# Generational Access Preferences to National Wildlife Refuges in California, Colorado & Texas

by

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# GLOSSARY OF ABBREVIATIONS

| | |
|---|---|
| AARP | American Association of Retired Persons |
| MSA | Metropolitan Statistical Area |
| NATE | National Alternative Transportation Evaluation |
| NWR | National Wildlife Refuge |
| RAPP | Refuge Annual Performance Plan |
| RATE | Regional Alternative Transportation Evaluation |
| USDOT | U.S. Department of Transportation |
| USFWS | U.S. Fish and Wildlife Service |
| WTI | Western Transportation Institute |

# DISCLAIMER

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the USFWS.

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# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# EXECUTIVE SUMMARY

The U.S. Fish and Wildlife Service's (USFWS's) mission is "working with others, to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people" (1). To do so, USFWS must remain relevant to the American people.

The Millennials are now the largest part of the population in the United States, so USFWS wants to ensure that Millennials value USFWS Refuges. Until recently, Millennials were thought to be more interested in active transportation than previous generations. While generally this is true, their interest in active transportation seems to be more of a reflection of limited resources (i.e. student loans, lower annual incomes than previous generations at the same age), than a lack of interest in a private automobile. In general, rather than preferring active transportation, Millennials seem to choose the mode that is most appropriate for the trip purpose, with cost as one of the deciding factors.

The Baby Boomers, previously the largest generation, are typically viewed as the most frequent visitors to USFWS Refuges, based on surveys administered on federal lands. They are also viewed as being the typical users of shuttle systems on USFWS Refuges. Yet, this generation still prefers to access Refuges by private automobile. In addition, as more within the Baby Boomer generation retire, there is a belief that some are moving west to locations in proximity to federal lands.

The purpose of this study is to understand how these two large generational cohorts prefer to access federal lands, particularly their interest in using active transportation modes (i.e. shuttles, walking, bicycling) to travel to USFWS Refuges. In addition, in order to explore and compare the unique preferences and interests among generations in more detail, data was collected from the generation in between the Baby Boomers and Millennials, Generation X. Surveys were administered to residents of California, Colorado, and Texas, in the Fall of 2016 using a third party survey respondent provider. This study is unique because it sought input from the general population within these states, rather than visitors who were already at a Refuge or other federal land. The research team used questions chosen from the Comprehensive Visitor Transportation Survey instrument, thereby, in part, streamlining the process, while also creating some limitations with respect to what researchers were able to ask of survey respondents. A total of 4,319 surveys were collected across the Millennial, Generation X, and Baby Boomer generation in the three targeted states. In general, the distribution of survey respondents collected across the states and across the generations was equal.

The findings suggest that contrary to popular opinion, Millennials may be engaging with federal lands more often than previously understood. Furthermore, Baby Boomers, even those who reported previously being visitors of federal lands, may be less inclined to recreate on them as they age. Their reported activity interest may in part be the driver. Almost half of the survey respondents reported physical limitations, whether from physical disabilities, or the need to accommodate the limited distances that small children can travel.

The findings highlight the need for a better understanding of these two generations and their travel preferences. Some examples of future research include drawing from a broader sample within the United States, including the east, south and Midwest. There is also a need to dig deeper into some of the findings. For example, survey respondents report an interest in learning about nature, but they also reported less interest in *being* in nature. Why does there seem to be a disconnect between learning about nature and experiencing nature – what are the primary causes? Are the differences

between how the older generations and younger generations experience federal lands, including Refuges, which are tied to their perceptions of safety concerns (e.g. bad weather while in the backcountry is different than bad weather in a vehicle)? Understanding these preferences in greater detail will help USFWS plan for and attract visitors moving forward.

# 1. INTRODUCTION

The National Wildlife Refuge System of the U.S. Fish and Wildlife Service (USFWS), established in 1903, contains 556 national wildlife refuges and 38 wetland management districts throughout the nation totaling more than 150 million acres (2).

Starting in 2012, the Urban Wildlife Conservation Program of the USFWS established a goal of improving the connection of urban residents to USFWS units (3). More specifically, a benchmark associated with the Standards of Excellence developed through this program is "Increasing equitable access." This is in part driven by the idea that, "*The wildest and remotest places on Earth, the most imperiled species on Earth, will be protected only if urban people care about the nature where they live*," by Ted Trzyna (4).

The Millennial generation is now the largest generation in the United States (5). Within the literature , the age range for Millennials varies from source to source. For the purposes of this report, Millennials comprise Americans born between the years of 1983 and 2000. This generation is believed to have different lifestyle and transportation trends than previous generations, although as more research focused on Millennials is completed, the differences appear to be less pronounced than originally thought. For example, while it would appear that Millennials may make use of non-automobile modes more often than older generations, this generation is not completely abandoning the automobile (6). Millennials tend to live more in urban areas, and there are suggestions that either by choice or by economic limitations, they have less interest in traveling via a private vehicle. As a result of all of these compounding factors, the USFWS wants to better understand how this generation prefers to access USFWS locations to ensure that USFWS Refuges remain relevant.

Baby Boomers, previously the largest generation in the United States, continue to age and retire from the workforce. There is a need to ensure that USFWS units continue to remain relevant to this generation, as past visitor surveys have suggested that it is the dominant visitor group (2). However, Baby Boomer respondents may appear to be the more dominant visitor group as a result of many surveys being conducted in the front country, which is expected to be more popular with the older generations.

The three generations for which data was collected for this study are the Millennials, Generation X, and the Baby Boomers. There is some variability regarding the age range and birth years for each generational cohort. Table 1 displays their ages at the time the data was collected in 2016.

**Table 1: Generational Cohort Birth Years, Number of Years, and Ages in 2016**

| Generational Cohort | Birth Years | Span of Cohort | Ages in 2016 |
|---|---|---|---|
| **Generation Z** | 2001 to present | n/a | 15 and younger |
| **Millennials (Generation Y)** | 1983 to 2000 | 18 | 16 to 33 |
| **Gen X (Generation X)** | 1965 to 1982 | 18 | 34 to 51 |
| **Baby Boomers** | 1946 to 1964 | 19 | 52 to 70 |
| **Depression and War Babies** | 1930 to 1945 | 16 | 71 to 86 |
| **Silent Generation** | Before 1929 | n/a | 87 and older |

The purpose of this study is to understand the preferences of the Millennial and Baby Boomer generations in accessing USFWS units. In particular, USFWS wants to learn whether each of these generational cohorts is interested in accessing USFWS units via active transportation systems.

Researchers from the Western Transportation Institute at Montana State University conducted the study, which consisted of a literature review and an online survey of residents in California, Colorado and Texas. Chapter 2 presents key points found within the literature review, Chapter 3 describes the methodology for the survey, Chapter 4 identifies significant survey findings, and Chapter 5 describes overall conclusions and future work. Given the large amount of data collected through the surveys, the research team developed numerous figures and tables to synthesize and analyze the findings. For reference, these figures and tables are available in Appendix C.

# 2. LITERATURE REVIEW SUMMARY

In June of 2016, the literature review for the project, entitled, *Millennial and Baby Boomer Mobility Preferences to Access National Wildlife Refuges in the West,* was completed (7). This section presents a summary of important points that tie into the discussion in the subsequent section, *Significant Survey Findings*. The reader is encouraged to access the aforementioned document for a more thorough discussion.

## 2.1. Overall Transportation Preferences

This section presents findings pertaining to Millennial transportation preferences followed by the findings for Baby Boomers and a summary of the key information.

### 2.1.1. Millennials

A recently completed study on Millennials, entitled the *Mobility Mindset of Millennials in Small Urban and Rural Areas* (6), concluded that while Millennials may make use of forms of active transportation, they are more likely to choose the most convenient, cost effective mode for the trip purpose. Therefore, rather than enthusiastic users of active transportation, Millennials instead choose the most cost-effective, convenient mode for the trip purpose. However, as was also noted in a subsequent article associated with the study in *WIRED*, in large part, this is reflective of the constraints of the existing transportation infrastructure system (8). For example, while there may be interest in younger generations in bicycling, there still remain limited bicycle facilities. The transportation networks in America, while progressing towards a more multi-modal system, are still largely car-centric. Yet, advances in technology, including applications that identify rideshare options and that allow riders to seamlessly identify a trip route across multiple active transportation providers (i.e. *Transit & Trails* (9)), can make active modes of transportation more approachable, even if the infrastructure is not seamless. Another significant finding of this research is that Millennials do not seem to be as educated, particularly those residing in rural areas. This likely correlates with their desire for cost-effective transportation modes, as lower levels of education are often correlated with lower annual incomes.

There is limited research available on Millennial preferences when it comes to travel for recreation. Suggestions thus far indicate that they prefer physically engaging and authentic experiences (10). Several sources have suggested that the ability to be connected via WIFI is also very important to the Millennial traveler [ (11), (12)]. Millennials also significantly value websites, which were found to be an important source of information for trip planning (7). Millennials are believed to hold less interest in interpretation and history-related travel experiences [ (10), (12)]. Finally, Millennials reported a preference of traveling with their friends [ (11), (13)].

There is also limited information regarding Millennial travel preferences where they live. However, one study found that Millennials prefer walkable, bikeable communities (14). In fact, more so than most Americans, Millennials reported an interest in living in a place where a car is not needed very often (14).

The Nature Conservancy conducted a study in 2011 that included only Millennial survey respondents. It found that only two in five survey respondents engaged in one of the following activities, which may be thought of as activities found on federal lands, on a weekly basis: 1) going hiking outside, 2) going fishing or hunting, 3) visiting a local park, creek or beach in a city or town,

4) visiting a national or state park outside a city, and 5) visiting a natural area outdoors (13). It should be noted that at the time of the survey, the respondents were Millennial minors (between the ages of 13 and 18). The reader should understand the opinions reported by minors may evolve as they enter adulthood. One of the top three reasons identified for why survey respondents did not spend more time in nature was, "I don't have any transportation to get to a natural area" (13). Millennial survey respondents in this study also reported a correlation between having had a meaningful experience in nature with placing more value on protecting it. This result would seem to validate USFWS's concern with getting this generation to Refuges.

Several studies have documented more preference from Millennials as compared with older generations for the conservation of nature [ (13), (15)].

### 2.1.2. Baby Boomers

The State of the Rockies project reported that ninety percent of survey respondents who were seniors had reported visiting a public land (16). However, it is unclear whether or not this was within a specified period of time (i.e within the last year), or at some point in their life.

In 2014, the National Park Service (NPS) released its Intermountain Region Long Range Transportation Plan 2014-2013 (17). The second planning area, "Mobility, Access and Connectivity," had two sub-areas that directly relate to this study which are: 1) reducing reliance on personal vehicles and improving intermodal connections to and within the park, and 2) ensuring the system is available to a diverse set of visitors. Another future trend of interest identified in the plan is understanding the effect of "an aging population, international visitors, and new technologies." The plan also suggested that Baby Boomers prefer outdoor experiences with a certain level of comfort.

From the National Wildlife Refuge Visitor Surveys, the majority of Refuge visitors reported learning about Refuges from friends and family (2). Approximately half of the visitors were non-local (they live more than 50 miles from the Refuge) (2). Wildlife observation and bird watching were listed as the top activities during current and prior visits (within the last 12 months) (2). Survey respondents were slightly biased towards men (2). The average visitor age was 54 and 52 for men and women, respectively (2); these ages fall within the Baby Boomer generation. The median income of survey respondents ranged from $75,000 to $99,000 (2). More than half of the visitor respondents indicated that they would use 1) an offsite parking lot that provides access for walking/hiking onto the Refuge, 2) a boat that goes to different points on the Refuge waterways, and 3) a bus or tram that runs during a special event. Almost eighty percent of visitors indicated that they traveled within the Refuge by driving their private automobile. The majority of visitor respondents indicated that they would not 1) use a bus/tram that takes passengers to different points on the Refuges, or 2) use a bike share program on Refuges in the future.

A 2011 study indicated that twenty-one percent of Americans over 65 cannot drive (18); this number is likely to increase as the Baby Boomer population continues to age. For a group that historically is believed to be one of the largest proportion of visitors to USFWS units, this may increasingly limit their ability to engage with a Refuge if provisions that enable them to continue to visit without a private automobile are not provided.

Seniors (includes Baby Boomers and older generations) settling in the West have been documented as being three times more likely to settle in communities with a large proportion of protected public

lands (19). These retirees are reportedly looking for a "sense of adventure." This would suggest that seniors in the West may be more likely to engage with federal lands.

The National Alternative Transportation Evaluation (NATE) published in May of 2015 summarized the findings from Regional Alternative Transportation Evaluations (RATEs) (20). The study suggests that USFWS "may want to target access options to Millennials and seniors." It also suggested that seniors, particularly those with declining mobility, are the "primary user group for existing transit-based interpretive tours."

### 2.1.3. Section Summary

This section identified that for Millennials, cost and the provided infrastructure are an important factor in mode choice. The ability to find transportation to access federal lands has been reported as a barrier to visiting federal lands. Millennials were suggested as having less interest in hiking, fishing, and biking, which they reportedly participated in infrequently if ever; however, this information was collected from Millennials that were minors. Millennials may also be less educated than what is purported in the media, which may impact their ability to travel to a federal land. Millennials are searching for physically engaging, authentic experiences. This is further supported by their reported interest in walkable, bikeable communities. However, this result somewhat contradicts other findings, where bicycling held less of an interest. Technology is an important way to engage and attract Millennials, as suggested by their interest in WIFI and websites. Millennials are less interested in historical experiences. They prefer to engage in activities with friends. Millennials are reportedly supportive of nature conservation.

For Baby Boomers, more than ninety percent of survey respondents in one study indicated having traveled to a public land, although there is little understanding of whether this was within the last year or their lifetime. Baby Boomers prefer to travel in comfort. There is a need to understand the effects of activity interests for this generation as it ages. Baby Boomers also reported learning about places from friends and family. Wildlife observation and bird watching were reported as the activities that visitors on Refuges most often engaged in, which was collected from survey respondents whose average age fell within the Baby Boomer generation; the majority of these survey respondents were also male. Other preferences identified from these studies were for offsite parking, opportunities to travel on a Refuge via boat, and access to buses and trams during special events. In contrast, there was not an interest in buses and trams to different points on a Refuge and for bike share options. The majority of Refuge visitors indicated that they traveled within the Refuge by their private automobile. However, studies suggested that there is a need to consider alternative offerings, as twenty-one percent of seniors over 65 reported themselves as carless, and there were findings that those with disabilities were frequent shuttle users.

## 2.2. Millennials and Baby Boomers in National Parks

A new source in a popular periodical discussed Millennials and Baby Boomers in National Parks after the Literature Review for this project was written. In October of 2016, National Geographic featured an article, *Unplugging the Selfie Generation*, written by a Baby Boomer with his Millennial son about needing to ensure that the Millennial generation is connected to National Parks (21). The Baby Boomer asserts that, "My generation loves the national parks to death." He feels in contrast that his son feels "a bit of meh" towards the National Parks. In fact, he quotes Johnathan Jarvis as saying, 'Young people…are more separated from the natural world than perhaps any generation before them.' He suggests that "who's going through the gates: people

like the silver-haired Jarvis..." The remainder of the article seems to represent more of the collaborative writing between the author and his son when they discuss a survey where seventy-one percent of Millennials indicated that they would be 'very uncomfortable' being unconnected for a week, whereas only thirty-three percent of Baby Boomers indicated as such. The article goes on to discuss that "most park visitors are older and white." The authors quoted findings from [former US Department of Interior Secretary] Sally Jewell that, "… for the young, in many cases it was about technology" as being a barrier for enjoying the outdoors. They identify efforts by the National Park Service to update the website, reach out via social media, and install temporary kiosks in cities like New York. The article also discussed the "Every Kid in a Park" initiative, with Jewell promising to have the program running for twelve years. They indicated that more than two million people downloaded a pass from this program. The article suggests that jingles in the 1950's like, 'See the U.S.A. in Your Chevrolet,' were developed to encourage National Park visitation. Jewell was quoted in the article as saying, 'We're not going to wire up the backcountry.' The National Geographic author quotes his son as indicating "Everyone I know likes to share…we are social travelers." They indicate that "The number of people who camp overnight in park backcountry is down significantly from 35 years ago – which the service attributes to millennials being less enamored of roughing it than earlier generations." An online article by the Center for Outdoor Ethics cites numbers that show that backcountry camping is down, although the findings do not tie this to a specific generation (22). The article concludes by suggesting that the "conservation constituency in a newer generation…will be needed to protect wild places through the next hundred years." The article also discusses the fear by today's parents of letting "their children wander a little bit on their own." One thing cited, that seems to be the father's viewpoint, was that his son did not travel to a park as a "solo destination," but rather as just one stop in a larger trip.

# 3. METHODOLOGY & DATA COLLECTION

The definition of a Millennial and the other generational cohorts varies, somewhat dependent upon the source. However, for the purposes of the study, Table 1 identified the name of the generational cohort, the birth years of that cohort, the span of that cohort, and the ages of the generational cohort in 2016.

As Baby Boomers retire, it has been suggested that a relatively large portion of this retired generational cohort is moving west. Therefore, there was an interest to focus on western states for this study. After investigating the level of representation of USFWS units in states west of the Mississippi River, three states were ultimately chosen: California, Colorado, and Texas.

There is substantial interest in the Millennial generation; however, until recently, relatively little factual information was known about this generation. A lot of previous information asserted by the media, often painting the Millennial generation in a poor light, was not based on rigorous research studies. Even still, some of these characterizations persist. However, the study at hand will provide results based on data collected via surveys of Millennials, Generation X, and Baby Boomer survey respondents.

The following sections provide the reader with more information regarding why the data collection was focused on the selected states, why only an online approach was utilized, why more urban as compared with non-urban survey respondents were queried, how the questions were developed, and an overview of survey respondent data collected for the research project.

## 3.1. Why California, Colorado, and Texas?

The aim of this study was to better understand the interests of different generations regarding access and use of USFWS Refuges. There are two trends that inspired this study: 1) a general perception that Millennials are changing their transportation preferences, and 2) a demographic shift in which large numbers of retiring Baby Boomers are moving west from the east coast (sometimes referred to as the “Silver Tsunami”). Therefore, it was of interest to focus on the access preferences of Millennials and Baby Boomers west of the Mississippi River. In addition, the researchers focused on states that had a larger number of Refuges present (Table 2), as there is an expectation that more of the general population will have knowledge of or experience visiting Refuges in these states. The Urban Wildlife Conservation Program also influenced candidate states, as there was an interest in including those states where Houston, Texas; Albuquerque, New Mexico; San Diego, California; San Francisco, California; Denver, Colorado; and Salt Lake City, Utah are located. Efforts were on-going in these states to better engage the urban population; the USFWS was interested in including populations within these states in the study. Therefore, California, Colorado, New Mexico, Texas and Utah were some of the states originally considered for data collection.

**Table 2: Number of USFWS Refuges by Candidate States**

| State | Number of USFWS Refuges |
|---|---|
| **California** | 38 |
| **Colorado** | 8 |
| **New Mexico** | 8 |
| **Texas** | 18 |
| **Utah** | 3 |

After reviewing the states that were originally identified and gaining an understanding of the potential sample that could be drawn from Survey Sampling, Incorporated (SSI) (the subcontractor through which the data was collected), the states of California, Colorado and Texas were selected by the researchers and USFWS oversight staff. Choosing states where there was a good representation of potential survey respondents ensured that, at the budget available for the project, there would be adequate data available to perform an analysis. The goal was to obtain 1,067 surveys from each group and each state, thereby resulting in a total sample of 3,201. As the subsequent section details, the researchers made every effort to collect beyond the number of desired surveys, thereby providing a rich sample on which to perform the analysis. The expectation is that the results will provide valuable information on which future work can build. The researchers would have found value in collecting a more rural sample, collecting using telephone in addition to online, and translating the survey into other languages, but this was outside the scope of the budget for the project. It should be noted that for future efforts, translating the survey into Spanish, and potentially other languages common in the focus states, may be of value and should be considered in the budget.

## 3.2. Why only online?

Due to the cost associated with surveys administered by telephone, the project team decided that surveys would be administered online only. Nevertheless, this should be taken into account when considering the data responses. While internet access has become more commonplace in 2016, there are still many individuals who may not have internet access at home and may not know of opportunities where they can access the internet (e.g. coffee shops, libraries).

## 3.3. Why primarily urban survey respondents?

Every effort was made to obtain data from individuals who were *not* part of a metropolitan statistical area (MSA), in addition to those who *were* part of an MSA. However, in part a reflection of where the majority of the population resides, and in part a reflection of the more limited nature of internet available in rural areas and the potential interest in participating in a survey, individuals from rural areas are less represented in the survey responses.

## 3.4. How were the questions developed?

The survey instrument utilized for this study was developed by drawing questions from the Cooperative Visitor Transportation Survey (CVTS) effort. Therefore, some of the questions

elicited answers that were not as directly tied to the research questions. However, using the CVTS allowed for a more rapid collection of data, which future research can draw upon.

The research team reviewed all questions presented in the CVTS programmatic clearance to consider how they could help to answer the question at hand. The researchers presented an initial cut to USFWS on which questions should be retained. After discussions with USFWS, the number of questions was reduced and some additional modifications were made based on feedback. Once the researchers and USFWS identified a "draft final" of questions, the survey instrument was shared with reviewers outside of the project team, including individuals from Eastern Federal Lands, Central Federal Lands, and Western Federal Lands. The researchers then updated and modified questions, as allowed within the compliance requirements of the CVTS programmatic clearance process. Subsequently the researchers obtained approval to distribute the survey to the general population of California, Colorado and Texas.

## 3.5. Overview of Survey Respondents

SSI provided the survey respondents for the study. A discussion of how this firm obtains survey respondents can be found in Appendix A. A total of 4,319 surveys were collected from individuals who identified themselves as living in the states of 1) California, 2) Colorado, and 3) Texas. The surveys were collected from September 13, 2016 through September 23, 2016. Surveys were collected from Millennials, Generation X, and Baby Boomer survey respondents who were 18-33, 34-51 and 52-70 (respectively) in 2016. A copy of all of the survey questions can be found in Appendix B. Figure 1 through Figure 3 show graphically where the survey respondents resided, based on their reported zip code, in each state.

