answer' in the data if there is not some indication of which answer is right (e.g. one crossed out and the second circled multiple times).
- If there are multiple response to a question that should only have one response and that question has an 'other specify' option, the question was recoded as 'other' and the responses entered into the specify field in the data.
- If applicable, 'other specify' responses were back-edited if they fit into the existing answer categories/codes.

In addition to open-end response categories for specific questions, respondents also had the opportunity to make any additional comments at the end of the survey.

DATA ENTRY AND VERIFICATION

The data were entered, verified, and cleaned to correct for any scanning entry errors, appropriate question sequence (i.e., skip patterns), valid response ranges, and other logical consistencies.

[DATE]

[Name of city] Resident
[Address1], [Address2]
[City], [State] [Zip]-[Zip4]

Dear [Name of city] Resident:

The Johns Hopkins Bloomberg School of Public Health, as part of a research project with George Mason University, is requesting your help with an important study being conducted about public health, energy and Maryland's environment. Your household was selected at random from among all residents in Maryland. In the next few days you will receive an envelope containing our questionnaire. We hope you will participate.

We would like to make it as easy and enjoyable as possible for you to participate in the study. I am writing in advance because sometimes people like to know ahead of time that they will be asked to fill out a questionnaire. The success of this study will rely on the generous help of people like you who are willing to take about 15-20 minutes of their time to answer our questions.

As a token of our appreciation, we will be sending you \$2 in the envelope containing the questionnaire. Please keep your eyes open for that envelope in the mail; it should arrive in the next several days. This project is funded by the Town Creek Foundation of Easton, Maryland; no state funds are being used. You are not under any obligation to participate, but I hope you will be willing to help us. Most of all, I hope that you enjoy taking the survey and the opportunity to tell us about your views on the health of Maryland's people and environment.

Best wishes,



Peter Winch, MD, MPH
Johns Hopkins Bloomberg School of Public Health

Princeton Survey Research Associates International (PSRAI), a national polling firm, will conduct this survey for us, with data collection provided by Scantron. If you have any questions, you may contact XXXXXXXXXXXX of PSRAI at XXXXXXXXXXXXXXX@psrai.com. You may also contact Project Director XXXXXXXXXXXX at (703) XXX-XXXX or XXXXXXXXXXX@gmu.edu at George Mason University.

Appendix 2b: Cover letter for initial survey mailing

[DATE]

[Name of city] Resident
[Address1], [Address2]
[City], [State] [Zip]-[Zip4]

Dear [Name of city] Resident:

I am writing to request your help with an important study being conducted about public health, energy and Maryland's environment. One important way for us to learn about these issues is to ask people who live in the state to share their thoughts with us. Your household is one of 4,200 homes that have been randomly selected for this study being conducted by the Johns Hopkins Bloomberg School of Public Health and George Mason University, and funded by the Town Creek Foundation in Easton, Maryland.

Please have an adult (age 18 or over) fill out the survey. If there is more than one adult in your household, please have the person in your household who has had **the most recent birthday** complete the enclosed questionnaire if possible. This ensures we hear from a random sample of people who live in the state.

The questions should only take about 15-20 minutes to answer. By taking this time to share your thoughts, you will help us understand how to better develop future public health services for Marylanders, such as programs that assist communities during heat waves and other extreme weather events. As a way of saying thank you for participating, we have enclosed a small token of appreciation. No state funds are being used in this project. You are not under any obligation to participate, but I hope that you will consider participating, and will enjoy taking the survey.

I look forward to hearing your thoughts. Thanks for taking this time to help us better protect our quality of life here in Maryland.

Best wishes,



Peter Winch, MD, MPH
Johns Hopkins Bloomberg School of Public Health

Princeton Survey Research Associates International (PSRAI), a national polling firm, will conduct this survey for us, with data collection provided by Scantron. If you have any questions, you may contact XXXXXXXXXXXX of PSRAI at XXXXXXXXXXXXXXXXXXXX@psrai.com. You may also contact Project Director XXXXXXXXXXXX at (703) XXX-XXXX or XXXXXXXXXXX@gmu.edu at George Mason University.

Appendix 2c: Postcard reminder

Last week a questionnaire was mailed to you because your household was chosen for a study of Marylanders' opinions about public health, energy and our state's environment.

If someone at your address has already completed and returned the questionnaire, we thank you. If not, please have the adult in your household who has had the **most recent birthday** do so right away. This method aids us in obtaining a random sample of state residents.

I am very grateful for your help in this study.



Peter Winch, MD, MPH



[DATE]

[Name of city] Resident
[Address1], [Address2]
[City], [State] [Zip]-[Zip4]

Dear [Name of city] Resident:

In April we sent a letter inviting you to complete a questionnaire on the health and wellbeing of Maryland's people and environment. While you are not under any obligation to participate, to the best of our knowledge, we have not received it yet, and wanted to be sure that it had not been lost in the mail.

We are writing again because of the importance that your questionnaire has in helping us to get accurate results that truly represent the state's residents. Therefore, we hope that the adult in your household who has had **the most recent birthday** will fill out the questionnaire (another copy of which is enclosed) and return it to us soon. This will help ensure that we hear from a random sample of adults in every household.

The questions should only take about 15-20 minutes to complete. We hope that you enjoy answering the questions and sharing your thoughts with us. We look forward to hearing your opinion on these important issues.

Best wishes,



Peter Winch, MD, MPH
Johns Hopkins Bloomberg School of Public Health

Princeton Survey Research Associates International (PSRAI), a national polling firm, will conduct this survey for us, with data collection provided by Scantron. If you have any questions, you may contact XXXXXXXXXXXX of PSRAI at XXXXXXXXXXXXXXX@psrai.com. You may also contact Project Director XXXXXXXXXXXX at (703) XXX-XXXX or XXXXXXXXXXX@gmu.edu at George Mason University.