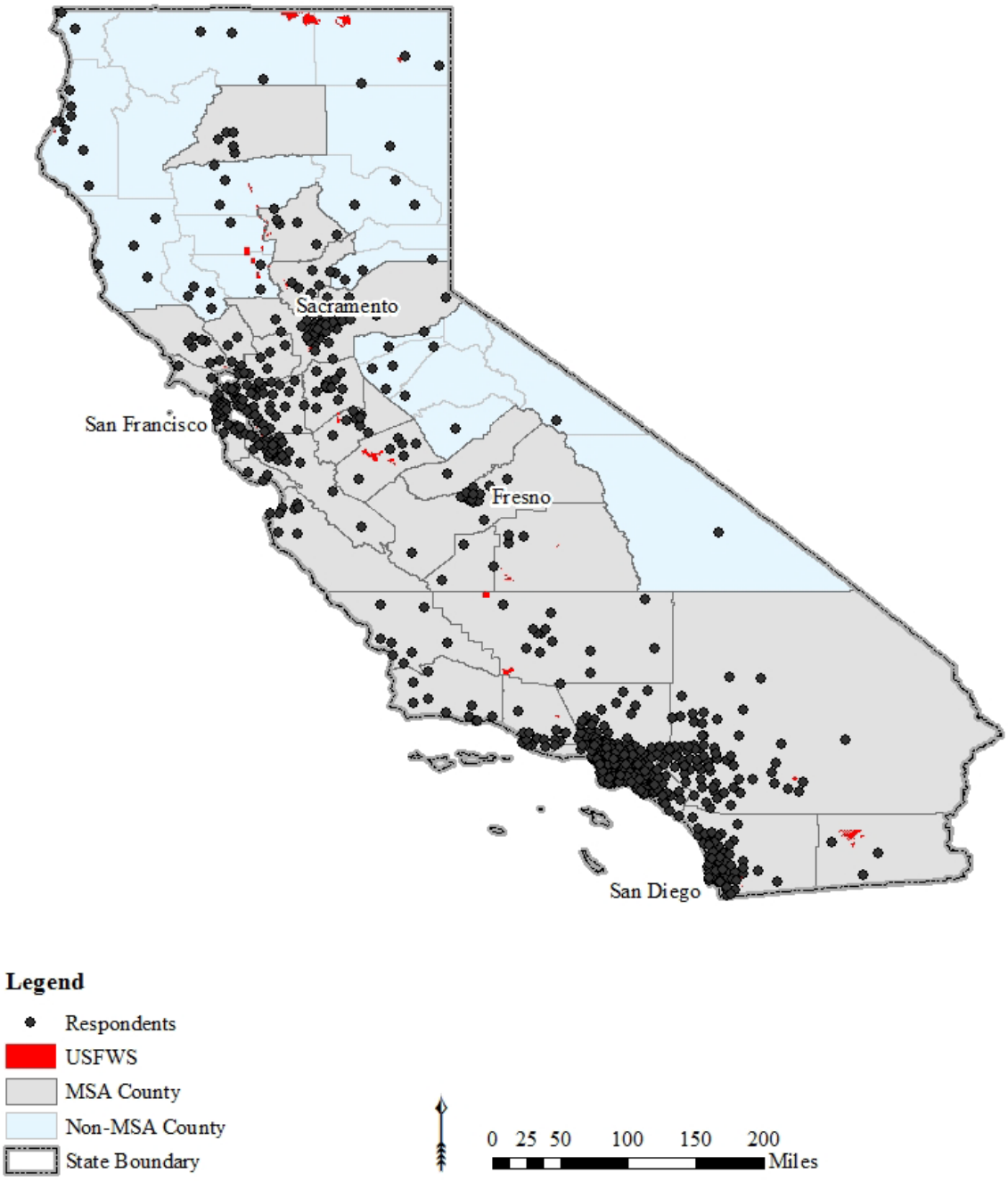



**Figure 1: California, All Survey Respondents**

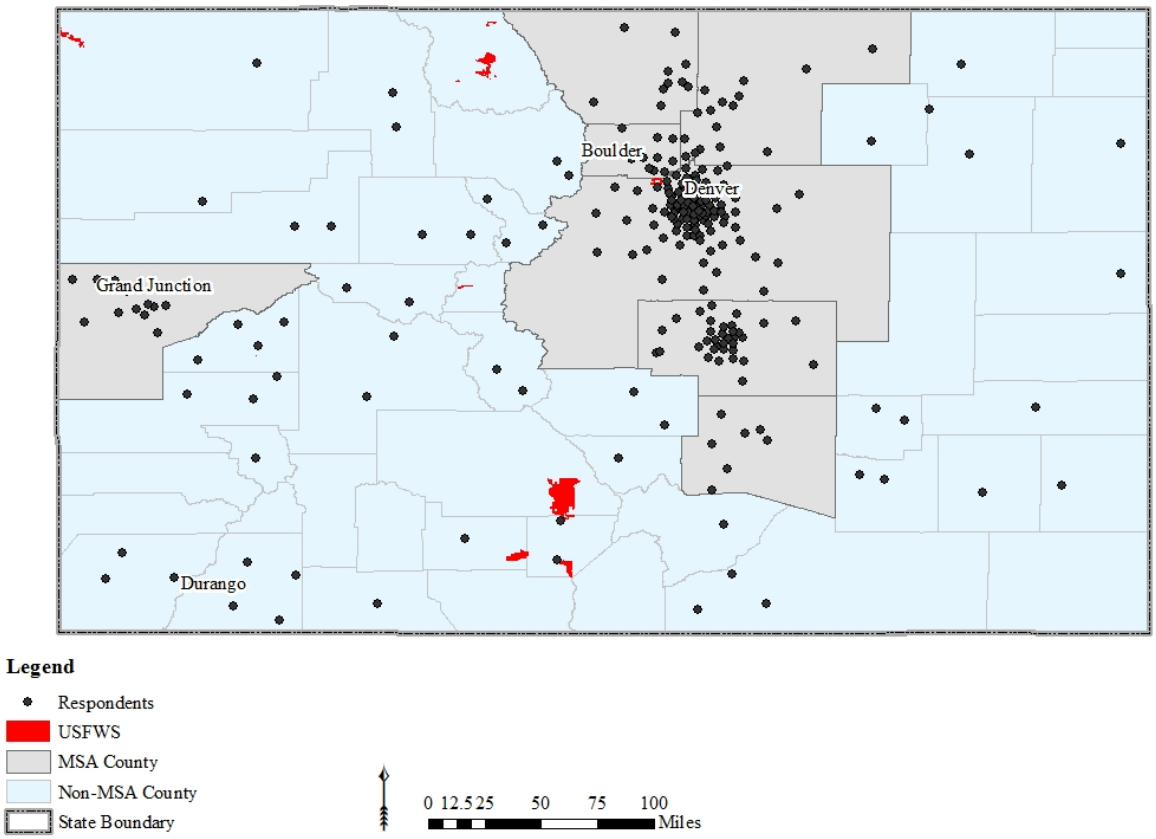



**Figure 2: Colorado, All Survey Respondents**

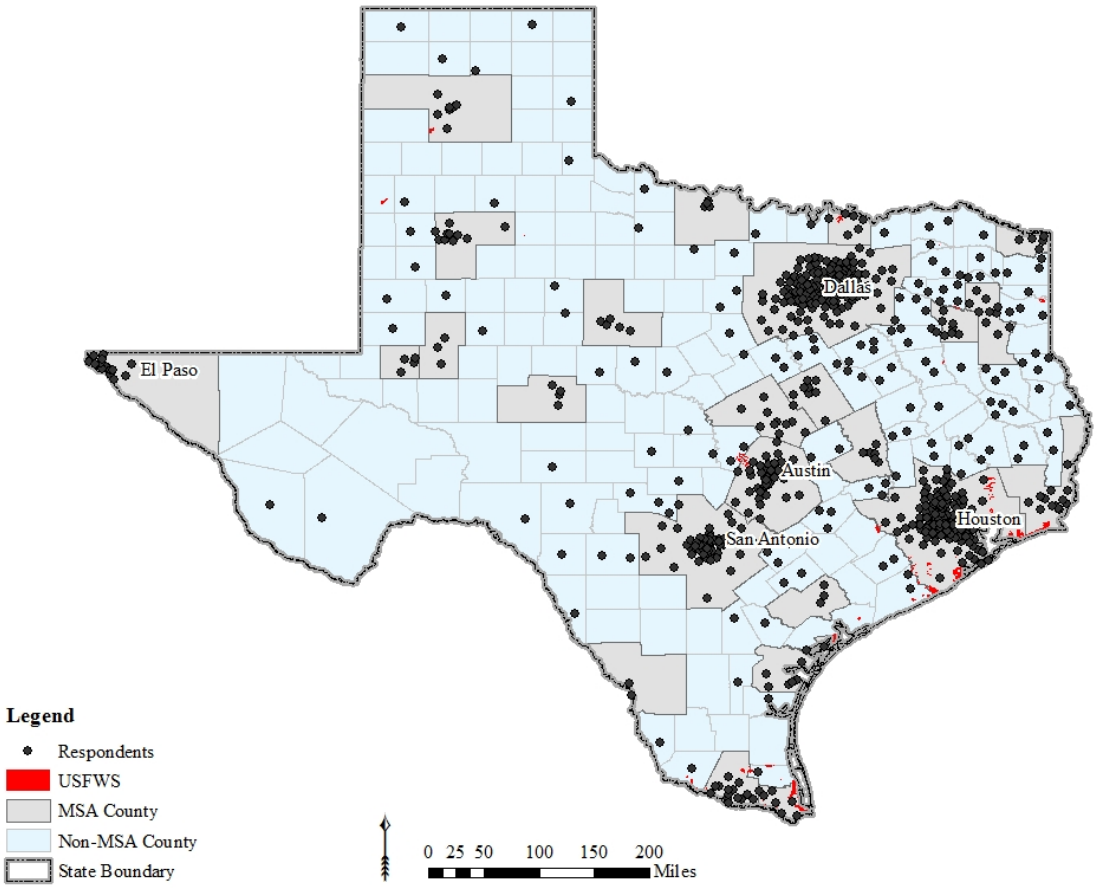



**Figure 3: Texas, All Survey Respondents**

The survey data is representative of the entire age range under consideration, with at least forty-two surveys collected from each age from 18 through 70 (Figure 4).

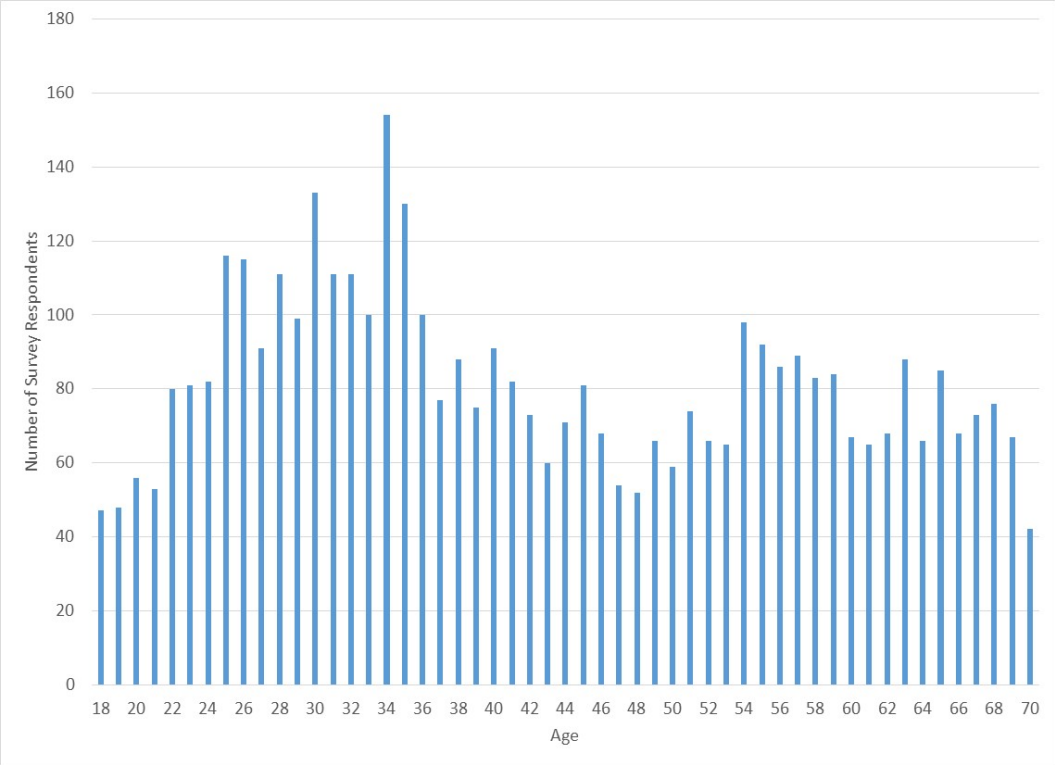



**Figure 4: Number of Survey Respondents by Age**

The exact count by age can be found in Appendix C, under Question 1. Furthermore, while there is slightly more data from Texas than from Colorado, with California falling in between, within each state the representation by each generation in the data is consistent. While overall the survey respondents are primarily drawn from metropolitan statistical areas (MSA) in every state, the data set still has some survey respondents that live in a non-MSA. This was re-affirmed by the results to questions asking survey respondents to categorize their community type: approximately sixty-nine percent of the survey respondents indicated they lived in a community of 25,000 people or more. Millennials, however, most frequently reported living in a small city or city (Figure 5).

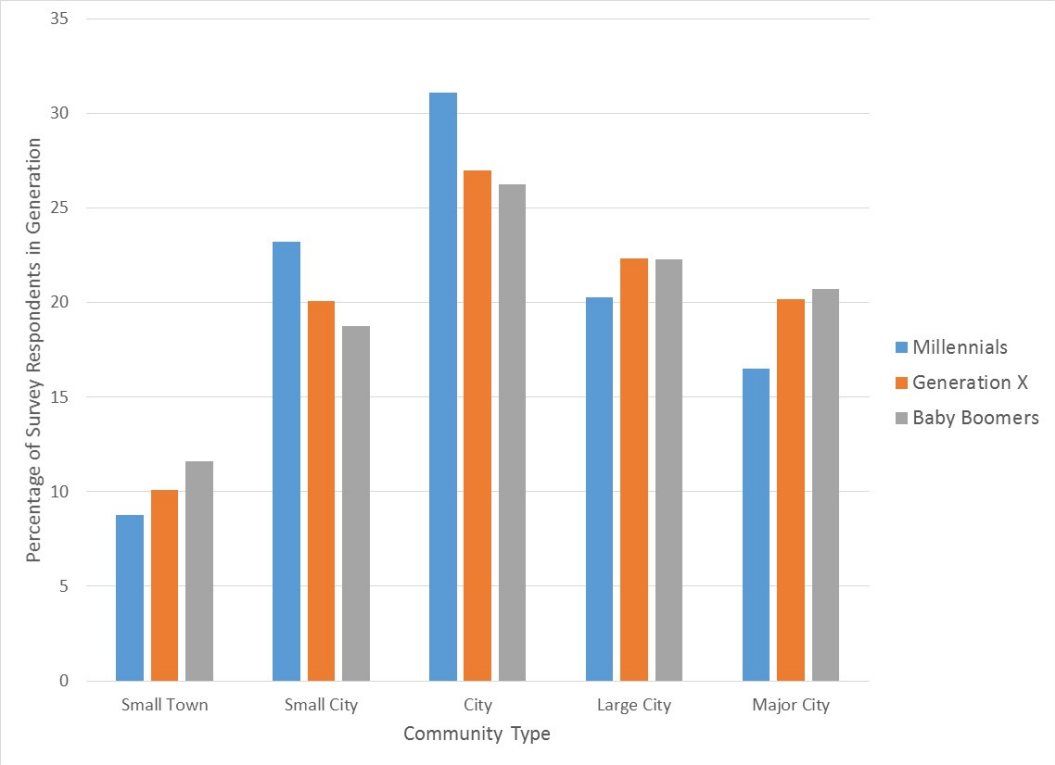



**Figure 5: Community Type Representation by Generation**

Approximately sixty-nine percent of the sample identified as female, thereby indicating a bias in the raw data (see Question 15, Table 59, in Appendix C).

### 3.5.1. Age & Education

As mentioned above, survey respondents range in age from 18 to 70. However, while the overall number of survey respondents by generation was approximately equal, within each generational cohort, there were not necessarily the same number of survey respondents at each age level (Figure 4). Therefore, when considering education levels, it is useful to look at the highest level of education identified by the survey respondent by age. It would be expected that the Baby Boomer generation has a relatively stable education level. While some Baby Boomers may pursue additional education as they age, it is unlikely that the numbers will change substantially. Figure 6 shows the reported education levels as a percentage of Baby Boomer survey respondents by age.

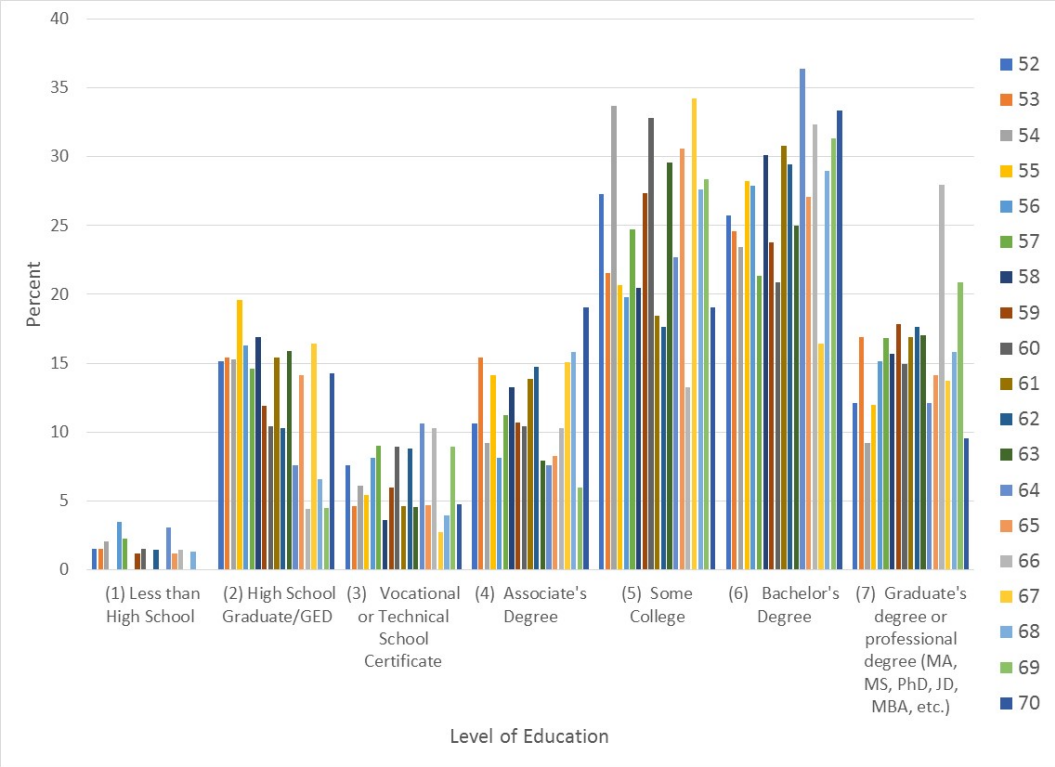



**Figure 6: Level of Education by Age, Baby Boomers**

Figure 6 shows that as expected, while there is some representation, a small percentage of Baby Boomer survey respondents reported earning less than a high school education. Overall, one can see that a large number of Baby Boomers have either some college or a Bachelor's degree. A similar percentage of Baby Boomers have a high school degree or graduate's degree. A smaller average percentage of Baby Boomers have a vocational or associate's degree.

Now consider Generation X (Figure 7).

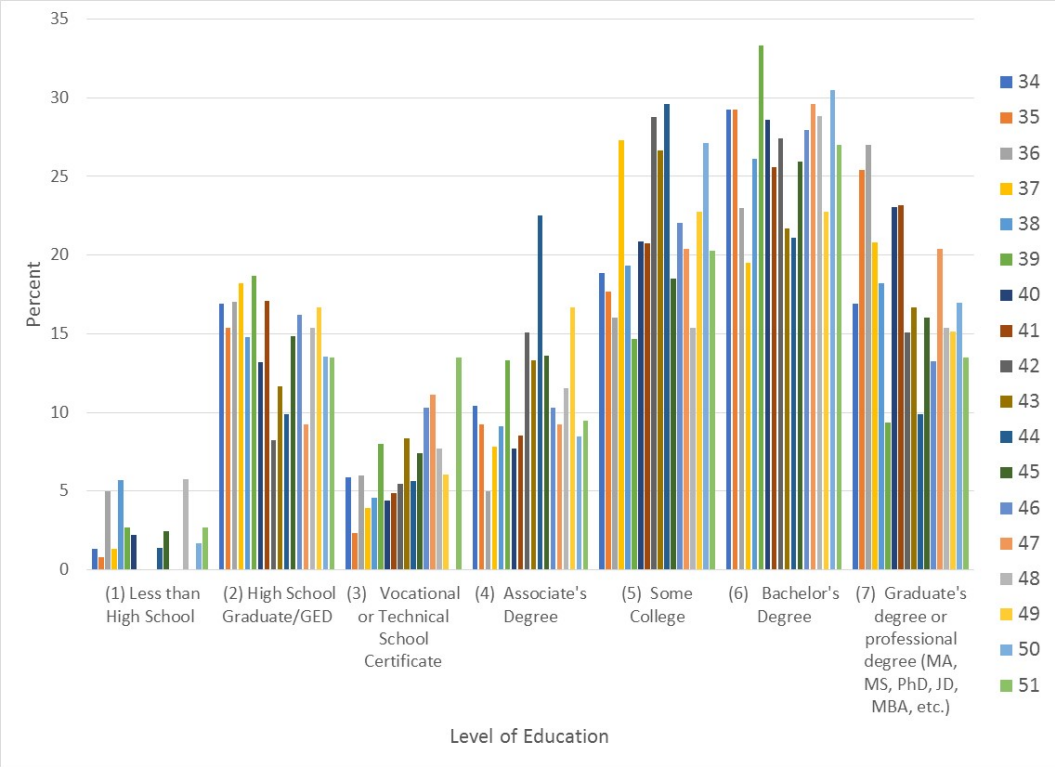



**Figure 7: Level of Education by Age, Generation X**

Similar to the Baby Boomers, there is still a small percentage of Generation X survey respondents reporting less than a high school education. While it is still possible that some of these survey respondents could pursue higher levels of education, it is unlikely that a large percentage of this generation will do so. While generally similar, there does appear to be a slightly greater percentage of Generation X survey respondents reporting some college and a Bachelor's degree.

Figure 8 shows the distribution related to Millennials.

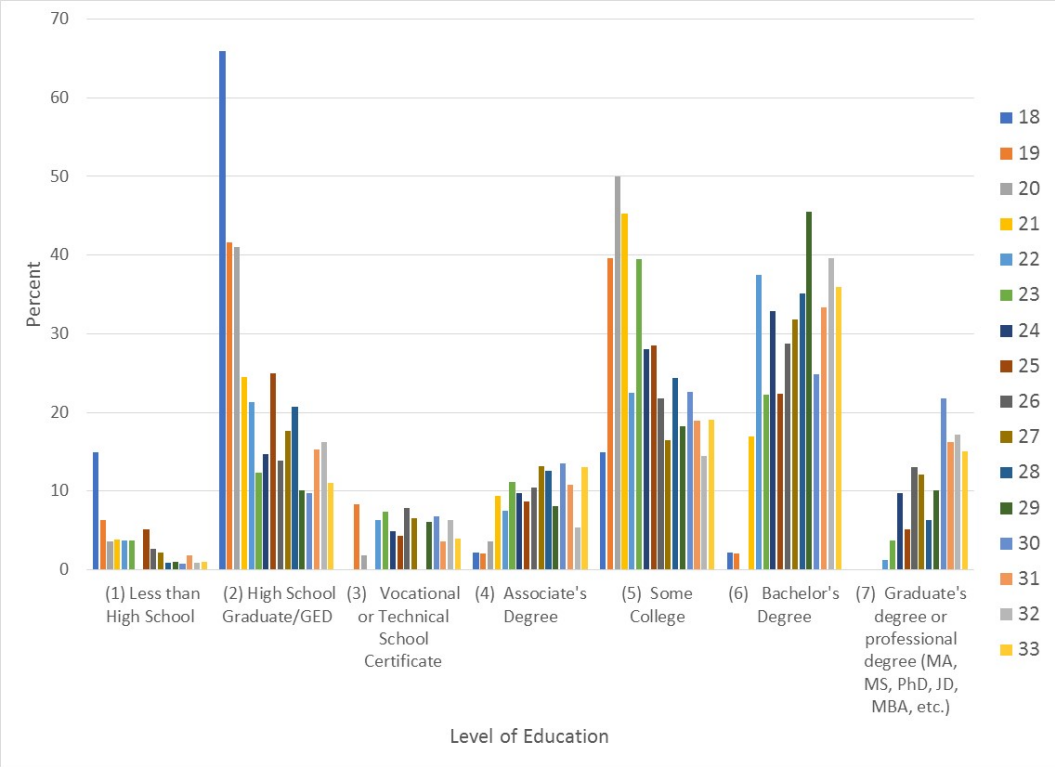



**Figure 8: Level of Education by Age, Millennials**

It is clear that a large percentage of the survey respondents who are 18 are high school graduates or currently in high school, as can be seen by the spike for this age group in these categories. To adjust for this outlier, the graph was created without this age group (Figure 9).

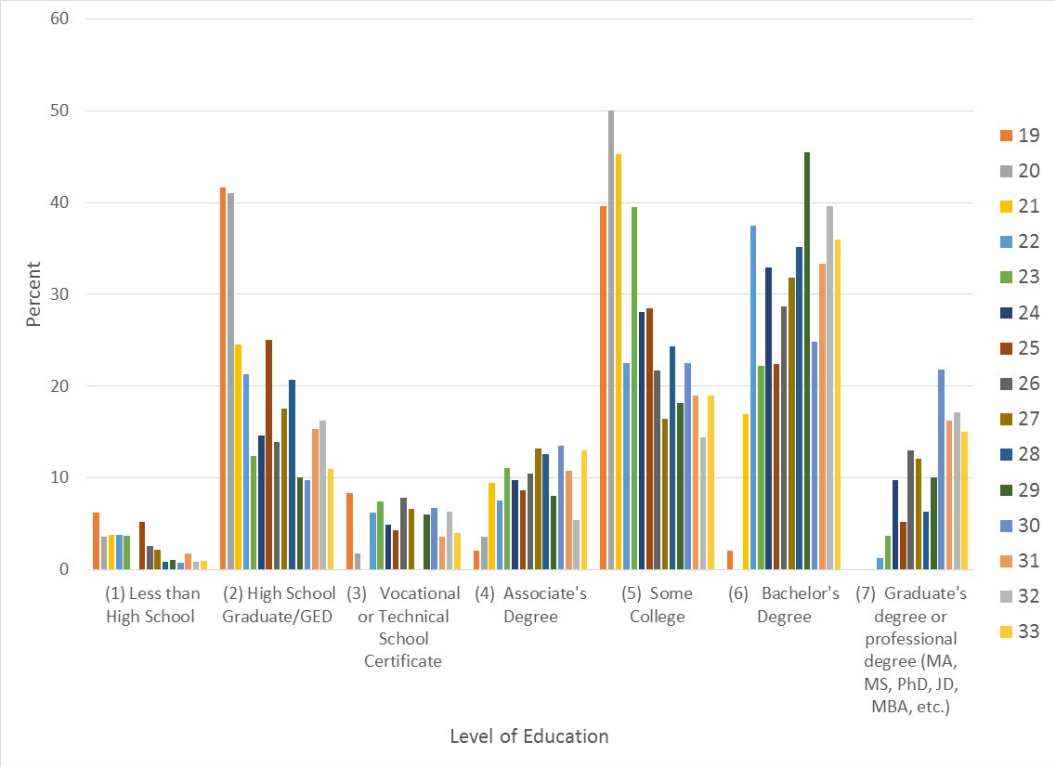



**Figure 9: Level of Education by Age, Millennials w/o 18 year olds**

There are definite spikes for some of the younger individuals within the Millennial generation in the categories of some college and high school. In order to gain a better picture regarding the potential for the Millennial generation to be as educated, or as suggested, more educated than other generations, the percentages of Millennials were compared with Generation X to observe the trends for those with lower levels of education. If there were evidence of further education as Millennials age, it could indicate that the Millennial generation will earn degrees for higher levels of education than previous generations. Table 3 shows the comparison of the data.

**Table 3: Percentage of Generation by Education Level, Millennials & Generation X**

| Generation | Less Than High School | High School Graduation/ GED | Vocational or Technical School Certificate | Associate's Degree | Some College | Bachelor's Degree | Graduate's Degree or Professional Degree |
|---|---|---|---|---|---|---|---|
| Millennials | 2.6 | 19.5 | 4.9 | 9.6 | 24.8 | 28.5 | 9.9 |
| Generation X | 1.9 | 14.8 | 6.1 | 10.9 | 21.0 | 26.7 | 18.1 |

For Millennials and Generation X, the difference between generations for each level of education is 0.7%, 4.7%, -1.2%, -1.3%, 3.8%, 1.8%, and -8.2%. As expected, a graduate level degree shows the greatest difference. Let's assume that the two lowest levels of education, some high school and high school can account for all of the difference between Generation X and the Millennials when it comes to a technical certificate or associate's degree. 4.7%+0.7%=5.45%. -1.2%+-1.3%=-2.5%. 5.45%-2.5%=2.9%. So, 2.9% of high school graduates have the possibility of achieving some college or bachelor's degrees. The overrepresentation of Millennials in some college and Bachelor's degrees is 3.8%+1.8%=5.6%. Let us assume that all of these Millennials along with the "left-over" Millennials who will go from their high school education all the way to a graduate degree is 5.6%+2.9%=8.5%. Compared to the difference with Generation X, this means that 0.3% of Millennials will have more graduate degrees than Generation X. 0.3% is a very small percentage. Therefore, we are making some significant assumptions about the economy being stable enough for Millennials to continue their education, and for Millennials to still have access to student loans that they use to complete their higher degrees. As such, it does not appear that Millennials will be more educated than previous generations. This has implications for the potential visitation of Millennials to Refuges, as on-Refuge surveys have indicated that those with higher levels of education tend to represent a larger portion of visitation. Therefore, since Millennials are expected to, at best, have consistent levels of education as previous generations, they can be expected to represent a similar portion of visitation if this is the only factor considered.

These results can be seen graphically in Figure 10, which shows the highest level of educational attainment by generation as reported by respondents.

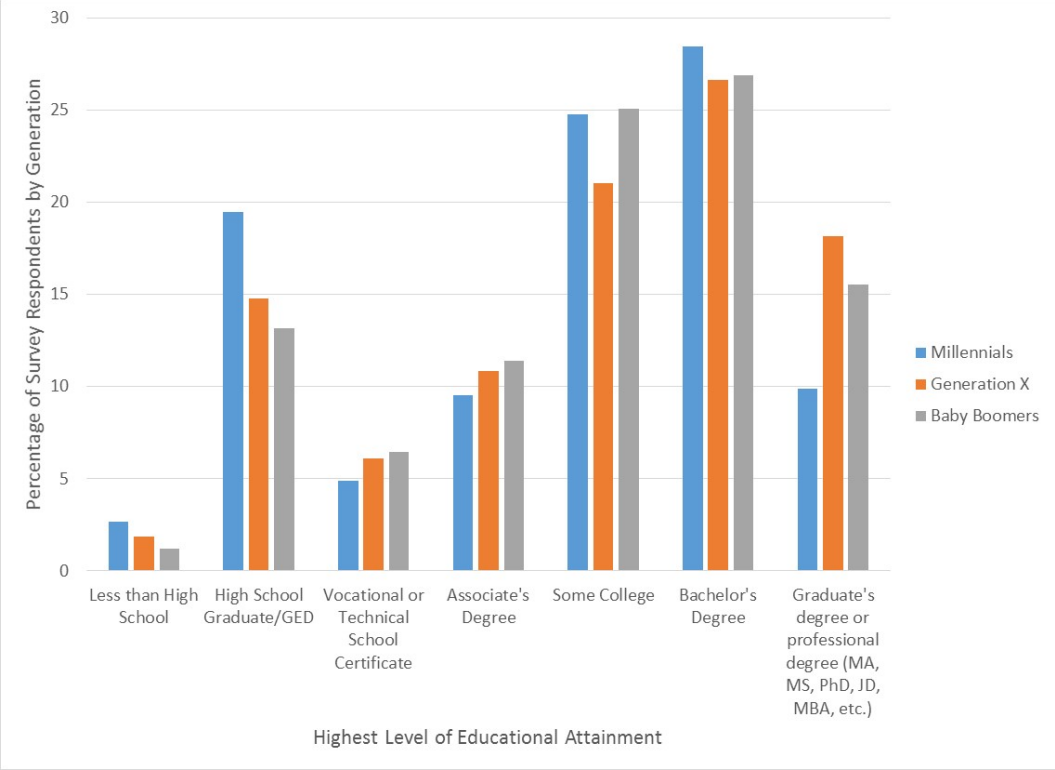



**Figure 10: Highest Educational Attainment, By Generation**

At first glance, the results appear to show that Millennials are more educated, because they report a greater percentage of Bachelor's degrees within their generational cohort. However, as discussed above, few are represented within the Graduate's degree or professional degree, and there is a greater percentage of representation in both "Less than High School" and "High School Graduate." These results, similar to another recently completed study, would suggest that the Millennial generation is not "the most educated" generation. Instead, they may have equivalent levels of education to Generation X if we can assume that they will continue to pursue higher levels of education.

# 4. SIGNIFICANT SURVEY FINDINGS

The following sections present some of the most significant survey findings that relate to the objective at hand: how are Millennials and Baby Boomers interested in accessing USFWS units? And more specifically, would they be willing to make use of a bus, bicycle or walking to travel to or within a Refuge? Additional figures and tables that show the results of each question can be found in Appendix C.

First, the results pertaining to *Public Transportation Use at Home* are presented. Then after, answers related to questions that pertain to a survey respondent's *Interest in Traveling to a Federal Land* are presented. Next, results to questions related to *Distance and Options to Travel to Federal Lands* are synthesized. Finally, survey responses related to preferences for *Transportation within a Refuge* are discussed.

## 4.1. Public Transportation Use at Home

Experience-use-history implies that a person who has engaged in an activity will have different perceptions than a person who has not (23). Therefore, when considering whether or not someone will access a USFWS unit using a bus, it is of value to understand more about survey respondents who use public transportation on a daily or more frequent basis. From a public transportation perspective, this means that those who have not used public transportation will be less likely to try it when they encounter it elsewhere unless there is a significant factor that may motivate them to do so. This is particularly relevant in the U.S., where many Americans have a negative connotation associated with riding a bus.

A survey question was included that asked respondents about their use of public transportation at home. For the three most frequent uses of public transportation categories (at least once a month, at least once a week, almost every day), Millennials *always* had the greatest percentage of survey respondents using public transportation with each successive generation reporting a smaller percentage (Figure 11). Furthermore, Figure 11 also shows that Baby Boomer survey respondents had the largest percentage that reported "Never" using public transportation at home (almost 60%); Millennials had the fewest (about 40%). This result is as expected and supports the popular perception that Millennials more frequently use public transportation and that a larger portion of this generational cohort makes use of public transportation.

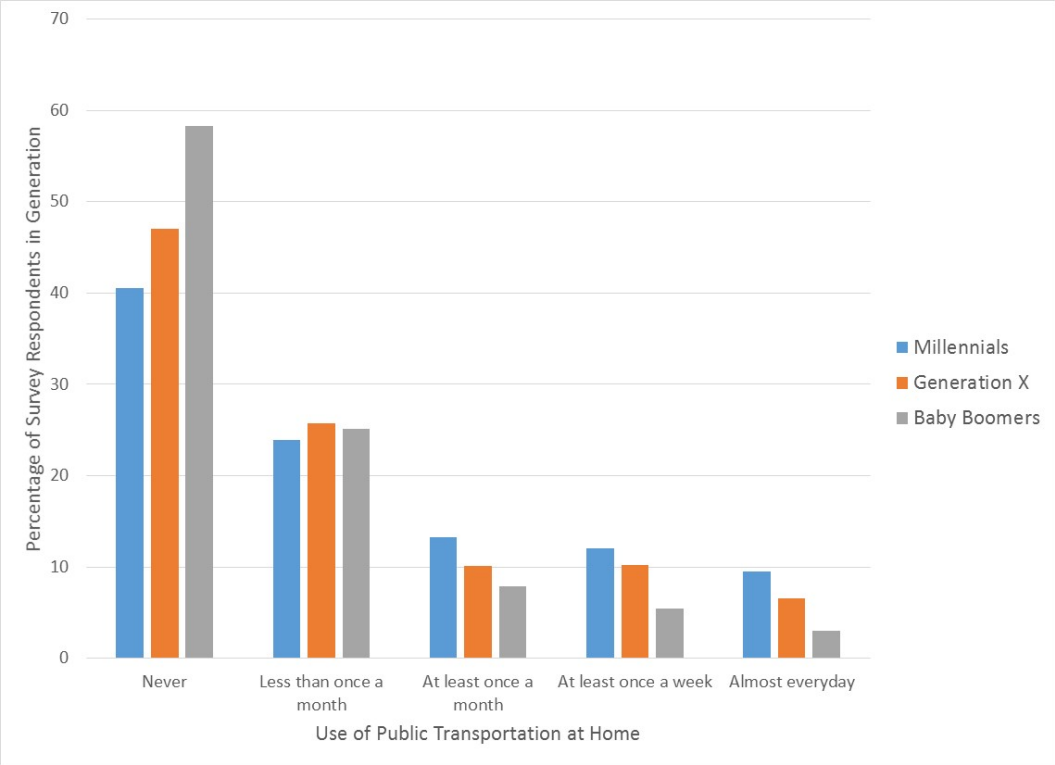



**Figure 11: Public Transportation Use at Home, By Generation**

Considering the experience-use-history theory, which is the main impetus for asking this question, one can conclude that there is a clear opportunity to draw approximately sixty percent of Millennials within California, Colorado and Texas to federal lands via public transportation. (Note: In order to be successful in having these Millennials use a public transportation option, they need to be made aware of it and have a reason to visit the federal land.)

When considering the survey respondents' reported use of public transportation at home by state, Texas has the largest percentage of survey respondents indicating that they "Never" use public transportation at home (about 65%) (Figure 12). In fact, the percentage of Texas survey respondents who never use public transportation at home is more than 20 percent larger than California and Colorado survey respondents in the same category. California and Colorado have similar percentages across the two less frequent categories of public transportation use, with more variation occurring in the more frequent public transportation use categories. California survey respondents report greater percentages of using public transportation on a more frequent basis.

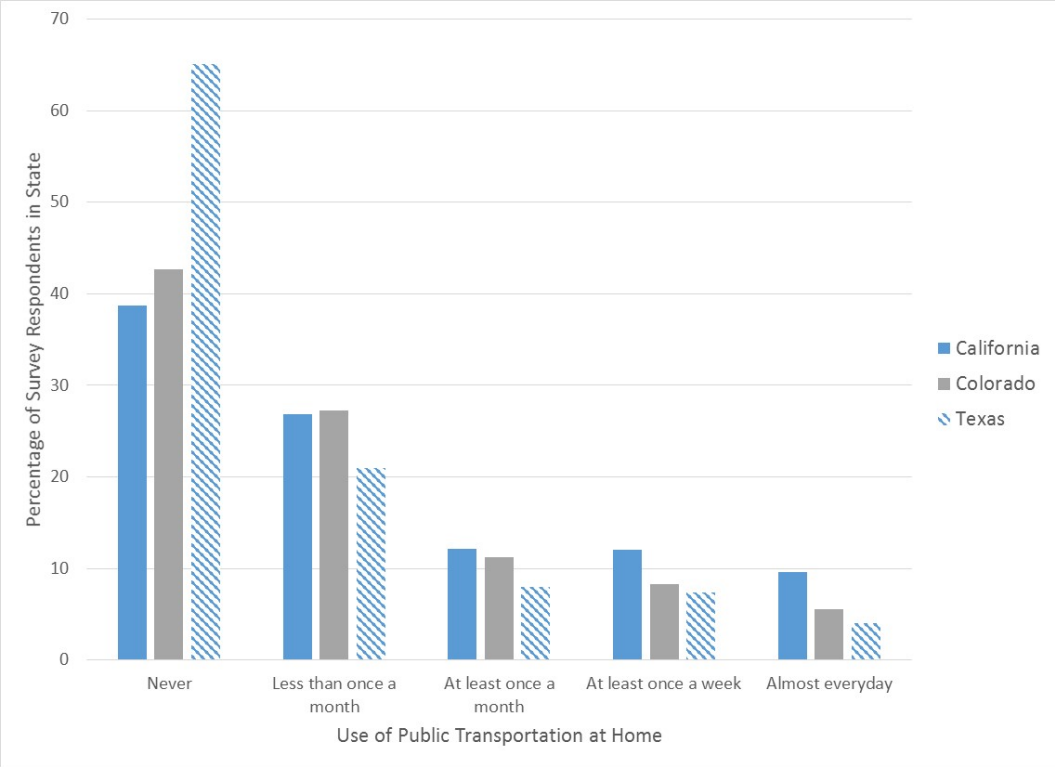



**Figure 12: Public Transportation Use at Home, By State**

This suggests that if limited resources were available for investment in public transportation on federal lands, California would likely be the best location among the three states to invest in public transportation access to and within federal lands located in that state, based on the theory of experience-use-history. However, historically, Texas has fewer public transportation opportunities than California. Therefore, the results may reflect the available infrastructure rather than interest in using public transportation.

The researchers then investigated whether there was a relationship between the reported community type (Question 4) and the use of public transportation at home (Question 5) (Figure 13).

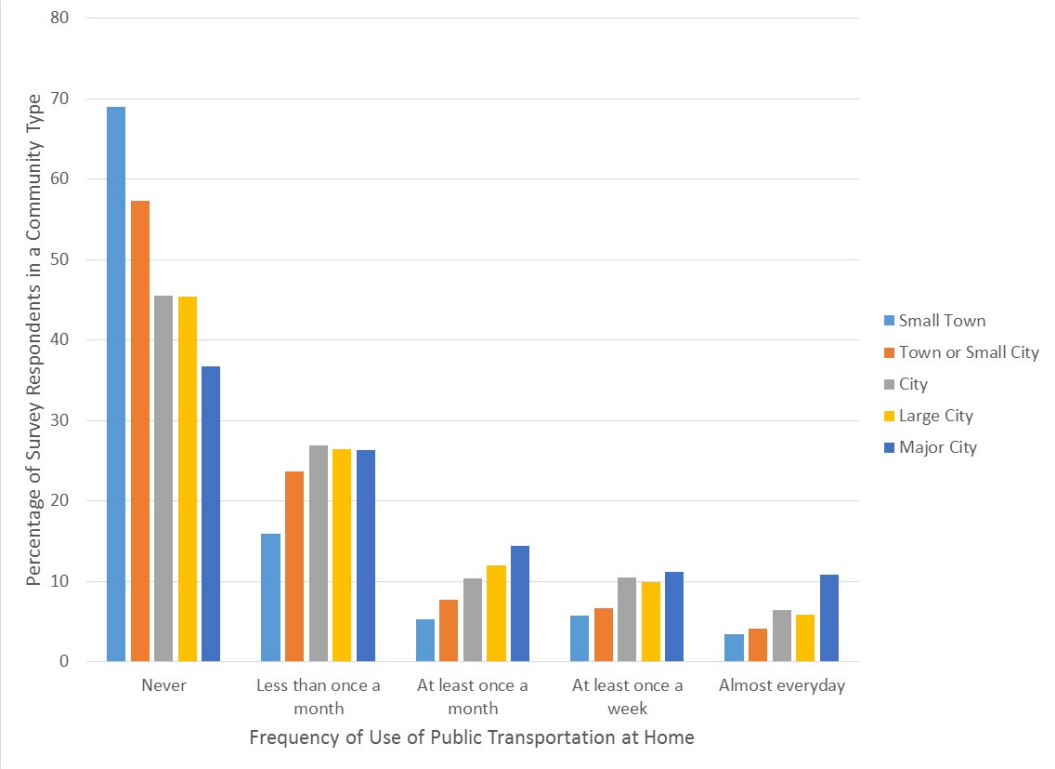



**Figure 13: Public Transportation Use at Home as Compared with Reported Community Type**

The results showed that as expected, survey respondents who indicated they are from a small town are most likely to report that they never use public transportation at home. Again, it is unclear if this is only because of a lack of interest (as is commonly thought) or if it is also a reflection of the limited amount of public transportation typically provided in rural areas.

Therefore, the two main conclusions related to public transportation use is that at home, *Millennials*, of all three generations considered, reported the most frequent use of public transportation. Furthermore, individuals living in *small towns* are the least likely to use public transportation at home.

## 4.2. Interest in Traveling to a Federal Land

Several questions were asked to better understand the level of interest by survey respondents in activities or purposes that would attract them to a Refuge.

### 4.2.1. Activity Interests

Survey respondents were asked whether they engaged in activity types that may be found in USFWS units: hunting, boating, fishing, photography, walking, bicycling, driving to sightsee, and viewing wildlife. According to the USFWS RAPP, "hunting, fishing, wildlife photography, wildlife observation, environmental education and interpretation" (24) are priority public uses.

Overall, walking was reported as the most popular activity across generations, as shown by the limited number of survey respondents that reported "Did Not Participate" regardless of whether they did so alone or with family and friends (Table 4).

**Table 4: Number of Survey Respondents, By Activity; Alone, With Family & Friends, Did Not Participate**

| Activity | Alone | With Family or Friends | Did Not Participate |
|---|---|---|---|
| Hunting | 236 | 525 | 3,540 |
| Boating | 137 | 1,358 | 2,790 |
| Fishing | 331 | 1,566 | 2,498 |
| Photography | 1,343 | 1,845 | 1,603 |
| Walking | 2,402 | 2,919 | 389 |
| Bicycling | 918 | 1,180 | 2,482 |
| Driving to Sightsee | 867 | 2,788 | 1,213 |
| Wildlife Observation | 843 | 2,163 | 1,774 |

A survey respondent could choose both "Alone" and "With Family or Friends" or "Did Not Participate." Therefore, it is possible that a survey respondent only hunts alone or hunts both alone and with family and friends. The results show that the most popular activities are 1) walking, 2) driving to sightsee, and 3) wildlife observation. As indicated above, wildlife observation is a priority public use (24) and there is some interest by the general population in the three states. The three least popular activities, in order of least popular to more popular, are 1) hunting, 2) boating and 3) fishing. Hunting and fishing, while priority public uses for USFWS (24), do not seem to be activities of interest to Americans in California, Colorado and Texas.

The resurgence of an interest in walking was also suggested by a recent American Trails webinar which states, *"an increasing number of people are now choosing to walk…Walking is simple, but it can be profound"* (25). The preference by residents of a state for walking differs from that of on-site Refuge visitors, who reported that their primary activity interests are *photography* and *wildlife watching* (2). It could be that when this question was asked on the Refuge, visitors had changed their preferences to photography and wildlife watching; however, it could also suggest a bias in who the Refuges are attracting – those who are interested in these activities. Furthermore, more needs to be understood about how people define an interest in walking. It could be that they perceive it as simply walking from one's vehicle into the grocery store, or it could be that they are walking in their neighborhood after dinner at night. More research would have to be undertaken to determine if there is a difference; regardless the results show a great interest in walking as an activity across generations and across states.

Comments further supported survey respondent interest in walking as an activity:

*'I live across from Patricks Point State Park and my Wife and I walk the trails at le[a]st 3 times a week and really enjoy it. I think that if the Park service would offer a pass just for walk[ing] it*

*would provide revenue, right now people park all along Patricks point Dr. and walk in free, I would be willing to buy a walking only pass if it was offered."*

Generally, all generations show more interest in the activities when engaging in them with family/friends (the percentage of survey respondents indicating their interest in participating in the activity with family and friends was greater than that reported when alone). However, the younger generations (Millennials and Generation X) clearly showed more interest than the Baby Boomers (Figure 14 and Figure 15) in engaging in activities with family and friends than alone (for example, while the percentage of Millennials reporting an interest in bicycling increased by ten percent when with family and friends as compared with alone, it remained the same for Baby Boomers).

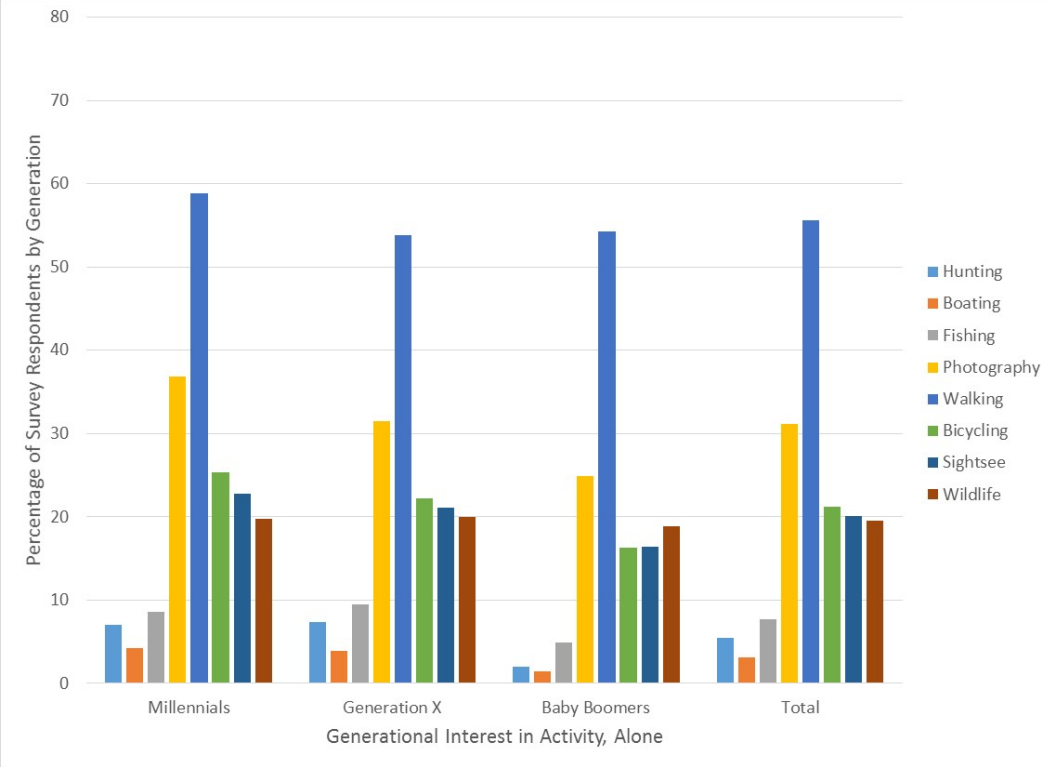



**Figure 14: Reported Interest in Activity Type, Alone, by Generation**

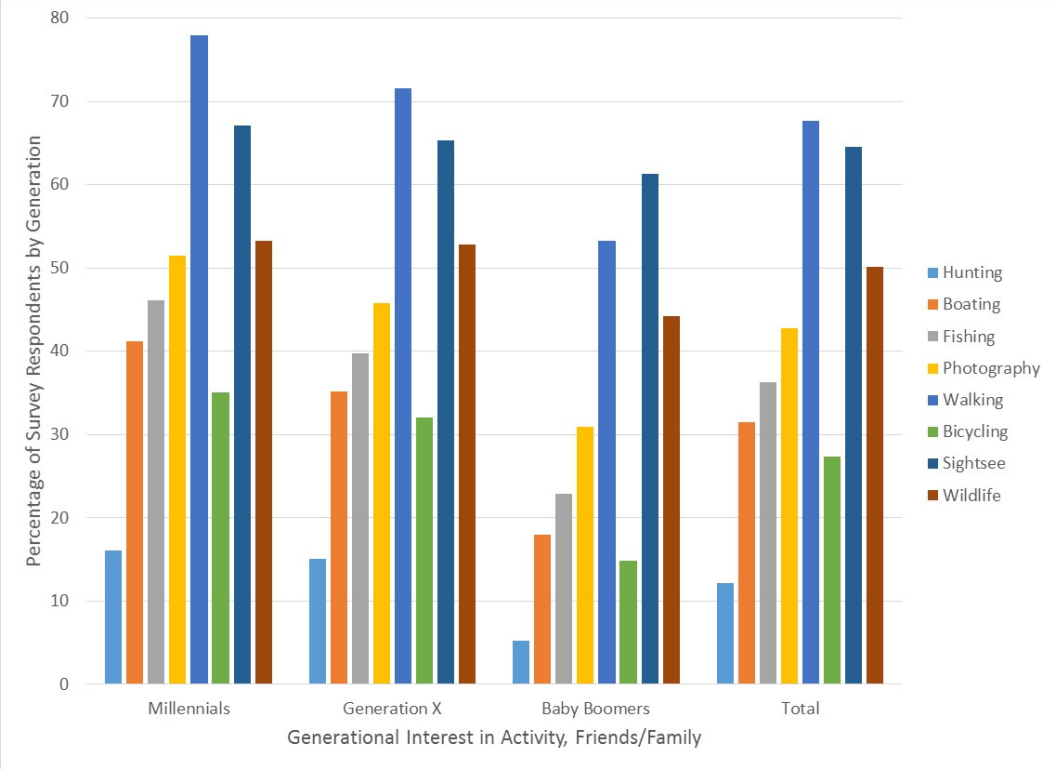



**Figure 15: Reported Interest in Activity Type, Family/Friends, by Generation**

While there is a slightly greater reported interest by Millennials than Generation X in all activity types that may be found on Refuges, overall the results are similar (for example, there is more interest by both generations in walking than sightseeing). Compare this with the Baby Boomer generations who expressed more interest in sightseeing than walking, hinting at a preference for a motorized touring experience.

### 4.2.2. Level of Agreement: Adventure, Solitude, Nature, Wilderness, Wildlife, & History

Survey respondents were asked to identify their level of agreement (1 = strongly disagree; 5 = strongly agree) with eight statements. The statements and the average for each statement follow:

1) I look for a sense of ***adventure***. – 3.94
2) I enjoy experiencing **solitude**. – 3.94
3) I enjoy the ***unpredictability*** of nature. – 3.90
4) I enjoy being ***in*** the ***wilderness***. – 3.85
5) I try to ***connect*** and ***immerse*** myself in nature. – 3.78
6) I look for experiences that allow me to be in the ***presence*** of ***wildlife***. – 3.71
7) I enjoy ***learning*** about nature. – 4.12
8) I look for information about **history**, a connection with the past. - 3.95

The results suggest that in general, survey respondents agree with all of the statements (averages are all close to 4). It is interesting, however, that while on average survey respondents enjoy learning about nature (4.12), one of the lowest averages was for immersing oneself in nature (3.78).

These results suggest that, for example, there may be value to providing information about the nature that the visitor is experiencing, perhaps by a Ranger or the like. This would support the fifth Strategic Goal identified in (RAPP), "Provide quality wildlife-dependent recreation and education opportunities" (24). There is clearly a need to better understand the disconnect between wanting to learn about nature and being immersed in it. Is there a misunderstanding regarding how the question is asked, with respect to what is meant by "immersing" oneself in nature? Is this interpreted as hiking on a trail, or maybe creating one's own path in the backcountry?

### 4.2.3. Safety Concerns on Federal Lands

Safety concerns may reduce a person's interest in visiting a federal land (i.e. a USFWS Refuge). The top four safety concerns were 1) lack of cell phone coverage, 2) vehicles parked along the side of the road, 3) bad weather, and 4) wildlife encounter. (Figure 16).

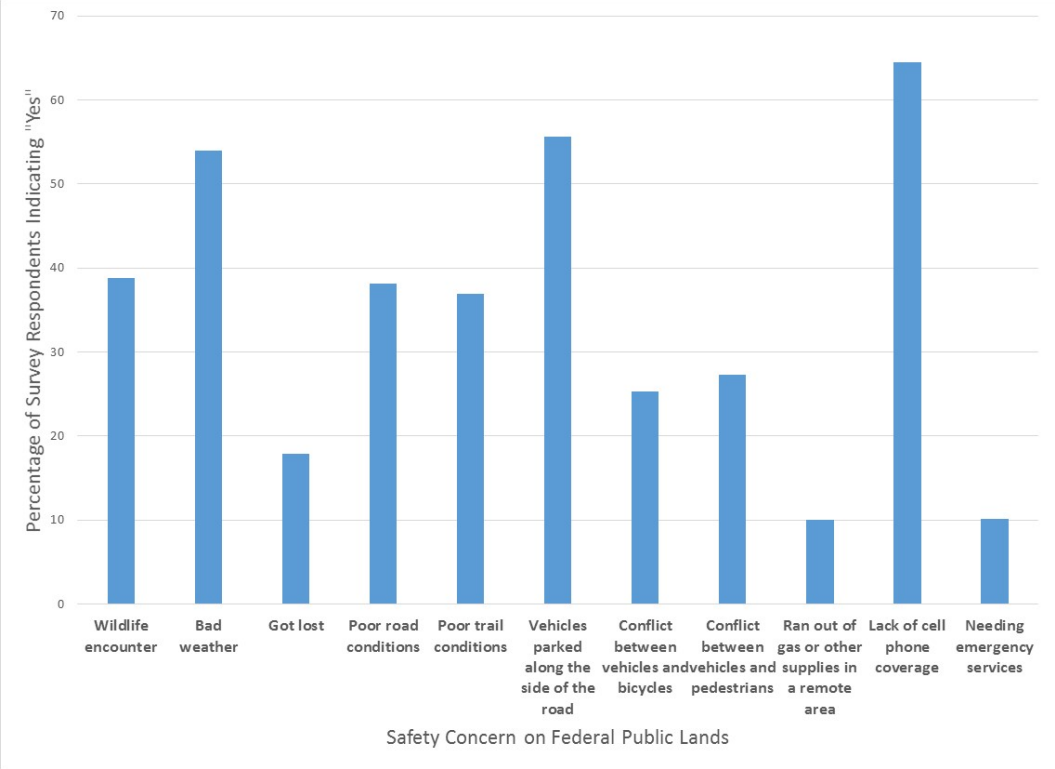



**Figure 16: Percentage of Survey Respondents Identifying Safety Concerns**

When looking at the differences by generations (Figure 17), in general, Millennials and Generation X report similar percentages, with Baby Boomers often reporting lower percentages for each concern. The reader can see the exact percentages in Table 40 in the Appendix. It is unclear if the consistency in results between Millennials and Generation X represents more confidence by the Baby Boomer generation in addressing safety concerns, or potentially a lack of applicability to them if they are not visiting federal lands. One interesting result is the consistency across generations for vehicles parked along the side of the road.

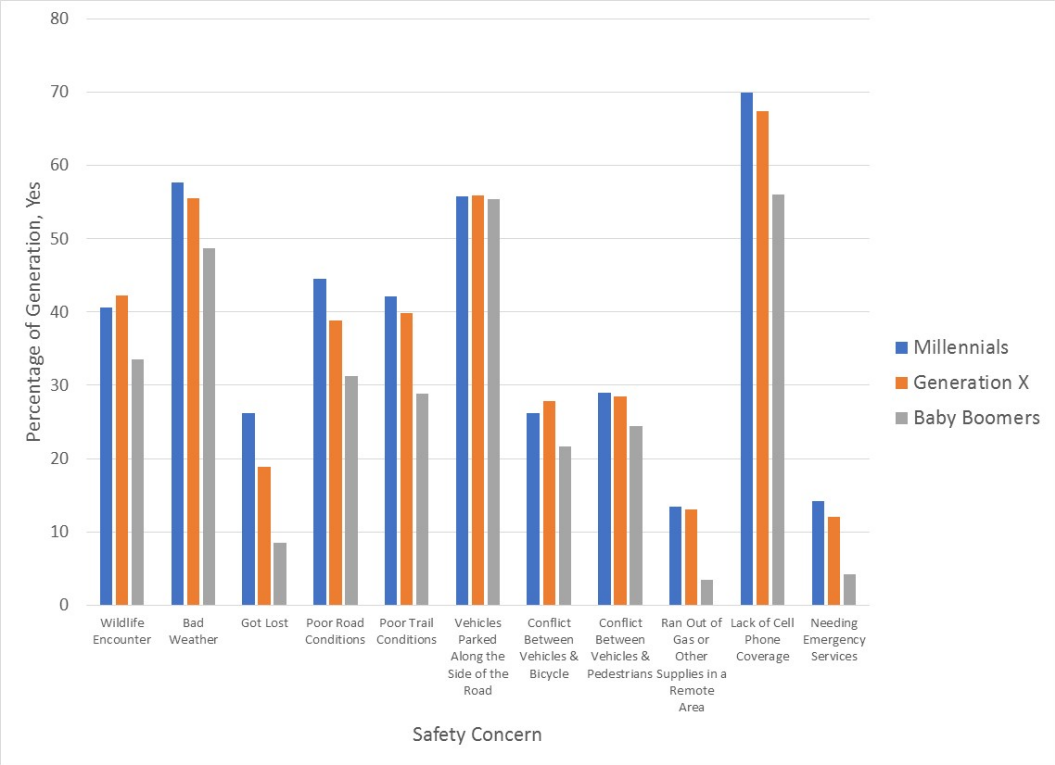



**Figure 17: Safety Concerns by Generation**

If one averages the results of Millennials and Generation X and then compares them to the Baby Boomers, got lost, lack of cell phone coverage and poor road conditions are the top three differences with a difference of 14.0, 12.7, and 10.5 percent. The difference in concern by the younger and Baby Boomer generations regarding lack of cell phone coverage may very well tie in with the younger generation's preference for WIFI [ (11), (12)] and to remain connected (21). However, while some identified concerns with not having cell phone coverage, comments such as the following suggested it as a positive:

*"loved to a point not having cell connection" (age 56)*

*"Cell phones should only be used for taking pictures or emergency calls. What good is nature when you keep texting on phone?" (age 65)*

Therefore, refuges may want to consider the pros and cons of providing service coverage, as it could be the barrier between connecting with a society that desires being connected 24/7, and it may also reflect visitor dependence on the cell phone for a feeling of "safety," a phenomena which would also be worth investigating.

Survey respondents were also allowed to identify safety concerns that they felt were not covered by the list provided. Intimidation or fear of other visitors was suggested as a concern with some of the following unsolicited comments:

*"Visitors with guns, bad attitudes, and questionable motives."*

*"Lack of sufficient number of Park Rangers in places visitors go."*

*"Scary people."*

*"Other visitors were drunk; other had RV on bike trail."*

*"Illegal Marijuana Grows."*

Understanding if this concern of other visitors is a representation of only a small portion of those not visiting Refuges or if it extends further is a future research need. Ensuring that visitors feel safe would support Strategic Goal 7, "Protect resources and visitors through law enforcement." It seems to suggest that visitors feel the effects of refuge law enforcement being at an "all-time low" (24). It would also contribute to Strategic Goal 4, "Welcome and orient visitors."

Question 10 in Appendix C has more specific details for each type of safety concern.

For the Level of Agreement questions, "I look for experiences that allow me to be in the presence of wildlife," had the lowest rating at 3.71. Couple that with wildlife encounter being one of the top safety concerns and finally adding in comments like the following suggests that some of the American population may be fearful of wildlife:

*"I simply love nature but I feel uncomfortable with the possibility of free roaming wildlife."*

*"I love to travel. Wildlife interest[s] me but scares me also."*

Please note that the above two comments, while limited in number, were unsolicited comments. Therefore, just because respondents were not specifically asked whether or not they fear wildlife and if that is a reason why they do not want to be in the presence of wildlife could potentially be correlated.

### 4.2.4. Interagency Recreational Passes

Survey respondents were asked whether or not someone in a household owned an Interagency Recreation Pass. Figure 18 shows the results, which are not mutually exclusive (i.e. a survey respondent can choose an Annual Pass and Senior Pass).

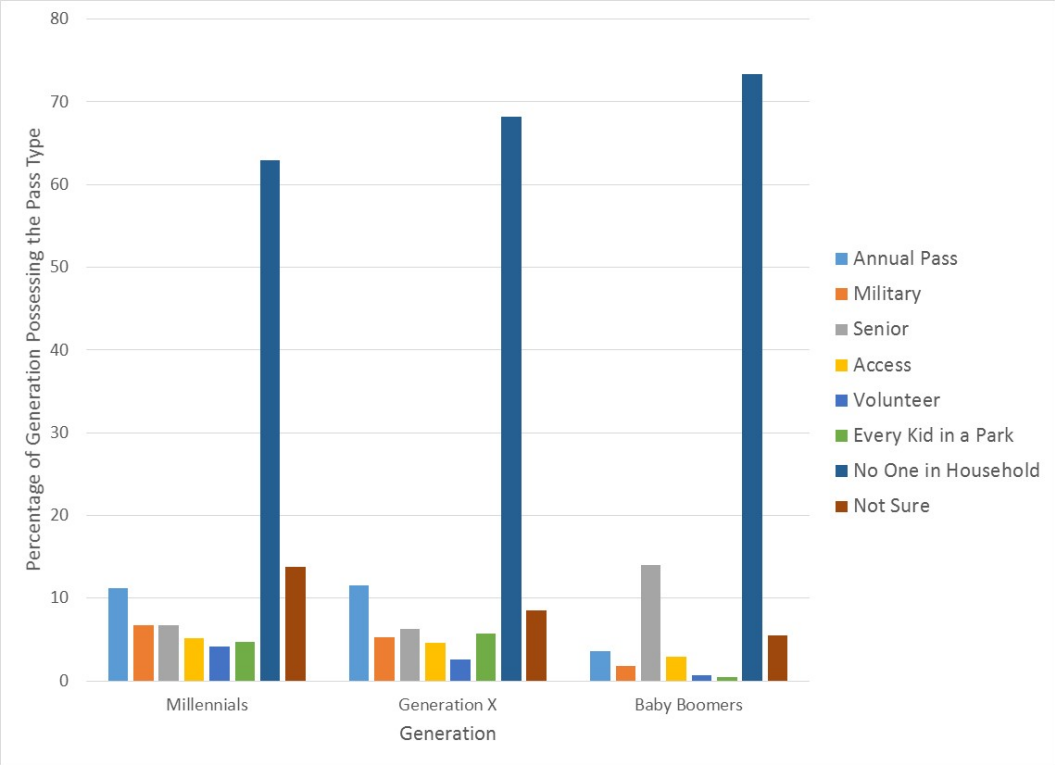



**Figure 18: Percentage of Survey Respondents Choosing Interagency Pass Type by Generation, Including No One and Unsure**

The percentage of Baby Boomers who reported owning a senior pass is greater than the percentage of Millennials or Generation X owning an Annual Pass. However, note that Annual Passes have to be purchased each year, whereas Senior Passes are purchased and good for the remainder of the passholder's life. Baby Boomers appear to report little ownership of other pass types. In contrast, while not as great as the percentage of annual pass ownership, ownership by Millennials and Generation X survey respondents of other pass types is greater than that reported by Baby Boomers. One interesting result, that should be better understood, is the relatively larger percentage of Millennials who reported "not sure" when asked whether or not they own an Interagency Recreation Pass. This could suggest that they do not know what they are.

When looking at the result for which generations reported that "No One in a Household" owned an Interagency Recreation Pass, Baby Boomers reported the highest percentage (Figure 18). These results would seem to contradict the belief that Millennials are not recreating in federal lands. To better understand if this is a state phenomena, the data for those reporting that no one in the household owned an Interagency Recreation Pass were divided by generation and state (Figure 19). It would appear that for the younger generations, the fewest number of Californian Millennials reported not owning an Interagency Recreation Pass, with the largest percentage of the younger generations from Texas reporting not owning an Interagency Recreation Pass. In contract, the fewest Colorado Baby Boomers reported not owning an Interagency Recreation Pass. However, caution should be taken as they are reporting for their household, and when asked about household composition, some Millennials reported living with family (see Question 21 in Appendix C).

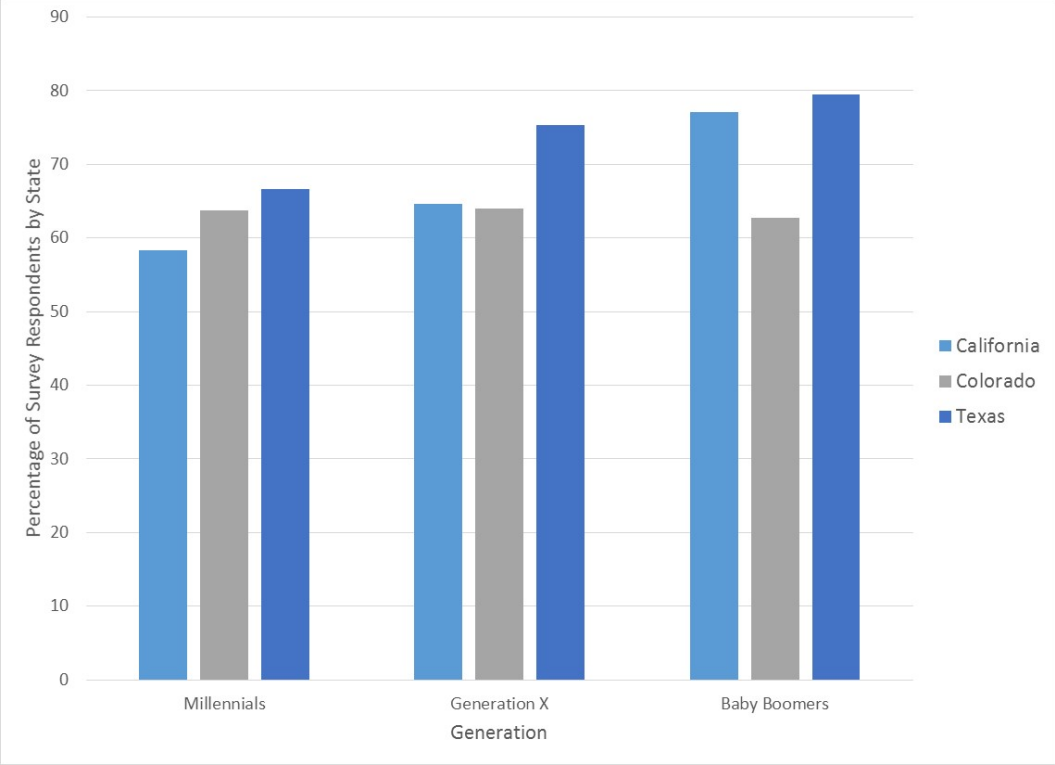



**Figure 19: Percentage of Survey Respondents Not Owning an Interagency Recreation Pass**

If the households that reported owning an interagency pass are all passes owned by Millennials, there is the possibility that these Millennials self-selected taking this survey. Alternatively, it suggests that there is a misunderstanding about the proportion of Millennials as compared with other generations that frequent federal lands, potentially because many of the surveys are often administered to front country visitors. This also correlates with results found in the Literature Review from other surveys (15) in which Millennials reported actively engaging with their public lands. However, all of these results are drawn from Millennials west of the Mississippi River. It would be of interest to see if these results remain consistent among Millennials east of the Mississippi River.

The results related to Baby Boomers are also interesting. Colorado appears to be one of the states that is attractive to those in the Baby Boomer generation moving west (19). Baby Boomers in this state reported the lowest percentage, with a difference of more than five percent, of not having a pass as compared with the other two states. This potentially suggests the "silver tsunami" phenomena may apply to the state of Colorado in that it is an attractive state to retire in. More analysis details for this question can be found under Question 11 in Appendix C.

The results to this question also suggest that the general public does not understand the difference between federal lands and state parks. For example, in the comment above (see Patrick's Point State Park (California)), the survey respondent identified a state park, not a National Park. Further, it may be that federal lands, including National Parks and Refuges, are not even considered by many. In general, some of the answers to this question suggested a lack

of clarity by survey respondents in what interagency recreation passes were. Therefore, federal land management agencies might want to consider providing more information to Americans about these opportunities. It should be noted that this data was collected at the end of the Centennial Celebration for the National Park, which involved extensive press related to National Parks, yet the message seems to still not be getting through to some Americans.

Some of the comments received by survey respondents further support the notion that it may not be Millennials who are disconnected with federal lands like USFWS Refuges, rather, it may be the Baby Boomer generation. For example, one survey respondent offered:

*"It's been many years since my wife and I last visited a National Park. Have traveled only a little since we retired."*

The survey respondent identified himself as 69 years of age, which would allow him to purchase a Senior Pass, which is a very affordable investment. It is a "rest of life" $10 investment – very affordable as compared with the $80 annual investment for those younger than 62 (26). Therefore, as discussed in the Literature Review section, this survey response could indicate that he visited a federal land, although as the comment suggests, it was a long time ago. This is a concern if the person and others like him do not continue to see the value of federal lands. There is a need to understand why this individual, and likely others like him, are not visiting anymore. Is there a way to better engage, as suggested in RAPP, "retired people willing to share their knowledge" (24)? What is preventing this individual from traveling to a federal land considering that he clearly traveled to and enjoyed federal lands in the past? Does transportation limit his ability to enjoy these special places? Do physical limitations prevent him from visiting?

There is a need to better understand the on-site purchasers of Interagency Recreation Passes. A recent study by the University of Montana (27) drew conclusions based on surveys collected from individuals who purchased passes from Recreation.gov and the USGS website. Furthermore, it would be of value to better understand pass users by being able to scan in and associate the use of the pass with the purchaser. This would allow better analysis of, for example, how often senior pass holders are using their passes and where they are using them (i.e. only at historic sites, etc.). Similarly, it is unclear if an analysis has been done of "Every Kid in a Park" pass holders. Asking questions of these owners such as learning about how often they visited federal lands in the past, how often they visited federal lands with the pass, what did they learn as a result of having the pass, what was their favorite experience since having the pass, and other questions.

Overall, the results are interesting. There is a need to make more Americans aware of Interagency Recreation Passes. There is a need to better understand the limitations of Baby Boomers that prevent them from visiting federal lands or constrain their activities (how often do they visit, do they own a senior pass, does transportation limit their ability to access federal lands, what type of activities do they like to do, do physical limitations limit how or what they like to do on federal lands). Walking was found to be an interest across generations. There is a dependence by younger generations (Millennials & Generation X) on their cell phones – do they depend upon them to feel safe? Is there a disconnect between learning about nature and being immersed in nature? Or how was the question interpreted?

## 4.3. Distance and Options to Travel to Federal Lands

A person's ability to travel to a federal land is influenced by distance and opportunity. Question 12 (see Appendix C) addressed the first two issues, which tie directly to the objectives of this study: distance and mode choice. Survey respondents were asked if the distance to a federal land impacted how they accessed it and whether there were enough modes of transportation to provide them with access to federal lands.

### 4.3.1. Transportation Mode Options

For the statement, "*I feel that I have a variety of transportation options that allow me to access (travel to) federal lands*," survey respondents generally indicated agreement, regardless of state of residence (Figure 20).

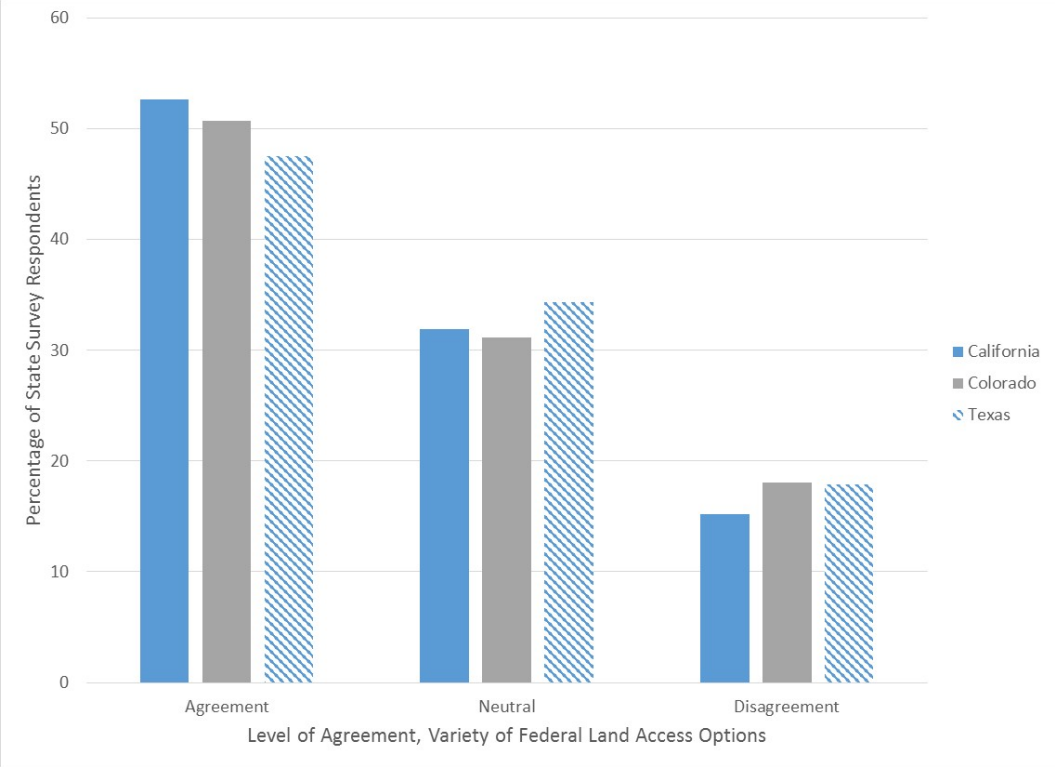



**Figure 20: Level of Agreement, Grouped, with Access to Federal Lands, Percentage of Survey Respondents, by State**

When dividing all of the categories out by state, there appears to be a difference between survey respondents in California, who reported a higher level of agreement, as compared with survey respondents in Texas, who reported a higher level of disagreement (Figure 21).

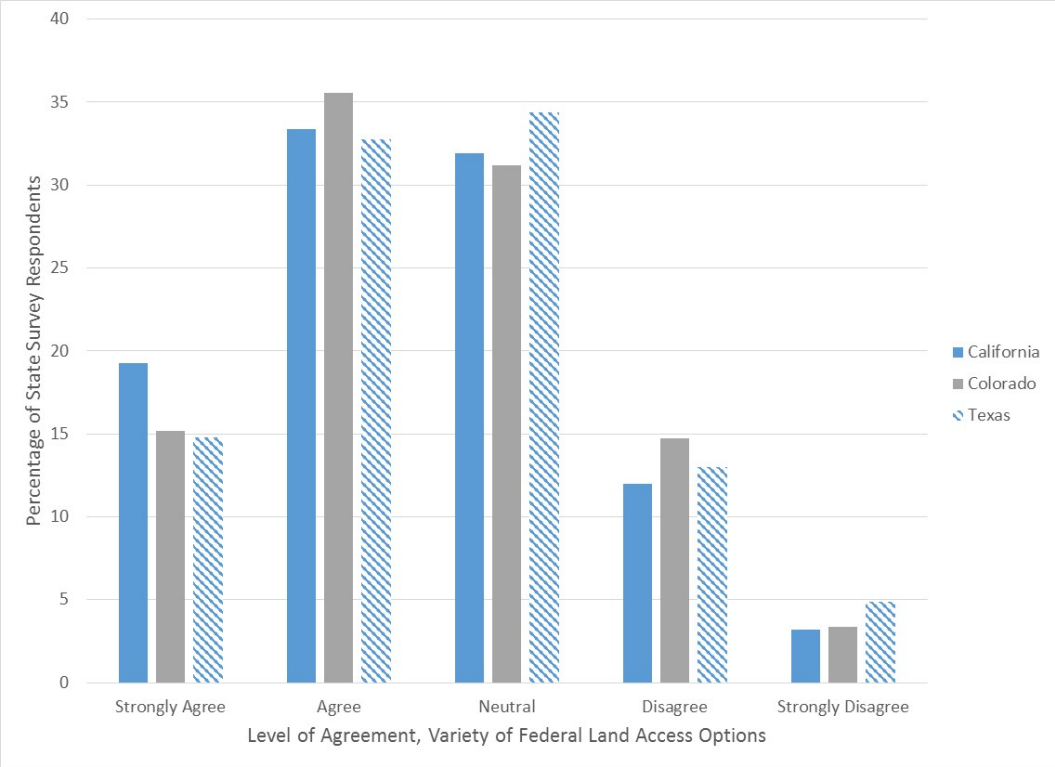



**Figure 21: Level of Agreement with Access to Federal Lands, Percentage of Survey Respondents, by State**

These results make sense in that California, compared to the other states, likely has more transportation options, which may in part be reflective of the more urbanized nature of the state as a whole. However, they also have initiatives like *Transit & Trails* (9) and *CARLESS California* (28), which promote alternative transportation to public lands.

When looking at the results from a generational perspective, Baby Boomers reported a more neutral viewpoint regarding their access options to federal lands (Figure 22). As discussed within other results, they may have a neutral opinion because they are not drawn to visit federal lands. It could also be that they have access to a private automobile to travel to federal lands, which Egan (21) identified as the mode of transportation marketed to their generation as the way to travel to National Parks.

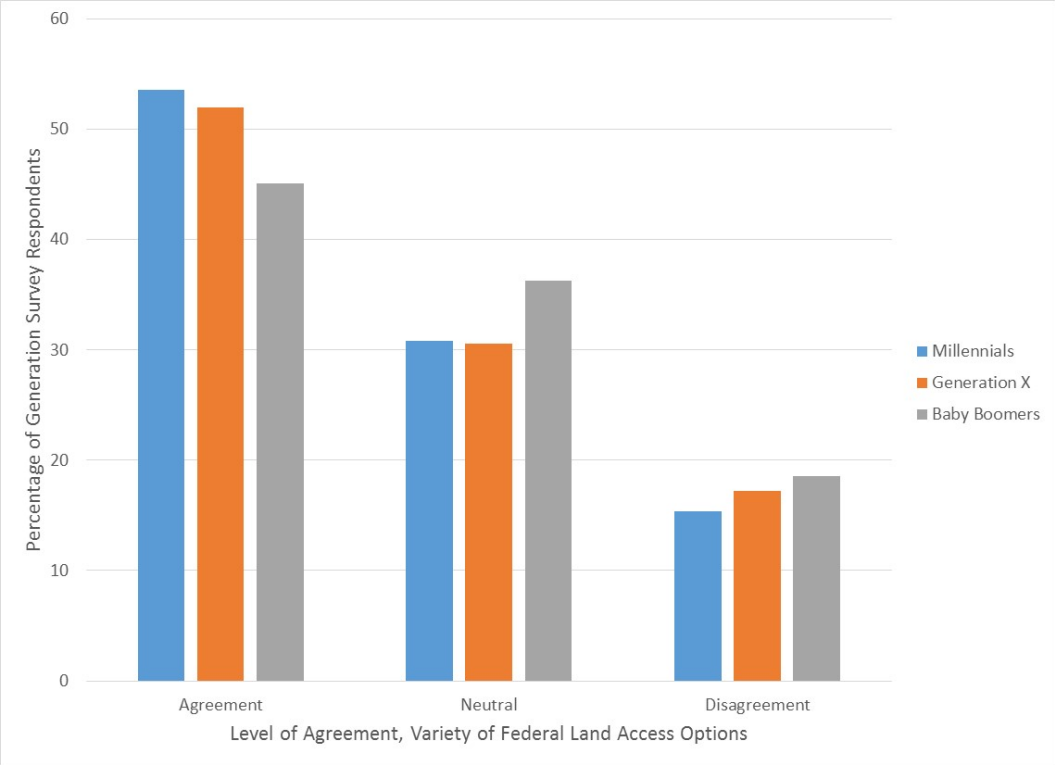



**Figure 22: Level of Agreement, Grouped, with Access to Federal Lands, Percentage of Survey Respondents, by Generation**

This Baby Boomer perspective is particularly evident when looking at the more subdivided data, where there is a clear difference between Millennials and Generation X as compared with Baby Boomers in the strongly agree category (Figure 23).

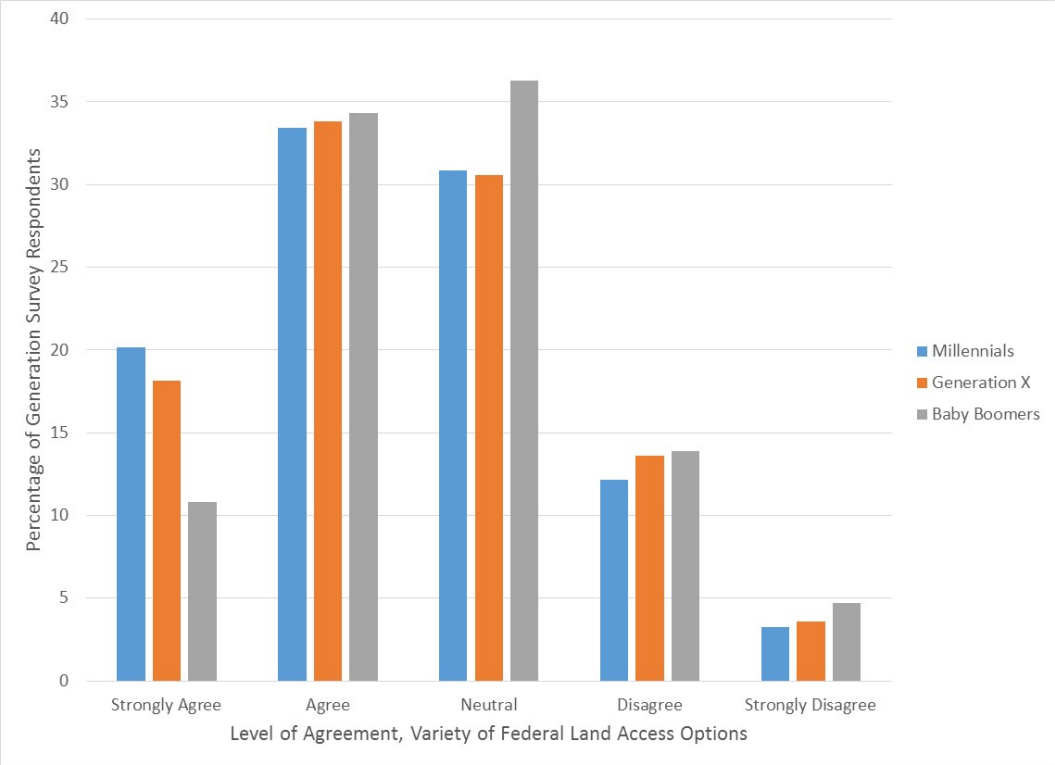



**Figure 23: Level of Agreement with Access to Federal Lands, Percentage of Survey Respondents, by Generation**

The difference in responses between Baby Boomers and Millennials/Generation X could reflect the younger generation's ability to more easily access other options through their smart phones or a broader knowledge of how to search for or consider other transportation options. Efforts like *Transit & Trails* and *CARLESS California* should consider reaching out to the American Association of Retired Persons (AARP) or other organizations, like senior centers, that could help to identify other transportation options available to Baby Boomers.

### 4.3.2. Distance Impacts to Travel to Federal Lands

Survey respondents were asked to indicate how much the distance to a federal land influenced how they traveled, particularly considering that many federal lands are often in remote locations. Considering both generation and state (Figure 24 and Figure 25), overall, the majority of survey respondents indicated that distance had a factor in how they traveled.

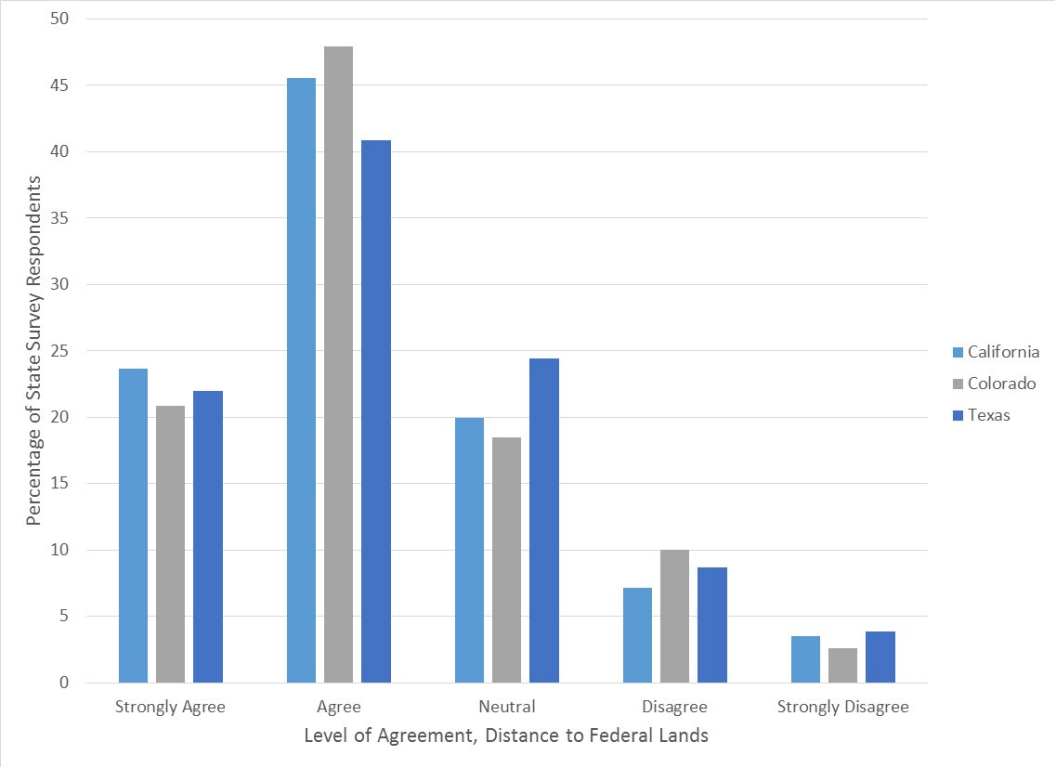



**Figure 24: Level of Agreement, Distance Influences How I Travel, Percentage of Survey Respondents, by State**

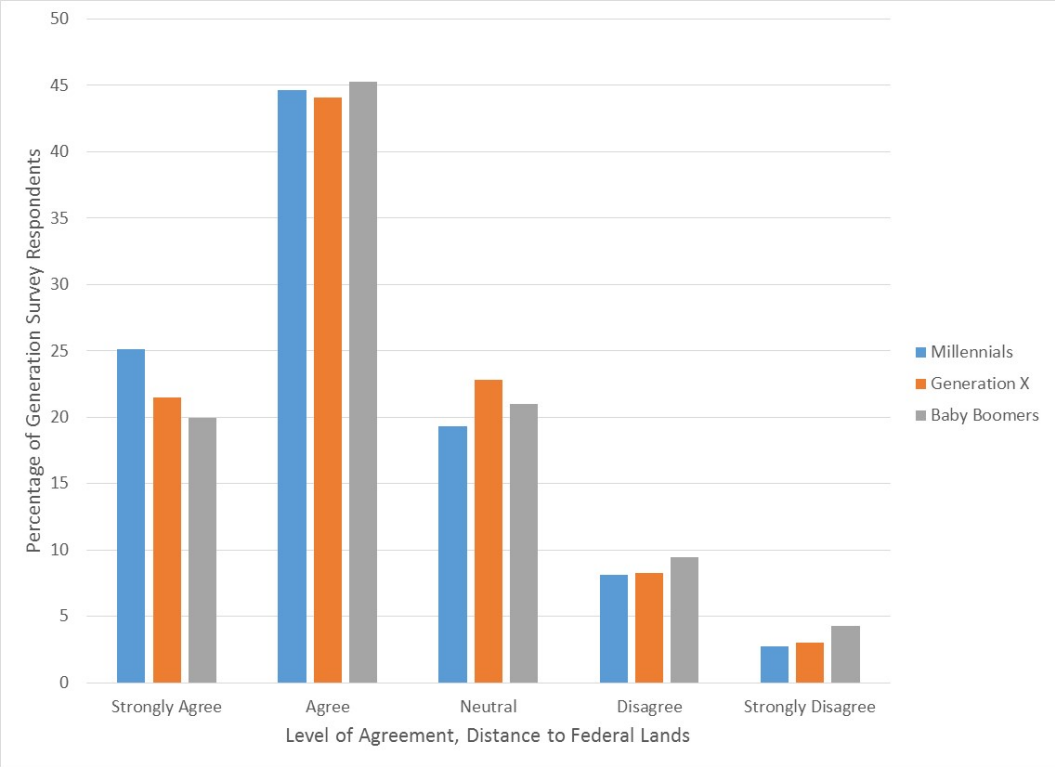



**Figure 25: Level of Agreement, Distance Influences How I Travel, Percentage of Survey Respondents, by Generation**

When considering the generational response, it is interesting to note that Millennials more strongly agreed with the statement. This could imply that Millennials might consider which mode is more appropriate based on the distance, as they have been described as choosing the best mode for the trip purpose (6).

In summary, when survey respondents were asked about whether or not they felt they had a variety of options to access federal lands, overall the results were positive. However, looking at the details, it would appear that somewhat unexpectedly, Baby Boomers seem less positive, with more neutrality. From a state perspective, California survey respondents had a higher level of agreement when compared with the other two states in the sample, which may be a reflection of the more urbanized nature of the state and somewhat related to the outcome of programs that have worked to provide connections (i.e. *Transit & Trails, CARLESS California*).

Responses regarding the impact of distance were similar to the responses for the question related to available transportation options to federal lands. Overall, survey respondents indicated that they were in agreement that distance impacts how they travel. However, it would appear that Millennials reported a greater level of agreement. This could potentially reflect the ability of Millennials to choose a variety of modes for the trip purpose, which is not as typical for the Baby Boomer generation.

## 4.4. Transportation within a Refuge

The following sections present the results regarding transportation preferences on a Refuge. The first section looks at bus or tram possibilities that would provide point-to-point service, guided tours or service only during special events. The second section presents the results related to survey respondent input for frequency of service. The third section presents the results related to bike share. The fourth section presents results related to boat transportation within a Refuge. The fifth section discusses survey respondents' feedback regarding offsite parking that would provide access to walking or hiking trails. The final section discusses feedback by survey respondents about physical limitations that may limit a visitor's ability to use certain types of transportation within a Refuge.

### 4.4.1. Bus/Tram Point-to-Point, Guided Tour, and During Special Events

When considering the responses by state of survey respondents who showed an interest in using a bus/tram for a *point-to-point* service, respondents from California and Texas were most in support of such a provision (Figure 26).

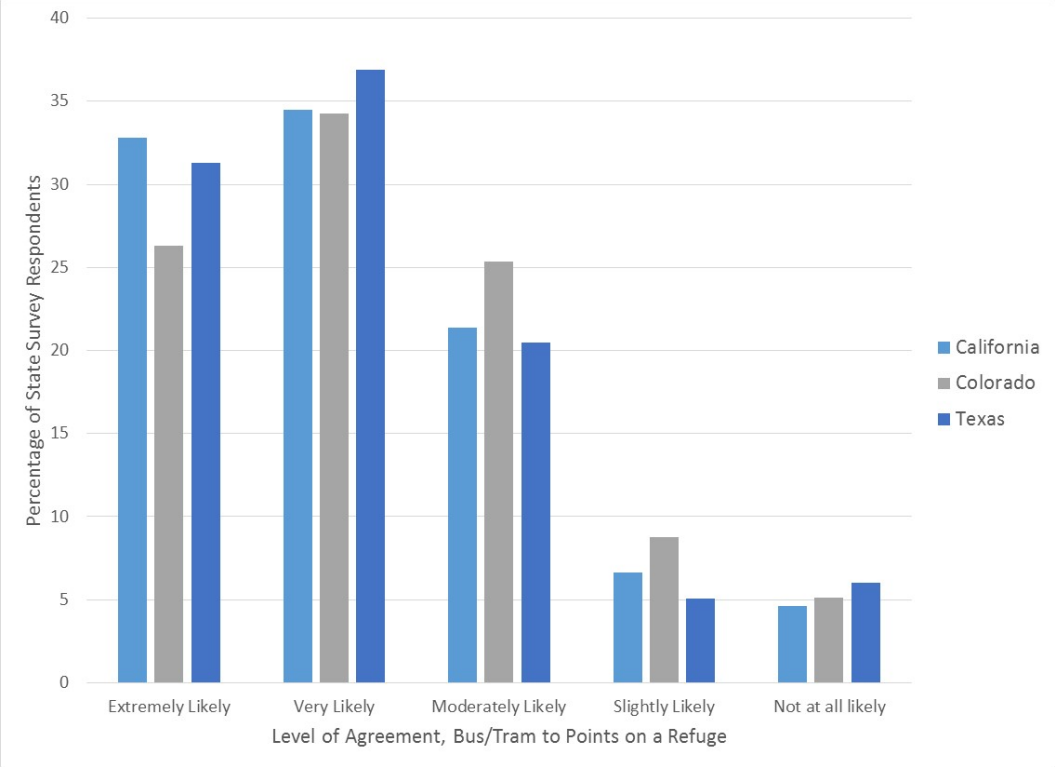



**Figure 26: Bus/Tram Point-to-Point Service on a Refuge, By State**

It is interesting to note that in Texas, the Santa Ana National Wildlife Refuge has an exemplary within Refuge shuttle system, as discussed in the *Partnership Case Study, Santa Ana National Wildlife Refuge Alternative Transportation Project* (29). Therefore, while Texas survey respondents reported using public transportation at home the least in an earlier section of this

report, for this question Texas survey respondents show either consistent and potentially more enthusiasm for a *point-to-point* bus/tram on a Refuge as compared with the other two states. This finding appears to refute the concept behind experience use history.

When considering the responses by generation, Generation X reported the strongest agreement regarding interest in point-to-point bus/tram service (Figure 27).

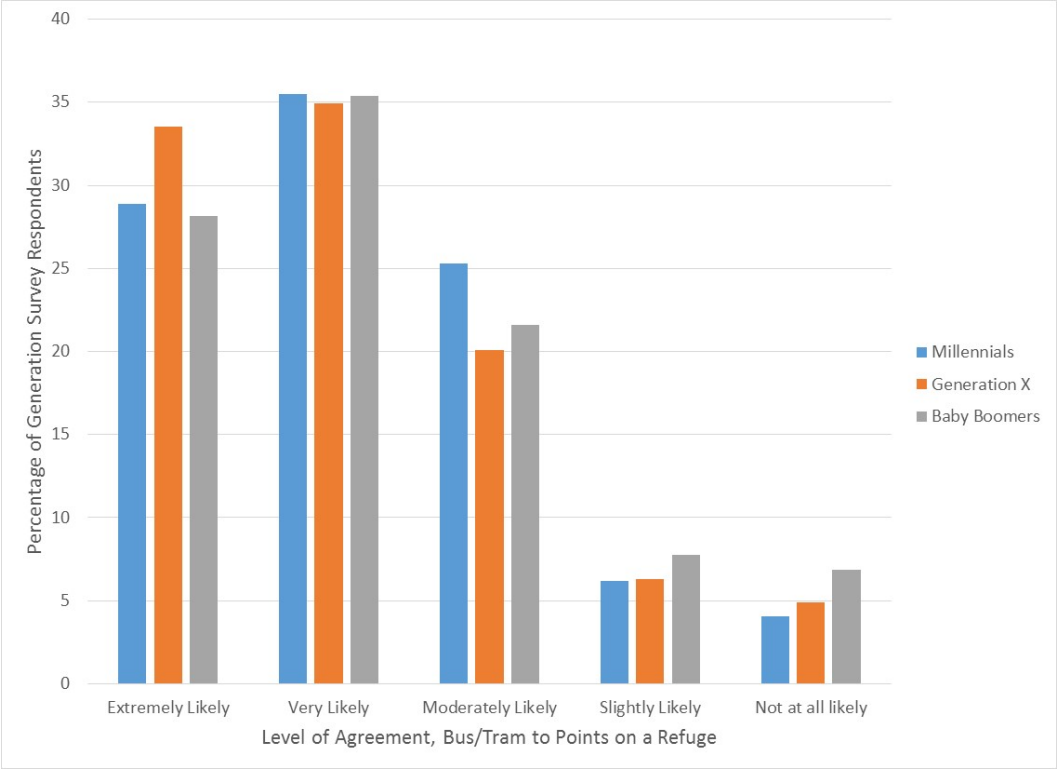



**Figure 27: Bus/Tram Point-to-Point Service on a Refuge, By Generation**

This result was a bit surprising, as Baby Boomers have been historically reported as most enthusiastic about on-site shuttle systems, and there is a perception that Millennials are always interested and willing to use a shuttle system. These results would seem to indicate otherwise.

Survey respondents were also asked about their likelihood of using a bus/tram system on a Refuge that was part of a *guided* tour. The results again suggest that California and Texas show the greatest level of interest (Figure 28).

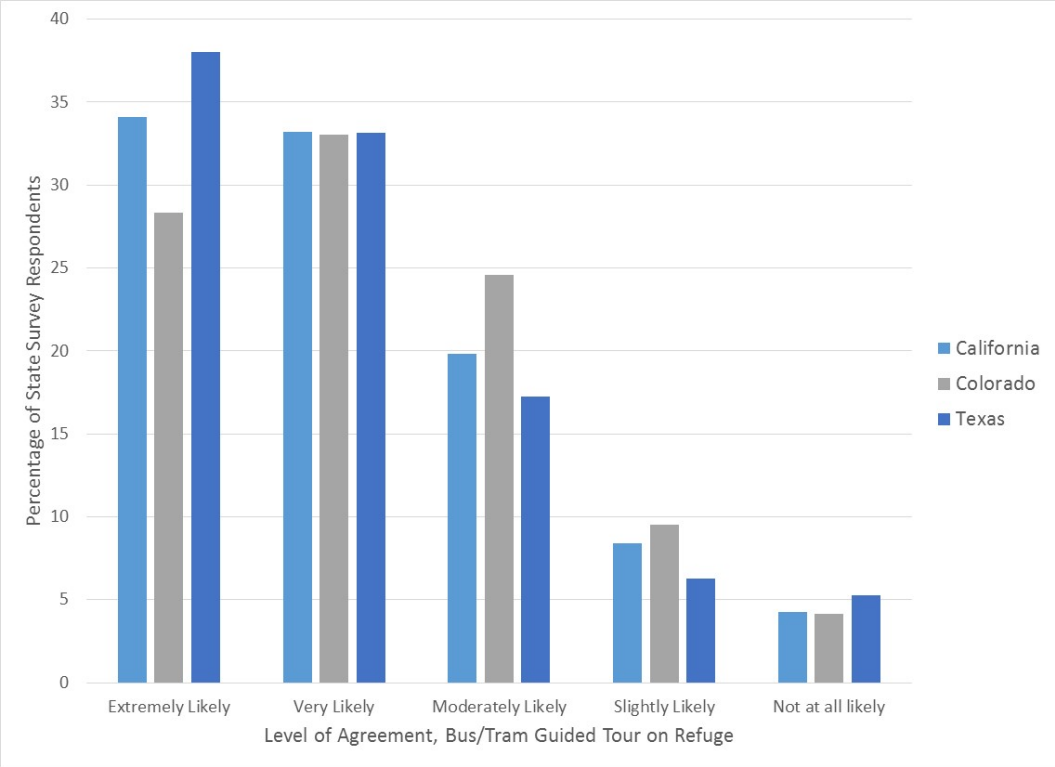



**Figure 28: Bus/Tram Guided Tour, by State**

The results are generally consistent with those for the point-to-point shuttle on a Refuge. Yet, it would appear that Texans have more of an interest in guided tours, as there was a greater percentage reporting "Extremely Likely" (38% versus 32%). In fact, the reported interest for this type of shuttle provision was greater by Texas survey respondents than by California survey respondents. Again, this could very likely demonstrate the success of the Santa Ana National Wildlife Refuge shuttle.

When considering the results by generation, overall, the interest was greater in a guided shuttle than a point-to-point shuttle. However, again, Millennials reported less of an interest than Generation X survey respondents (Figure 29), but the difference (3.2% for Extremely Likely) between Millennials and Generation X was not as pronounced as for the point-to-point (4.6% for Extremely Likely) shuttle service. More interestingly, Baby Boomers showed a similar level of interest in guided tours as Generation X (approximately 35% for Extremely Likely), which hints at a potential interest by Generation X and Baby Boomers in the "information about the Refuge and its resources" that was identified as being offered with a guided transportation system.

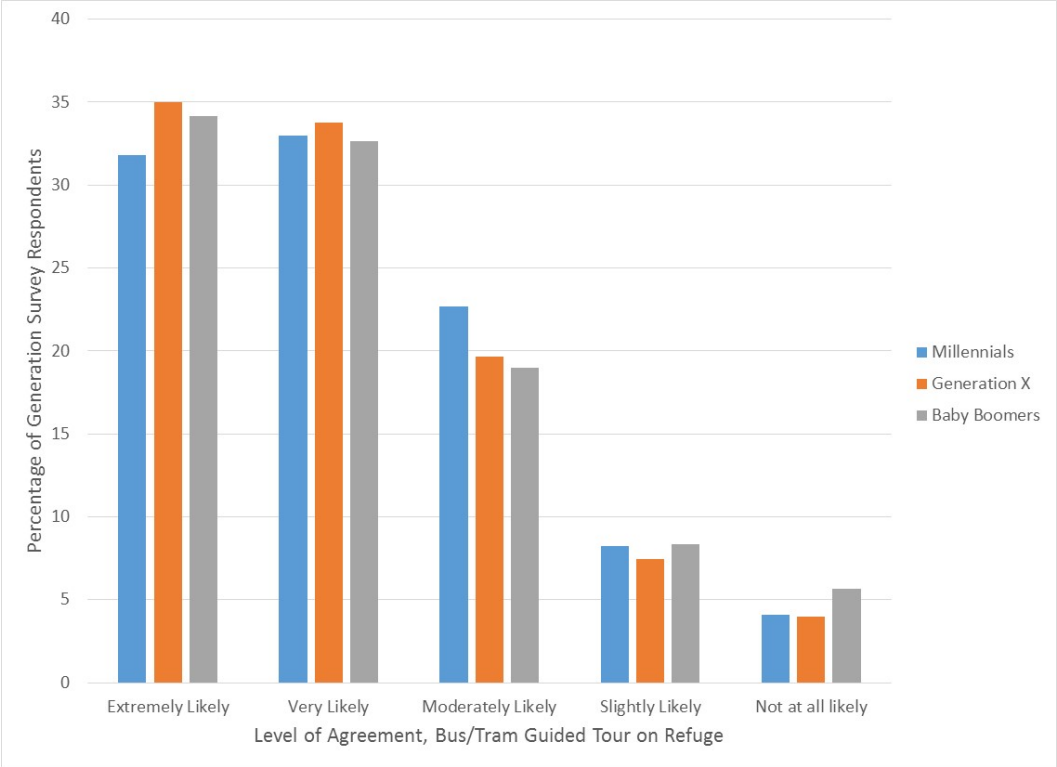



**Figure 29: Bus/Tram Guided Tour, by Generation**

The third type of bus/tram that was identified as potentially being provided on a Refuge was for a *special event*. Again, California and Texas showed more interest than Colorado (Figure 30).

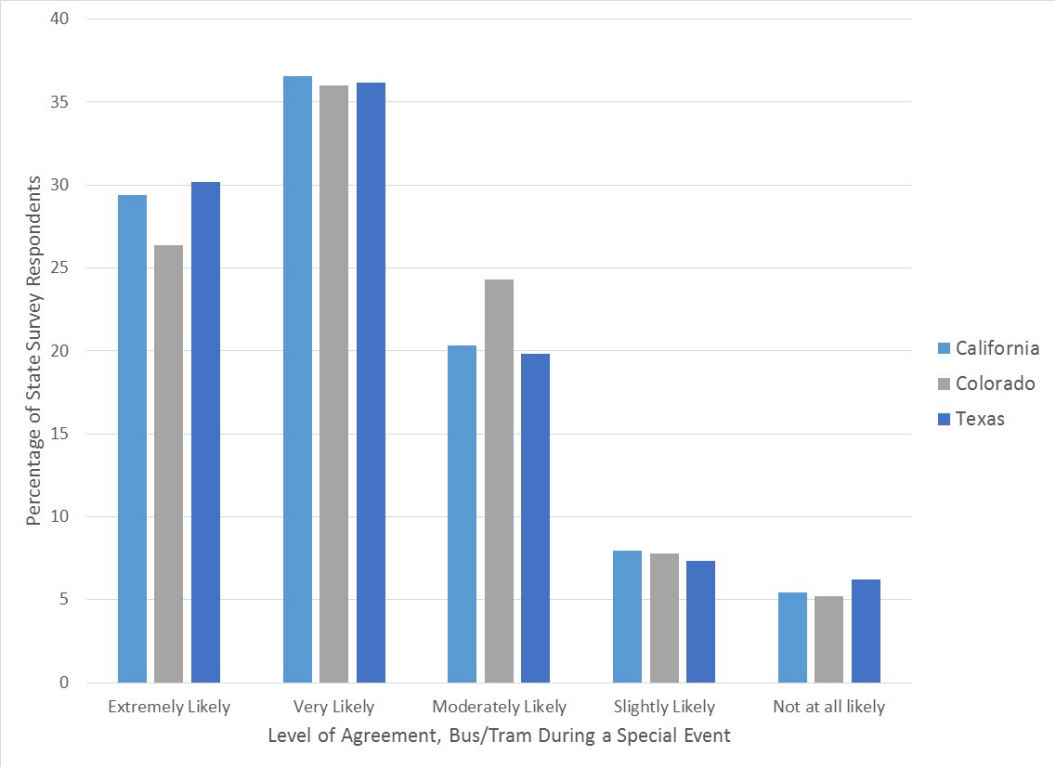



**Figure 30: Bus/Tram During a Special Event, by State**

Again, Generation X reported the greatest interest in a bus/tram for transportation within a Refuge (Figure 31), thereby indicating that Generation X appears to be most supportive of a bus/tram on a Refuge. More interestingly, Millennials showed more interest for a bus/tram during a special event than Baby Boomers.

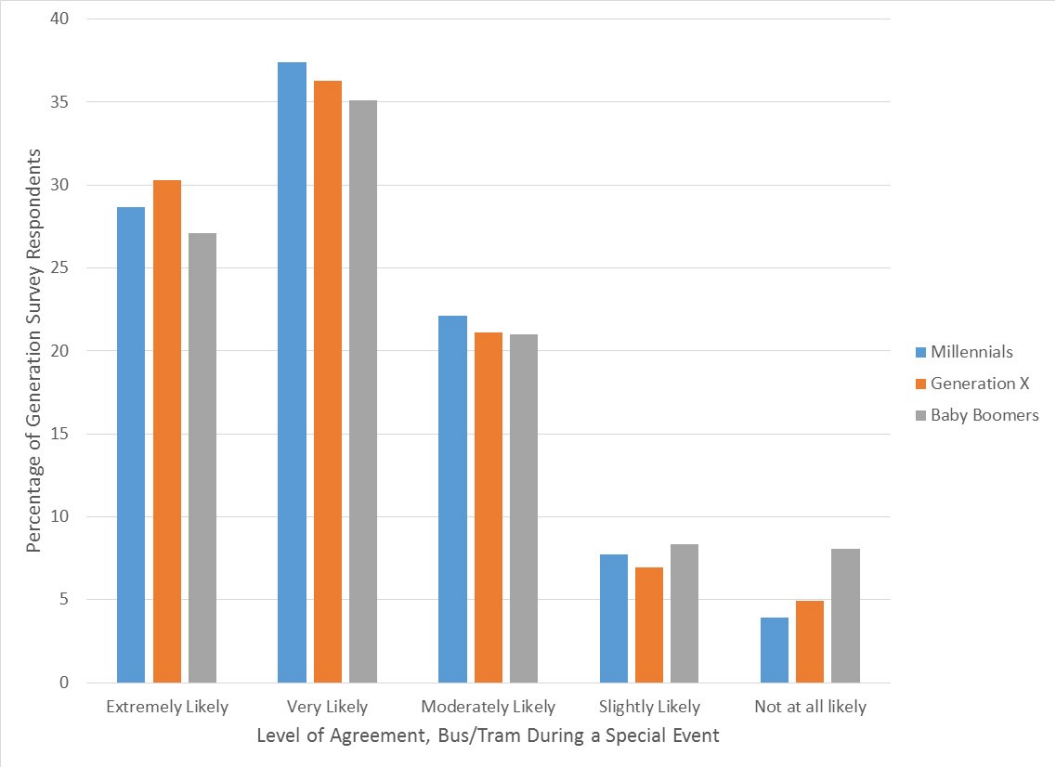



**Figure 31: Bus/Tram During a Special Event, by Generation**

The following figures compare the overall interest in a bus/tram on a Refuge, the Millennial interest in the three different types of bus/tram service on a Refuge, the Generation X interest in the three different types of bus/tram service on a Refuge, and the Baby Boomer interest in the three different types of bus/tram service on a Refuge.

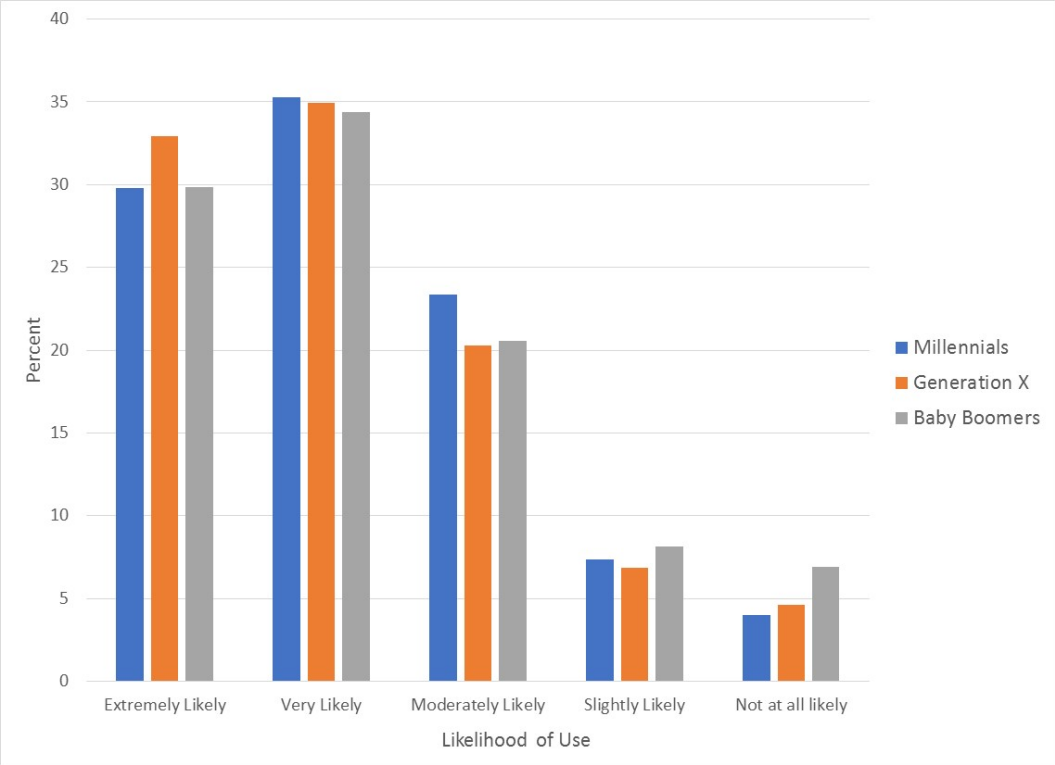



**Figure 32: Average Preference for Bus/Tram on a Refuge, by Generation**

Figure 32 shows that Generation X reports the greatest overall enthusiasm for bus/tram service on a Refuge, with about a 3-4% greater in the Extremely Likely category, although Millennials report almost the same difference for the Moderately Likely category.

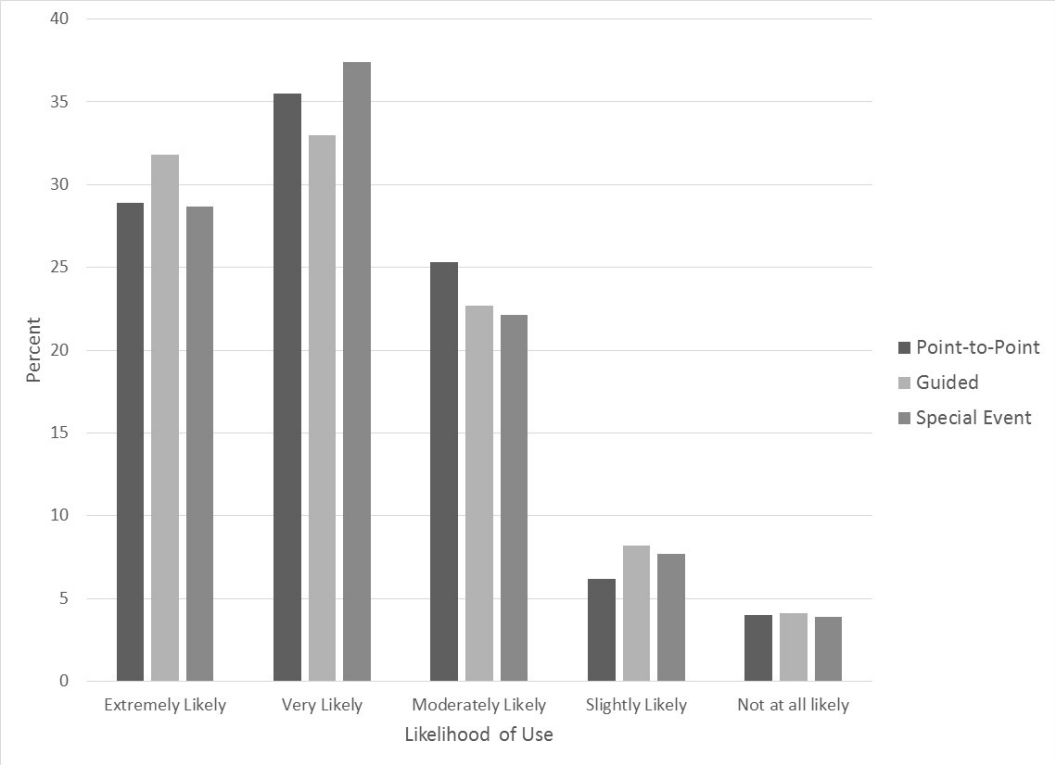



**Figure 33: Millennial Generation Preference for a Bus/Tram by Service Type (Point-to-Point, Guided, Special Event)**

While discussed above, Millennials showed a lower preference for the guided tour when compared with the other two generations. When comparing only the responses reported by Millennials, they would seem to be most enthusiastic about the guided tour when considering the Extremely Likely category. Yet this does not hold for the next two categories: Very Likely and Moderately Likely. This implies that there is some difference in interest in the different types of bus/tram on a Refuge within the Millennial generation.

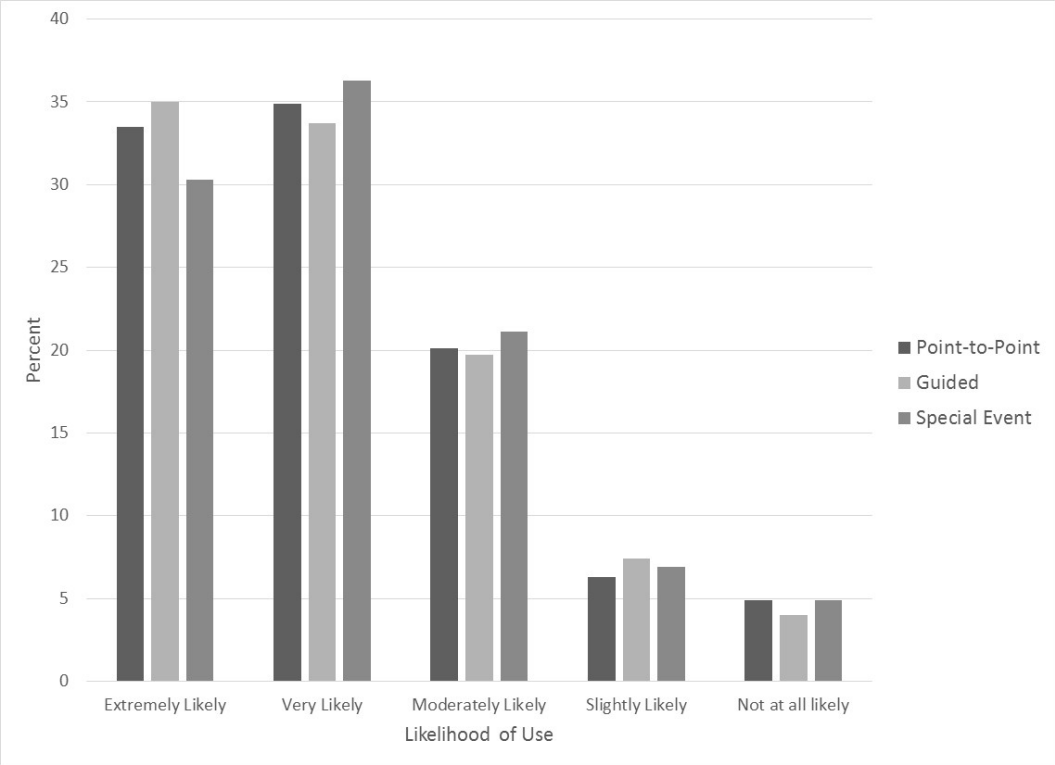



**Figure 34: Generation X Generation Preference for a Bus/Tram by Service Type (Point-to-Point, Guided, Special Event)**

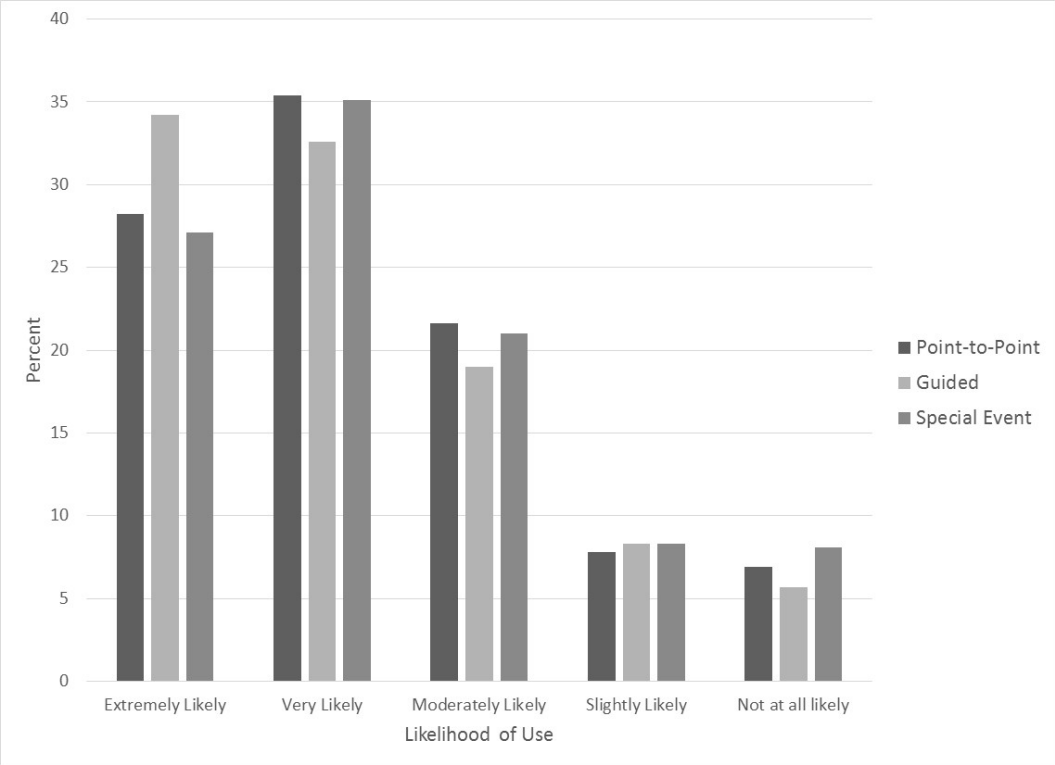



**Figure 35: Baby Boomer Generation Preference for a Bus/Tram by Service Type (Point-to-Point, Guided, Special Event)**

Overall, the results of the different types of bus/tram transportation on Refuges have an impact on use by generations, with Generation X reporting more consistent interest in using buses and trams. The Millennial generation, seems to report slightly more overall interest than the Baby Boomer generation, but less than Generation X. The Baby Boomer generation appears to report the most interest in a bus/tram as a guided tour. Furthermore, California and Texas survey respondents expressed the most interest in the provisions of bus/trams on Refuges, with Colorado survey respondents expressing the least interest.

### 4.4.2. Bus/Tram Frequency

Question 9 asked survey respondents about what kind of wait times they were willing to accept if a shuttle system was provided within the Refuge. More than seventy-seven percent of all survey respondents, regardless of generation, reported interest in using a point-to-point shuttle service on a National Wildlife Refuge if the wait time was no more than 15 minutes. Therefore, fifteen minutes or less would be the recommended shuttle frequency. For more details, see Question 9 in Appendix C.

The data was further analyzed by considering first the generational response (Figure 36) and then comparing the responses by state.

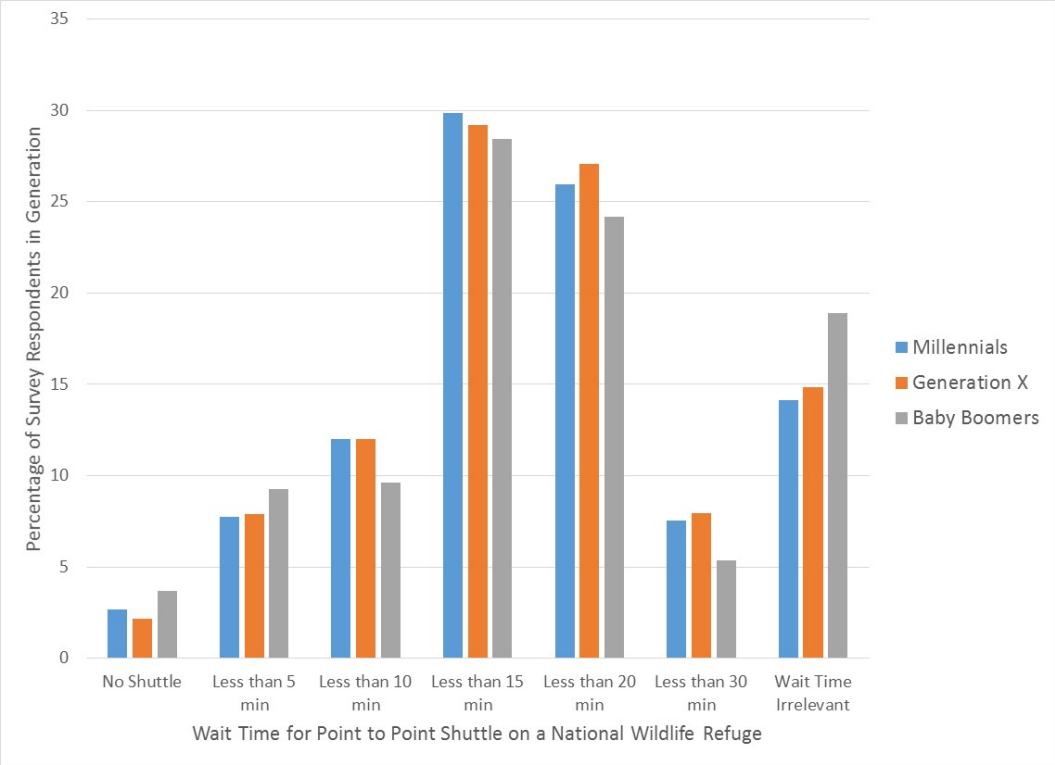



**Figure 36: Reported Acceptable Wait Time By Generation for a Shuttle Within a National Wildlife Refuge that Travels Point-to-Point**

Figure 36 shows that overall, there were not significant differences across generations between the wait times that survey respondents are willing to accept for a *point-to-point* shuttle service, with some variation seen in the percentage of Baby Boomers who would use a shuttle system regardless of wait time. There is the possibility that these Baby Boomers are the ones already visiting Refuges. In addition, very few survey respondents indicated that they would not use a shuttle on a National Wildlife Refuge that transfers visitors from *point-to-point*. This does not correlate with the findings from Sexton et al. (2), where the majority of visitors indicated that they would *not* use a *point-to-point* bus/tram system on a Refuge. In addition to possibly reflecting the preferences of the general population of a state, this could also, in part, be attributed to the gender differences of survey respondents from each study. For the on-site visitors, there were more male survey respondents. For the surveys collected for this study, there were more female survey respondents. However, this also suggests that Refuges may need to consider the types of services, like a *point-to-point* shuttle system, that are available to visitor groups (i.e. women) who are not currently well-represented on Refuges.

As seen with other results, there appears to be a dichotomy within the Baby Boomer generation. There is a large percentage from this generation that indicated that they would always use a shuttle within a Refuge regardless of wait time. However, when compared with the other generations, Baby Boomers had a slightly larger percentage of survey respondents who indicated that they would never use a shuttle system on a Refuge, although this percentage was significantly smaller than that indicating they would always use one (about eighteen percent versus three percent).

It is worth considering whether or not there is a difference between these two groups of Baby Boomers that can help to explain this difference. A total of 323 Baby Boomer survey respondents fell into these categories, so the following are preliminary generalizations and further investigations would be needed as the sample size is small. Considering age, Baby Boomers who reported using a shuttle regardless of wait time had a slightly younger age among all Baby Boomer respondents (see Table 38 in Appendix C). When considering gender, it seems that there is slightly less interest in a shuttle by male Baby Boomer survey respondents (see Table 39 in Appendix C). This would correlate well with findings from on-site surveys, where more surveys were collected from men. Even if the results are weighted to represent even distributions, if not enough information is collected from a group (e.g., women), information may be biased. Finally, when considering the income level of the Baby Boomer, for the categories for which there is the most data (Less than $25,000; $25,000 to $49,999; and $50,000 to $74,999), there is not much difference between survey respondents who reported no interest in a shuttle as compared with those who indicated that they would always use a shuttle (see Figure 88 in the Appendix). For the higher household income categories, there are very few survey respondents who fall into these categories, however, the two highest income categories report less interest in using a shuttle. In general, while the data suggests some subtle differences when considering age, state of residence, gender and household income level when comparing Baby Boomers who would always ride a shuttle as compared to Baby Boomers who would never ride a shuttle, no matter what kind of service provisions, there are not substantial enough differences in the data and the sample size is too small to make definite conclusions. Further studies would have to be done drawing a larger sample of survey respondents with these opposing viewpoints to draw any firm conclusions.

Figure 37 shows the breakdown of acceptable wait-time by state.

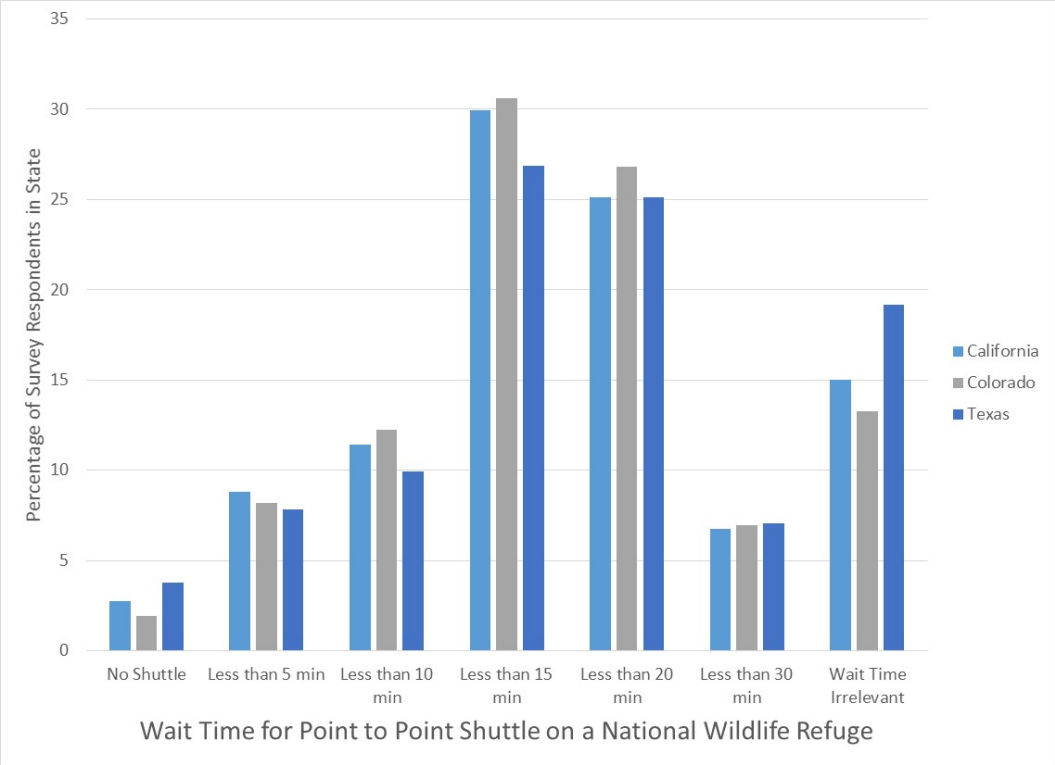



**Figure 37: Reported Acceptable Wait Time By *State* for a Shuttle Within a National Wildlife Refuge that Travels Point-to-Point**

Figure 37 suggests that survey respondents from Texas are most supportive of a point-to-point shuttle service on a Refuge, as the largest percentage indicated that the wait time was irrelevant. This would seem to contradict the experience-use-history theory as the majority of Texas survey respondents did not report using public transportation at home, and suggests that something else is going on. However, survey respondents from Texas were also the largest to report that they have no interest in using a shuttle on a Refuge, although the percentage is small (about three percent). Therefore, there do appear to be differences within Texas with respect to whether or not survey respondents are interested in using a shuttle service on a Refuge. Considering that Texas survey respondents were on the opposite end of their level of support, the researchers performed an additional spatial analysis to see if any residential patterns could be identified. For example, do more respondents in support live close to or far away from Refuges, or do they live predominately in urban or rural areas (Figure 38)? Researchers were exploring the idea that the presence of public transportation in one location within a state might help to explain the interest or disinterest.

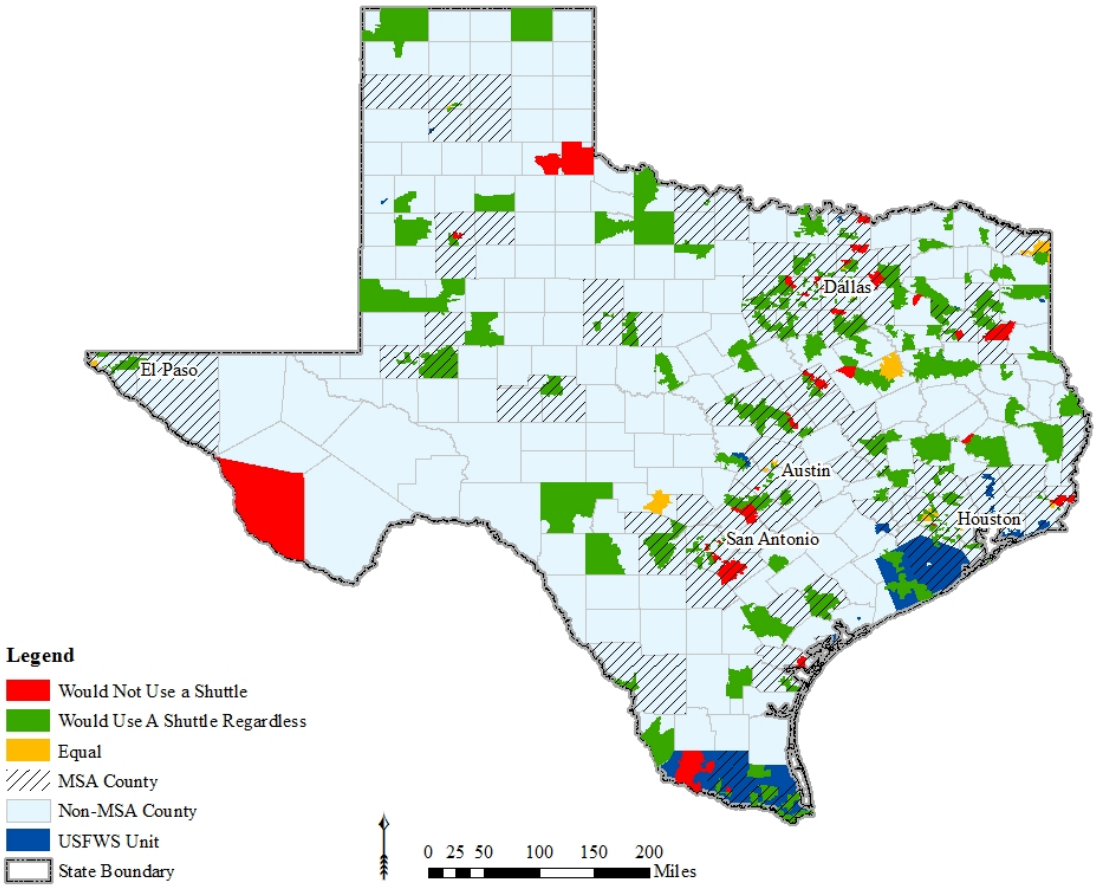



**Figure 38: Texas, Survey Respondents Who Would Always (Green) and Never (Red) Use a Shuttle on a Refuge**

Close-ups of the map can be found in Figure 89 through Figure 91 in Appendix C. The results were inconclusive. There does not seem to be enough data to suggest that geographic location influences one's response regarding never or always using a shuttle on a Refuge. Yet, when an analysis was done regarding the location of Millennials earning less than $25,000 in Texas (Figure 39), there seemed to be a possible answer to the dichotomy of results in Texas.

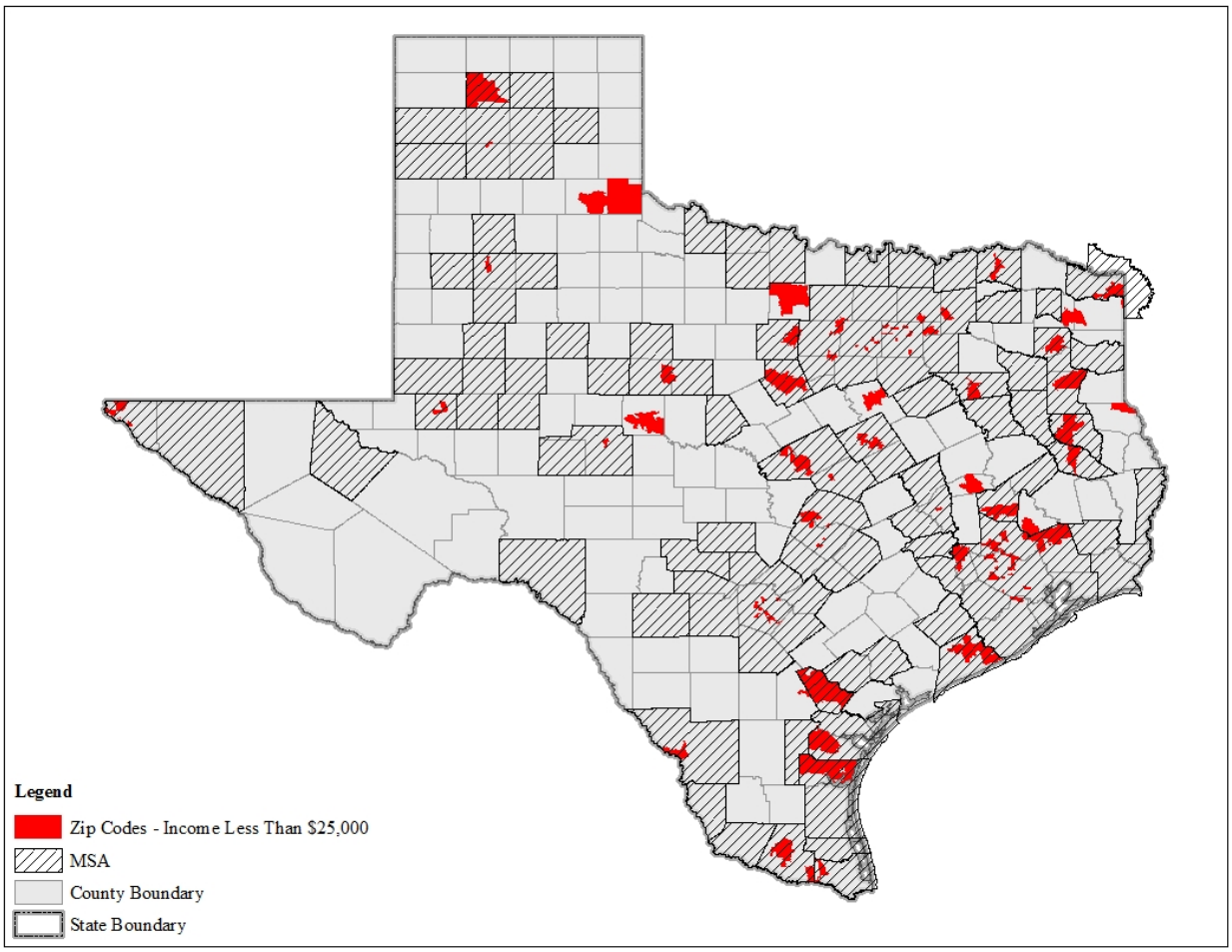



**Figure 39: Texas Millennials Earning Less Than $25,000**

The results suggest that annual income may explain the dichotomy (Figure 39). When further comparing that interest in Figure 38 with the Refuge locations in Texas (shown in blue), and also shown more clearly in Figure 40, there are clearly opportunities that could be explored to better connect low income earning Millennials to Refuges.

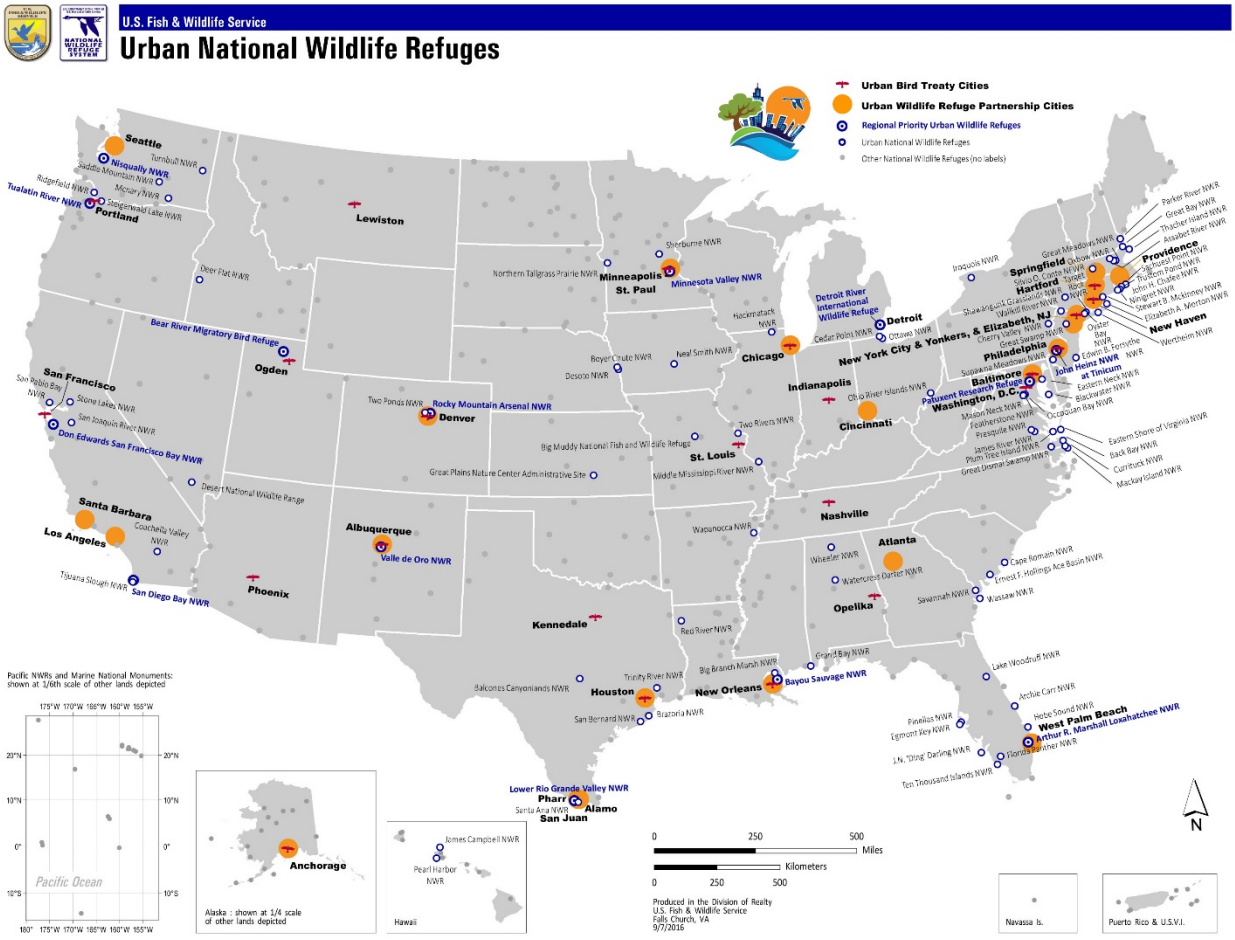



**Figure 40: Urban National Wildlife Refuges (courtesy USFWS)**

California and Colorado had similar responses for questions regarding service times. While survey respondents from California and Colorado are represented throughout the various service time options, the percentages of survey respondents choosing each category of service option seem to be more consistent with one another (e.g. the irrelevance of wait time is approximately 15% of survey respondents from each state).

The researchers also looked at the responses to acceptable wait time for a Refuge shuttle when compared with self-identified community type (Question 4). The expectation was that those in larger urban areas would be more likely to report using a shuttle on a Refuge regardless. Figure 41 shows the various options for a shuttle service in a Refuge (x-axis) against the percentage of individuals within a community type (e.g. small town) choosing the shuttle service type (y-axis). As an example of how the results may be interpreted, approximately five percent of the small town survey respondents indicated that they would never use a shuttle.

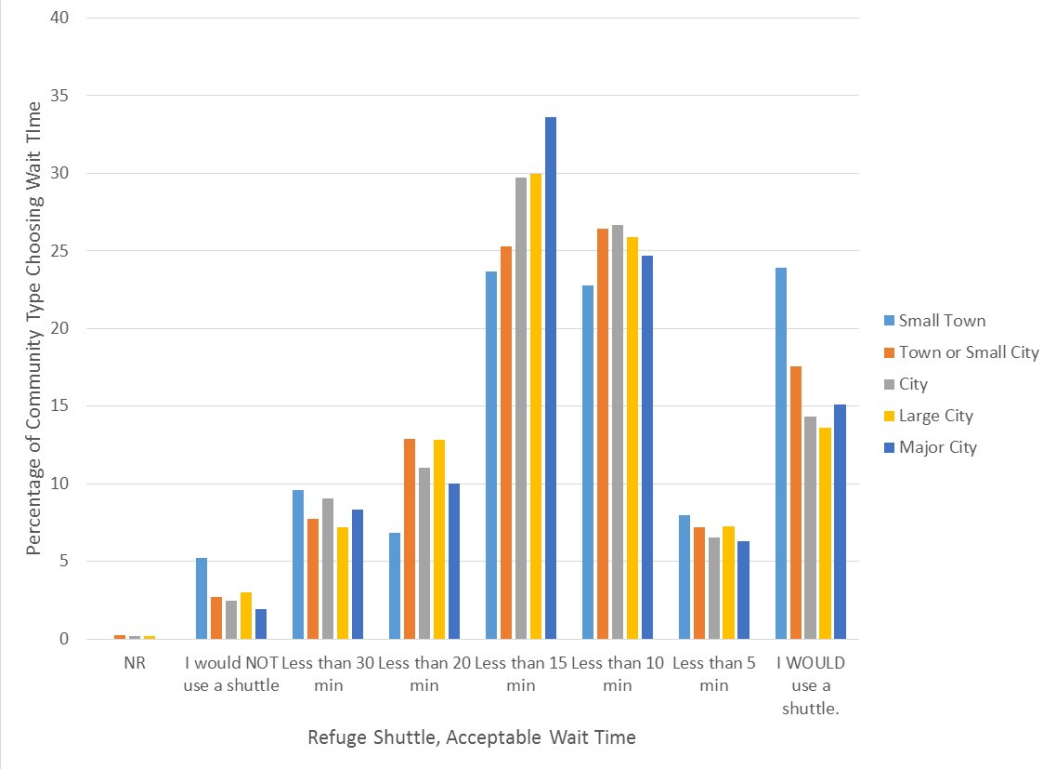



**Figure 41: Reported Acceptable Wait Time for a Shuttle Within a National Wildlife Refuge Compared with Community Type**

The number of survey respondents choosing "In a small town (<2,500 people)" was small when compared with the other community types (see Table 7, 439 for small town; 893 for town or small city; 1214 for city; 934 for large city; and 827 for major city), which could help to explain both the large percentage reporting that they would never use a shuttle and that they would always use a shuttle. It could also potentially hint at economic disparities within the rural population that may make shuttle use more popular for residents in rural areas who are poorer (who need more transportation options at affordable prices), whereas those who are better off and living in rural areas may not have an interest in a shuttle.

### 4.4.3. Bike Share on Refuge

Survey respondents reported an average of 2.97 regarding their level of interest in using bike share on a Refuge. This would suggest that survey respondents were generally moderately likely, with a slight tendency towards slightly likely. It should be noted that there is still a lot of discussion regarding the use of bicycles on Refuges, as historic studies have suggested that bicycles may intimidate or scare the animals that the Refuges were intended to protect.

Colorado survey respondents were consistent in reporting less of an interest in using a bike share program to get around on a Refuge. In contrast, California seemed to be consistent in expressing an interest in bike share provisions on a Refuge. Texan respondents, on the other hand, had a percentage of survey respondents who were extremely likely to use bike share in line with that reported by California while also having a percentage of survey respondents who reported not at

all likely that exceeded the other two states. Therefore, from a bike share perspective, it would imply that there may be diverging viewpoints based on certain characteristics, such as rural vs. urban, age, or some other factor. San Antonio Missions National Historical Park, in San Antonio, Texas, has bike share (30). Therefore, potentially similar to how those who may have used the tram service within Santa Ana National Wildlife Refuge may be more open to such a transportation option in other Refuges, it could be that some survey respondents who have made use of the bike share at San Antonio Missions National Historical Park are more open to the possibility of bike share at Refuges. This could help to explain why Texas survey respondents reported more support than Colorado survey respondents.

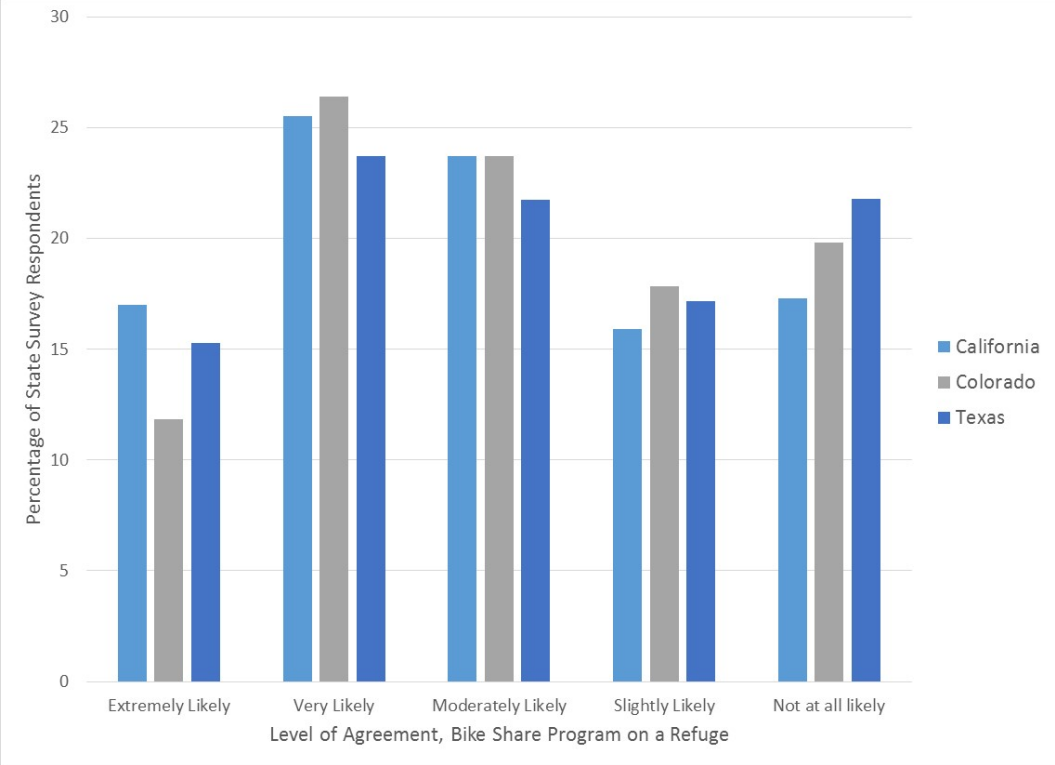



**Figure 42: Interest in Bike Share Offered on a Refuge, by State**

The interest of the younger generations in bike share on a Refuge as compared with that reported by Baby Boomers is striking (Figure 43).

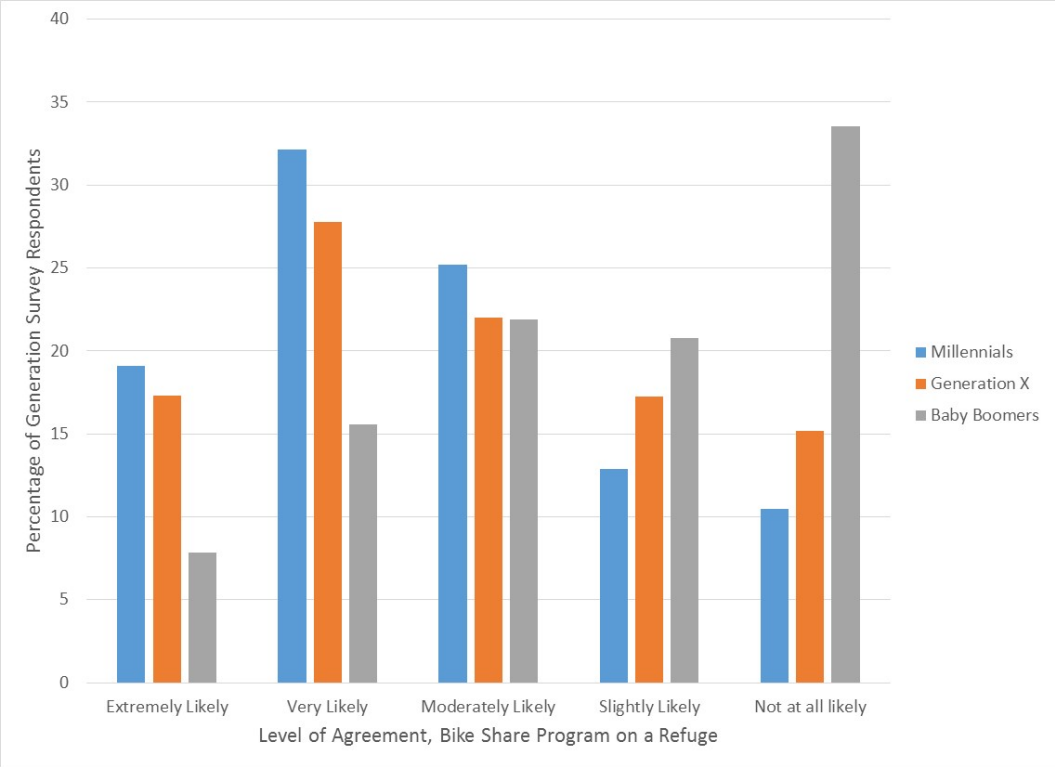



**Figure 43: Interest in Bike Share Offered on a Refuge, by Generation**

Some of the other questions may shed a light on the lack of interest in bike sharing by the Baby Boomer generation. For example, it could be that many Baby Boomers reported some type of physical limitation that they felt would prohibit them from using such a transportation mode. They may also, similar to the comments received related to cell phones, feel that bikes do not have a place on Refuges.

### 4.4.4. Boat Tour

Survey respondents were asked about their interest in a boat service that would take them to different points on a Refuge. The average rating provided by all survey respondents was 3.77, which suggests that survey respondents are generally interested in using this transportation mode.

The survey responses were grouped based on the survey respondent's state of residence. Survey respondents from California and Texas reported larger percentages of extremely likely responses regarding level of interest in a boat tour on Refuge waterways (Figure 44). However, when the survey respondents' input is grouped according to positive and negative responses where "Moderately Likely" is more of a neutral category, it appears that Colorado and Texas have more interest overall (Figure 45).

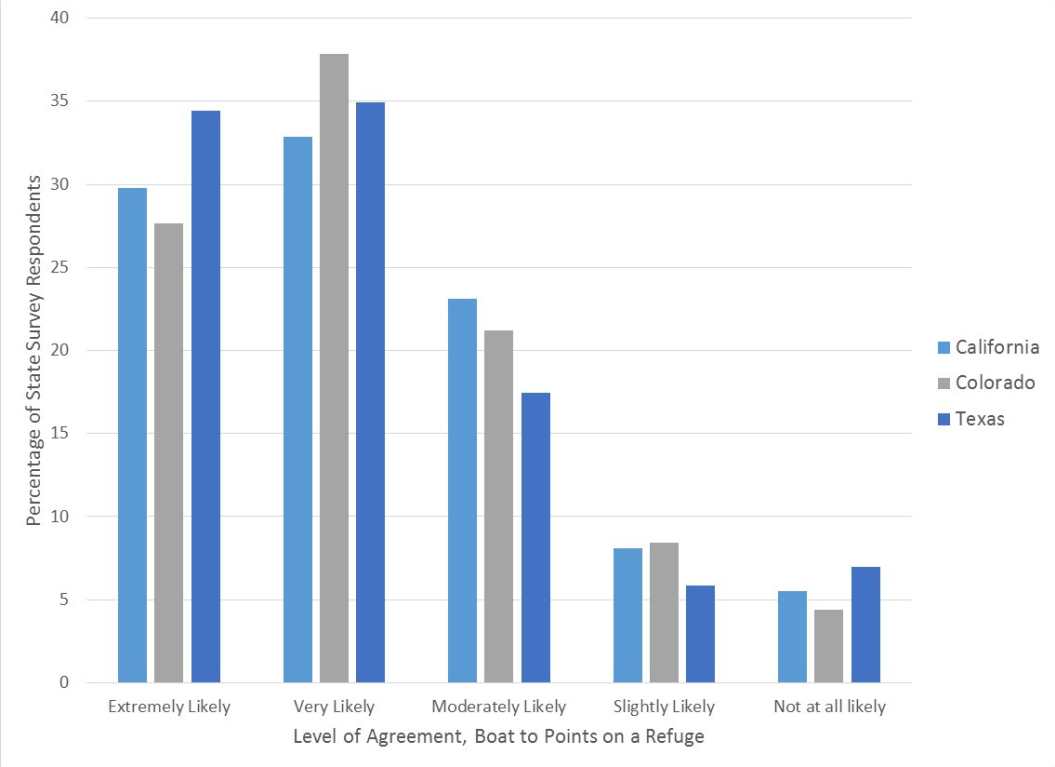



**Figure 44: Boat to Points on a Refuge, by State**

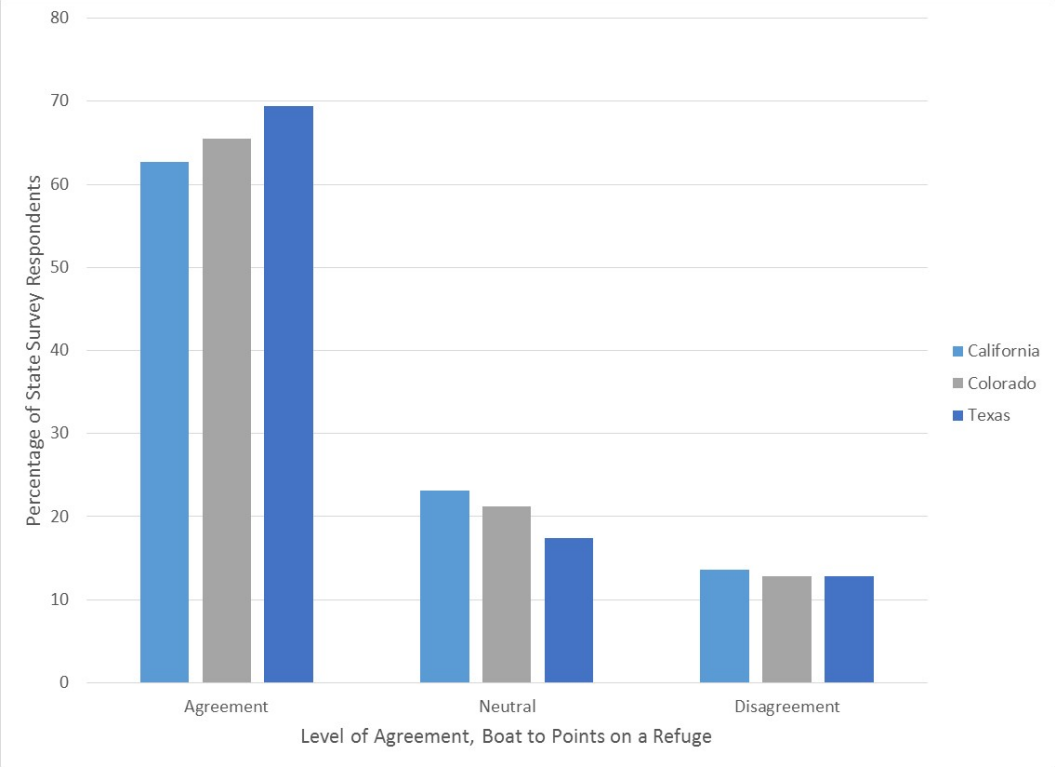



**Figure 45: Boat to Points on a Refuge, by State, Condensed**

This suggests that there may be some unknown factor that influences whether a person chooses "Extremely Likely" or "Very Likely" when asked about this transportation mode on a Refuge.

When considering the survey responses by generation, it would appear that Millennials and Generation X have more interest in a boat tour (Figure 44).

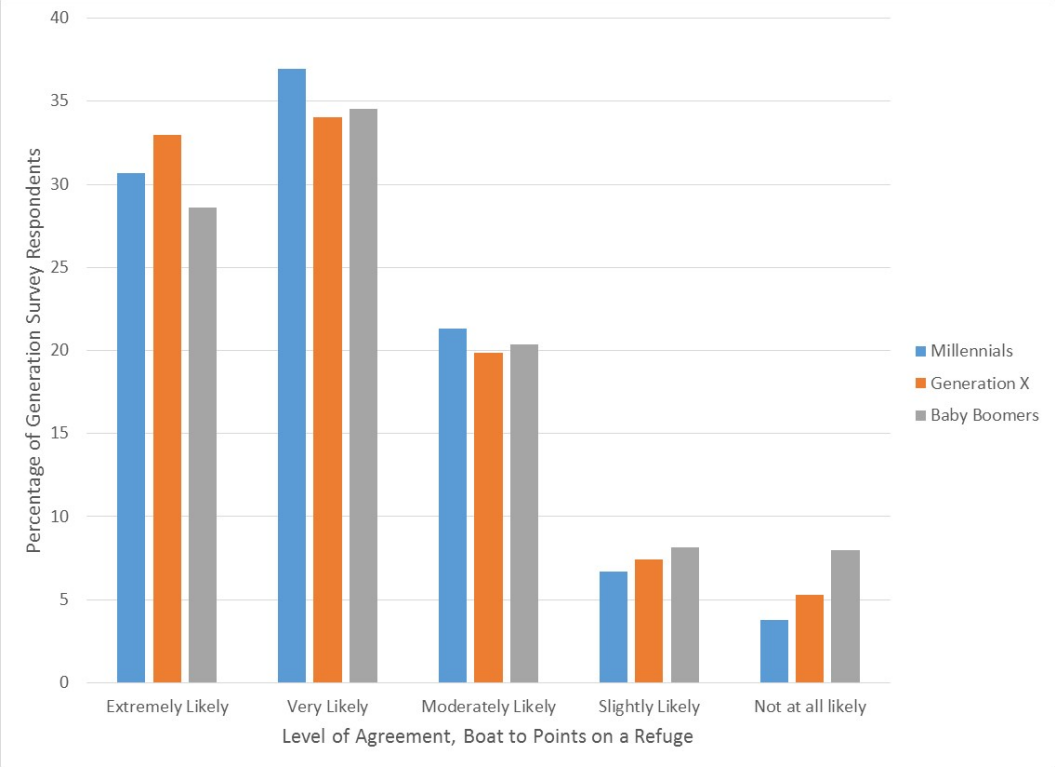



**Figure 46: Boat to Points on a Refuge, by Generation**

When grouping the results for the positive and negative categories, while generally the neutral percentages are similar, there is slightly more interest by the younger generations with Baby Boomers expressing less agreement and more reported disagreement (Figure 47).

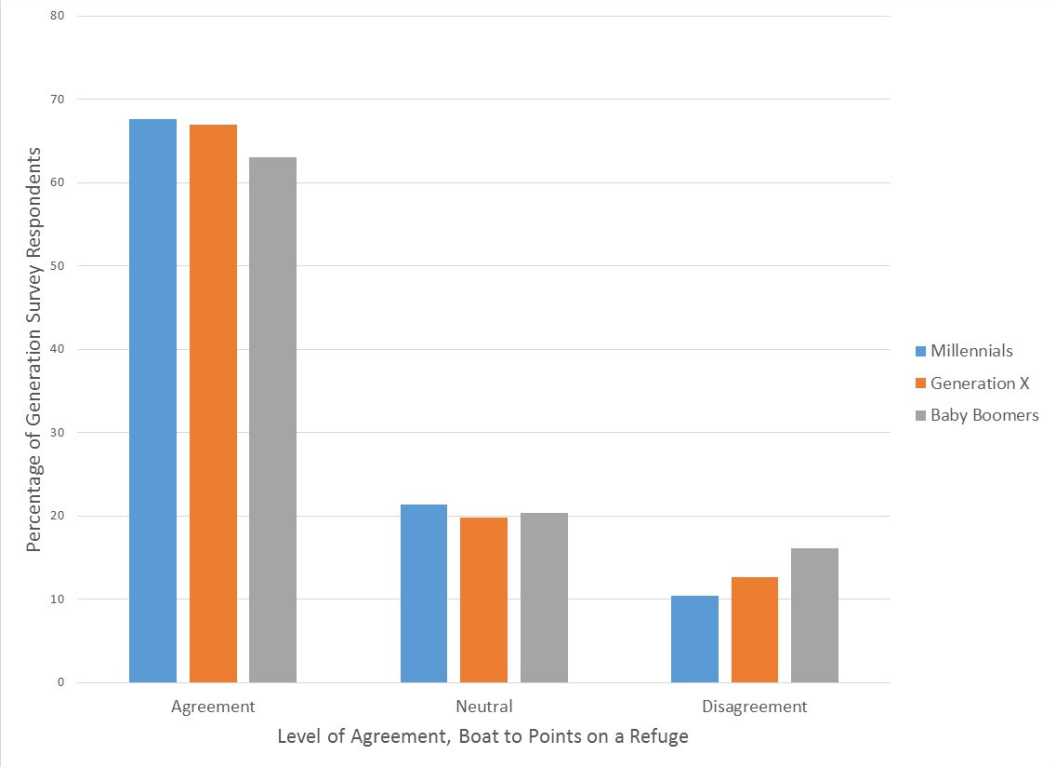



**Figure 47: Boat to Points on a Refuge, by Generation, Condensed**

### 4.4.5. Offsite Parking Access to Walking/Hiking

Survey respondents were asked about their level of interest in "An offsite parking lot that provides trail access for walking/hiking onto the Refuge." With "Extremely Likely" representing a 5 and "Not at all likely" representing a 1, survey respondents reported on average a 3.65. Therefore, survey respondents' interest appears to fall between moderately and very likely.

When grouped by state, survey respondents from Texas expressed the least interest in using offsite parking for trail access to hike or walk onto the Refuge. Colorado survey respondents, in contrast, had the largest percentage of survey respondents expressing an interest in this provision (Figure 48).

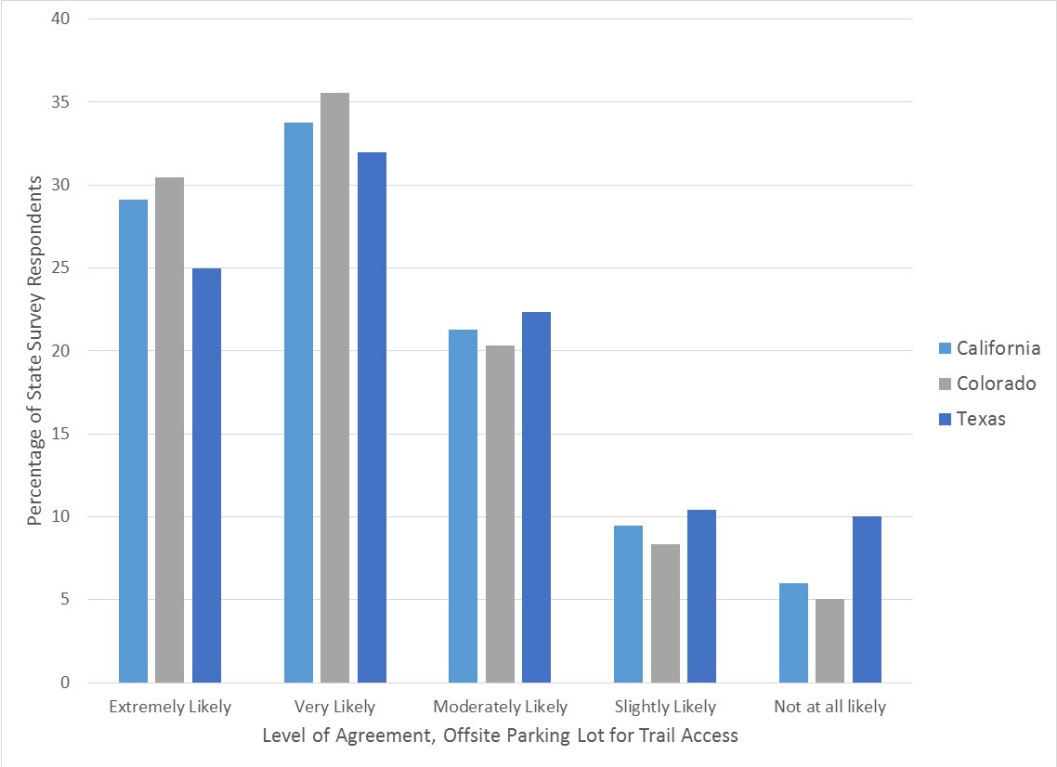



**Figure 48: Offsite Parking for Walking/Hiking, by State**

By generation, there was a very distinct difference between Millennials and Baby Boomers regarding their interest in a parking lot that provides trail access for walking/hiking onto the Refuge. Overall, Millennials and Generation X showed more interest in a parking lot that provides trail access for walking/hiking when compared with Baby Boomers (Figure 49).

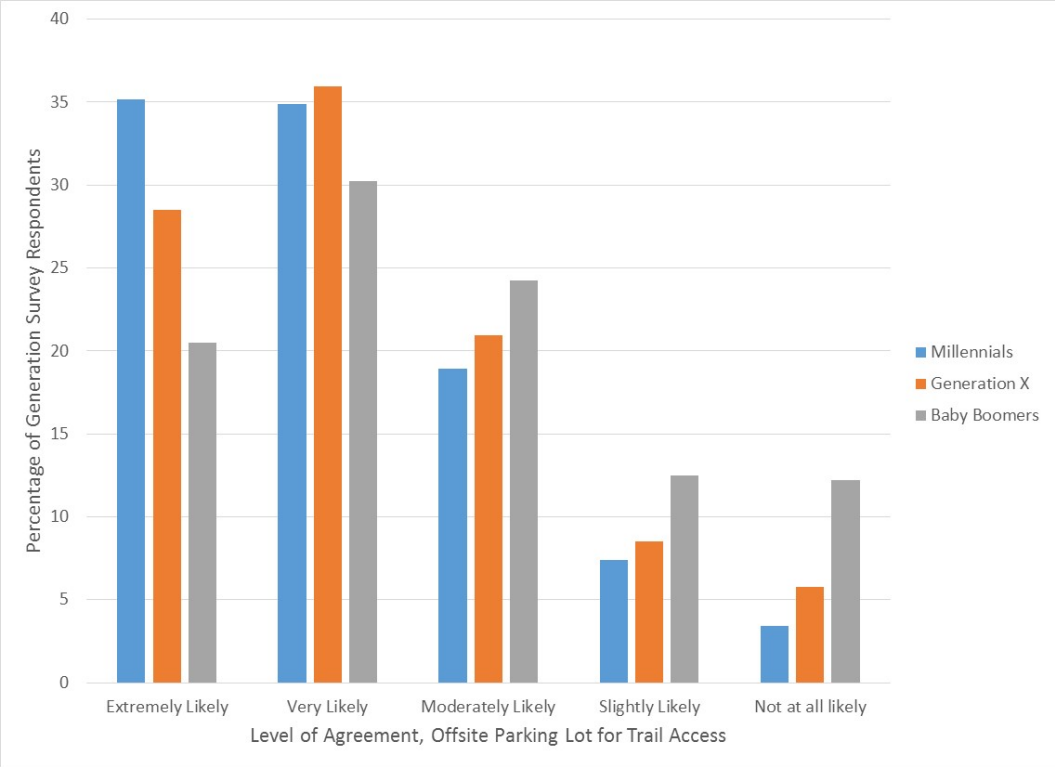



**Figure 49: Offsite Parking for Walking/Hiking, by Generation**

### 4.4.6. Physical Limitations

There is a need to understand the physical limitations of visitors, as it may impact modes that they can use if special provisions are not available (i.e. electric assist bicycles; tricycles; etc.). The Literature Review also indicated that those with declining mobility were more likely to use shuttles on federal lands. Survey respondents were asked if they could only walk limited distances, including as the result of traveling with small children. Just about half of all survey respondents indicated yes, with the most being from Texas and the least from Colorado (50.9% to 45.4%). The most frequent reason why survey respondents indicated that they could walk limited distances was the result of pain/discomfort. This suggests that half of the population sampled in California, Colorado and Texas may be less interested in walking and bicycling transportation modes unless concerns are addressed. For example, De Hoge Veluwe National Park in the Netherlands offers bicycle options specifically for disabled visitors (see Figure 6 in (31)) and for those traveling with children.

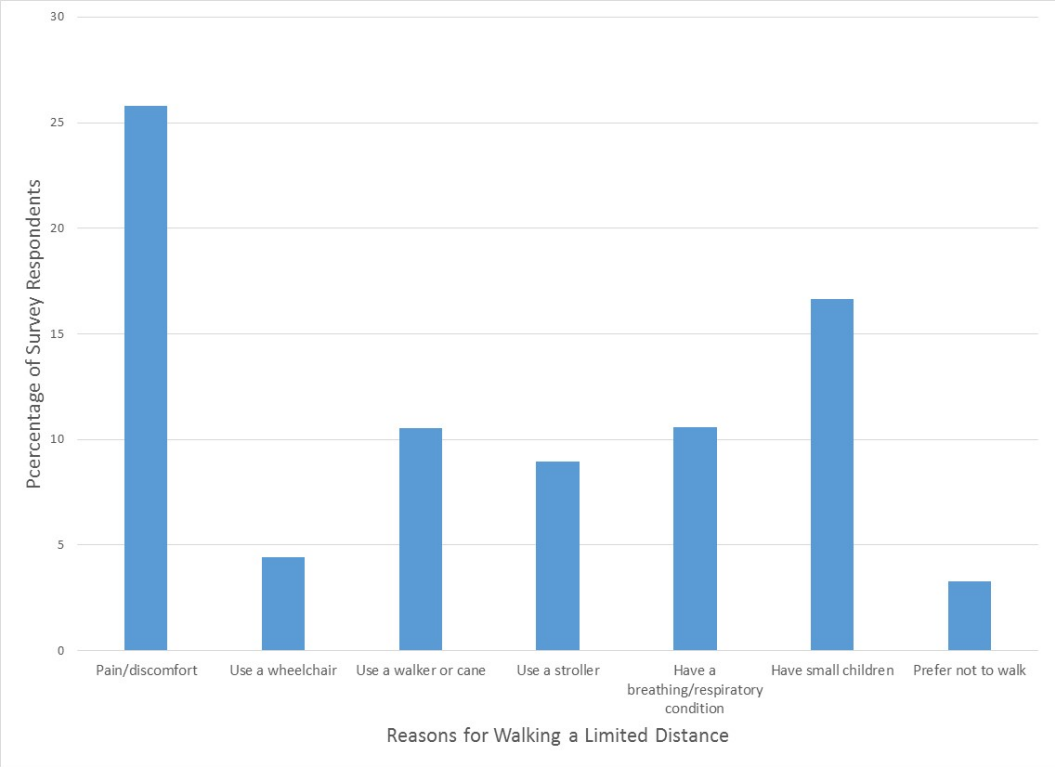



**Figure 50: Causes of Ability to Walk Limited Distances**

Additional details can be found in Question 13 in Appendix C.

This section showed that, when asked about a variety of bus/tram provisions within a Refuge (point-to-point, guided, special event), overall survey respondents were supportive of using alternative modes. From a state viewpoint, those from California and Texas were more supportive of bus/trams on Refuges than survey respondents from Colorado. There were also hints that Millennials were least interested in guided tours, which could be tied to the expectation of interpretive or historical information being conveyed via this type of transportation. In general, survey respondents reported an interest in using such a service if the frequency were less than 15 minutes. A dichotomy of interest was shown by Texans, with some percentage of survey respondents indicating that they would never use while another percentage indicated that they would always use it. Upon further analysis, geographic location of survey respondents within the state did not impact these opposing viewpoints. However, when looking at Millennial income levels, there is a suggestion that income may help to explain these dichotomies. The younger generations (Millennials and Generation X) showed far more interest in bike share and an offsite parking lot for hiking and walking as compared with Baby Boomers, and survey respondents from Colorado showed more support for these options than respondents in the other two states. Finally, pain and discomfort were reported as limiting approximately a quarter of survey respondents from walking far, with approximately fifty percent of the entire sample reporting physical limitations. This is an important consideration when planning for transportation to and on-site a Refuge.

# 5. CONCLUSIONS & FUTURE RESEARCH

This section first presents the conclusions associated with the findings (Public Transportation at Home, Interest in Traveling to a Federal Land, Distance and Options to Travel to Federal Lands, and Transportation within a Refuge) and then recommends future research ideas.

## 5.1. Conclusions

### 5.1.1. Public Transportation at Home

As seen in other reports, the majority of Baby Boomers reported never using public transportation at home. In contrast, significantly fewer Millennial survey respondents reported never using public transportation at home. Of the Millennials who reported using some type of public transportation at home, the frequency of use was distributed relatively evenly across the three most frequent use categories. From a state perspective, Texas survey respondents had the largest percentage of survey respondents who reported never using public transportation at home. Survey respondents from small towns reported using public transportation at home the least; however, this is likely in large part a reflection of limited public transportation options in these communities.

### 5.1.2. Interest in Traveling to a Federal Land

When considering activity preferences, the findings from the data collected from survey respondents at the state level were not consistent with those collected on-site at Refuges; the former indicated a preference for walking and the latter indicated a preference for photography and wildlife watching when asked about activity interests. There is a need to understand if there is a bias in those currently visiting Refuges for these activities, or if these activities are preferred to walking when a survey respondent is asked about these activities at a Refuge – does the context change activity preference?

As a whole the, younger generations (Millennials and Generation X) reported more interest in activities found on Refuges than Baby Boomers. The younger generations also expressed more interest in participating in all of the activities found in Refuges than did the Baby Boomers. The younger generations also indicated more interest in these activities when engaged in them with family and friends than alone, supporting the suggestion of the "social generation." This is a different result than that found with Baby Boomers; as an example, their interest in bicycling decreased with family and friends than when alone.

The survey produced some interesting results regarding visitors' interests in learning and interacting with nature and wildlife in federal lands. Survey respondents indicated the highest level of interest in learning about nature. This result is promising from a USFWS perspective, in that Federal land managers can potentially better connect people to USFWS Refuges through interpretive programs; however, with present fiscal challenges, the ability to offer such programs may be limited. In contrast, *immersing oneself in nature* and *being in the presence of wildlife* were rated the lowest. Considering the aforementioned mission of the USFWS, "to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American public" (1), this result should be concerning. Showing a lack of interest in being in the presence of wildlife coupled with wildlife encounter identified as one of the top four safety concerns potentially suggests a fear of wildlife. Interestingly enough when looking at the details of these two statements (immersing oneself in nature and an interest in engaging with wildlife), Millennials

showed the most interest, which disputes findings by other studies that suggested less engagement by Millennials with nature and wildlife (13). The reader, however, should keep in mind the states from which this data was drawn (California, Colorado and Texas), as it might be that Millennials east of the Mississippi have different viewpoints. In addition, Millennials were found to be less interested in learning about history, which correlates well with other findings ( (10), (12)).

Some survey respondents, who fall within the Baby Boomer age range, made it very clear that they did not see cell phones as being appropriate on federal lands (including specific comments along these lines). However, as exemplified by approximately sixty-five percent of all survey respondents indicating that the lack of cell phone coverage was a safety concern, the majority of the population might see the lack of cell phone coverage in certain areas as a barrier or limitation of where they choose to recreate in federal lands. The *Literature Review* identified the value of connectivity (i.e. posting photos of their experiences, immediate notification of a hotel booking) to Millennials ( (11), (12), (21)). The researchers can only suggest the need to discuss this topic further, as the solution to this finding is likely to be multi-faceted. It may be that federal land management agencies should consider some kind of policy or recommendations that either cover each agency (e.g., USFWS, NPS, etc.) or that is all-encompassing. There is the potential that some of the younger generations depend upon their cell phone as a safety blanket, as they have grown up with them. Therefore, a system which would allow visitors to connect to an emergency system could be considered.

Generation X households, with Millennial households close behind, reported *owning some type* of interagency recreation pass the *most*. Millennial households had the *lowest percentage* of no one in the household owning a pass; however, Millennials also had the largest percentage of survey respondents who were not sure if they owned a recreation pass.

Apart from Senior Passes, Baby Boomers reported the lowest percentage across all types of owning Interagency Recreation Passes. The question then becomes, are Baby Boomers making use of their Senior Passes, or do they just purchase them for a visit and never use them again? As an anecdotal example, one researcher knows of a Baby Boomer who purchased a Senior Pass when presented with the opportunity to visit Rocky Mountain National Park. That Baby Boomer reported having a glorious time exploring the park using the shuttle bus system, something he still talks about to this day. Yet, since that experience, that Baby Boomer has not made the individual effort to make use of the pass again. Further, that Baby Boomer would not have taken the initiative to explore that park, particularly using the shuttle bus system, had it not been presented by his child. In the end, it may be that visiting a National Park or other federal lands should be encouraged as a familial experience, where across generations, fears about enjoying America's greatest resources can be overcome without anyone having to admit that they may have them. This suggestion would be in line with the experience reported by the Egan father and son (21).

Timothy Egan in his National Geographic article suggested that *"A conservation constituency in a newer generation will be needed to protect wild places through the next hundred years."* This statement was bolded within the article. Yet, the results of this study along with research by The Colorado College suggest that the Millennial generation is not as disengaged with federal lands as previously thought, at least Millennials west of the Mississippi River, where the data from these two studies has been drawn. In contrast, Baby Boomers, even if they were visitors in the past, self-report no longer visiting in the present.

Several survey respondents reported being inspired to recreate on their federal lands as a result of the survey. Therefore, federal land management agencies should consider partnering to making Americans aware of federal lands near them to ensure that they remain relevant. While National Parks are relatively well-known, the other federal lands seem to be less known by the majority of Americans, and in general, there seems to be confusion regarding the differences between federal lands and other public lands, as suggested by comments and confusion related to answering the question about ownership of interagency passes. To remain relevant, federal land management agencies must be known by Americans regardless of the generation to which they belong.

### 5.1.3. Distance and Options to Travel to Federal Lands

The results related to options for traveling to federal lands were surprising. It was expected that Millennials would report that they did not have enough options. Yet instead, Baby Boomers reported less agreement regarding whether they have enough options for traveling to federal lands, with a larger percentage of survey respondents indicating a neutral viewpoint on having options. It is unclear if this means that Baby Boomers do not want other options and feel the present ones are sufficient, or if they do not have an interest in traveling to federal lands in the first place.

When considering distance, again, Millennials reported that distance influences their mode choice. For Baby Boomers, there were more neutral responses for whether distance influences mode choice; among the other options, the results were more consistent, albeit a little bit more disagreement than agreement.

### 5.1.4. Transportation within a Refuge

The results regarding bus/tram provisions on a Refuge were surprising. Texas survey respondents and Generation X survey respondents expressed the greatest interest in all three types of bus/tram services (service to different points, guided tour, provided for a special event). Millennials reported only a slightly greater interest in using a bus/tram for travel to points on a Refuge and during a special event than Baby Boomers in this type of provision, while Baby Boomers expressed more interest in guided tours than Millennials. It also suggests that there may be differences between what current Refuge visitors want, and what the general population of a state may be interested in. Additional research should focus on drilling down to determine if provisions like point-to-point shuttle services might attract different generations into a Refuge.

Providing shuttle services with a frequency of fifteen minutes or less could capture approximately seventy-seven percent or more of survey respondents. In addition, there did not appear to be significant differences between the time a survey respondent was willing to wait across generations. Whereas the Millennial and Generation X generations had relatively consistent percentages across all frequency options, Baby Boomers had a significantly larger number of survey respondents who indicated that the wait time for a shuttle was irrelevant because they would use a shuttle on a Refuge no matter what the frequency was. They also had the largest percentage, although small, that indicated that they would never use a shuttle. Because of the small sample size, the researchers could not identify characteristics that are different for these groups. However, this should be a future effort. Another interesting result is that again, Texas, as compared with the other two states, had survey respondents who indicated most often that they would use a shuttle within a Refuge regardless of the service frequency. However, there are implications that these results may reflect economic disparities.

From a state perspective, the results regarding interest in a bike share being provided on a Refuge were surprising. For example, Colorado, which in 2015 was ranked seventh in list of bike-friendly states (32), showed the least interest in a bike share program being provided on a Refuge when compared with the other two states. This result is surprising because Colorado is often associated with bicycling.

As expected, Baby Boomers showed the least interest in using a bike share on a Refuge. This result could be somewhat tied to reported physical limitations (20). While it was expected that Baby Boomers would be less interested in bike share, the difference between the Millennial preference for and Baby Boomer preference against bike share within a Refuge was a bit surprising. The results do correlate well with results from on-site visitor surveys, which had an average age represented within the Baby Boomer generation and reported the same results: little interest in bike share on a Refuge (2). These results also correlate well with the perception that Millennials are interested in physically engaging activities (10) and may look for bicycling options as they were reported to prefer communities that enable bicycling (14). Therefore, providing something like bike share on a Refuge would really be appealing to the younger generations. However, as discussed in *White Bikes of De Hoge Veluwe National Park, Netherlands: Case Study for Consideration by U.S. Federal Land Managers* (31), considering the life stages of these two groups, it would likely be of value to ensure that if a bike share was implemented, the bikes should be equipped with child carriers, which can also be used by those without children to carry items.

The younger generations (Millennials and Generation X) also showed a greater interest in a boat tour than the Baby Boomers. When combining very likely and extremely likely survey respondents, each of the younger generations had approximately seventy percent reporting affirmatively. Assuming that the percentage reported by Sexton et al. (2) represents both very likely and extremely likely, where sixty-five percent of survey respondents expressed an interest in boating, Sexton's finding correlates with this study when considering the percentage of Baby Boomers who indicated their interest (63%).

The younger generations also showed the greatest interest, by far, for an offsite parking lot for walking/hiking, with even large differences existing between the Millennials and Generation X (70% vs. 65%). Findings reported by Sexton et al. (2) correlate more with that reported by Generation X, with approximately sixty-six percent of survey respondents reporting that they would be likely to use the option (again, it is unclear if Extremely Likely and Very Likely were grouped in the Sexton et al. results). The interest by Millennials in an offsite parking lot correlate well with their interest in physically engaging activities.

When comparing states, Colorado survey respondents showed the least interest in the public transportation options. However, when asked about their interest in offsite parking to access a walking or hiking trail, Colorado survey respondents showed more interest than California and Texas survey respondents.

Just under fifty-percent of the survey respondents across all three states indicated that they could walk limited distances because of their age, including those with children who were too young to walk too far. Texas survey respondents reported the largest percentage of individuals who could only walk limited distances at 50.9%, which was just more than five percent greater than that which was reported in California. Not surprisingly, Baby Boomers reported the largest percentage of individuals who could walk limited distances; what was surprising is the relatively large percentage of Millennials (46.6%) who reported the same limitations.

So, what does this all mean to the US Fish and Wildlife Service? The final section identifies a number of issues that warrant further exploration by USFWS or individual states in order to gain a deeper understanding of transportation provisions that may attract various generations of visitors both now and in the future.

## 5.2. Suggestions for Future Research

The following two sections first identify recommended changes or additions to the questions used in this research if they are used for future research, and then provide recommended avenues of research for which additional study is needed.

### 5.2.1. Recommended Survey Question Changes

While the survey questions that were developed asked how strongly a survey respondent agreed with a variety of statements (related to adventure, etc.), what one person defines as adventure, immersing in nature, etc. may vary significantly from what another defines as adventure. It would be of value for future efforts to ask survey respondents for qualitative input after asking their level of agreement. For example, it would be of interest to understand if a Millennial, who reported interest in engaging in adventurous endeavors, would describe assisting a biologist in a study as an "adventure."

One question asked survey respondents to rate their level of interest regarding their use of "An offsite parking lot that provides trail access for walking/hiking onto the Refuge." It is possible that some survey respondents interpreted this as the only way one would be able to access a Refuge, as compared with a separate provision which would allow a visitor to access a trail that was not connected to the visitor center (if one exists). Essentially, the theory of the question was to see if a survey respondent would be interested in more options to access a Refuge. It might be worthwhile to re-word the question in future research to clarify the intent and see if it produces different results.

A recommendation for future studies is to separate out the impacts of bad weather on driving experiences as compared with situations where one experiences bad weather while out backpacking, hiking, walking, or biking. A similar recommendation is made with respect to the safety concern – got lost. The consequences of getting lost while driving (unless there are few gas stations or the individual is engaging in backcountry driving), are typically less serious as compared with getting lost while hiking.

Survey respondents were asked whether they needed emergency services. However, no additional information was obtained. It would be of value to ask those that report 'yes," to provide additional information if they are willing. It could be, for example, that more urbanized residents experience safety concerns of this type as a result of lack of experience with recreating in more rural areas.

The question regarding Interagency Recreation Passes needs to include an option to allow people to provide information about park-specific passes (e.g. an annual pass to Sand Dunes National Park). This might provide further information on visitation patterns, parks with successful pass promotion programs, and other potentially valuable findings.

The researchers asked survey respondents if distance influenced how they traveled to federal lands. For future research, it would be of interest to include an open-ended question after the affirmative and negative to ask them why or how, potentially providing an example.

### 5.2.2. Future Work

The results for this study were, as identified in the title, focused on Refuges in California, Colorado and Texas. There is a need to understand if these results are consistent with or different for citizens living in other regions in the United States, particularly individuals east of the Mississippi River. For example, as identified in the survey results section, while it would appear that walking may be the activity of interest held by the majority of the general population (as compared with the photography and wildlife watching preferences from on-site Refuge visitors), it is unclear whether or not this could also be a reflection of the sampled states. It could also help to explain how the results found within this study and by The Colorado College disagree with the perception that Millennials are not engaging with their federal lands.

Another opportunity for future work is to access opinions of those in America who do not speak English. Therefore, as other locations are considered for future data collection, a consideration of non-English languages that may be well represented in target regions should be considered for data collection.

The results suggested differences across states and generations with respect to the type of transportation preferences offered on Refuges. Additional research should focus on drilling down to determine if provisions like point-to-point shuttle services might attract different generations into a Refuge.

There still seems to be a large sector of the American population that is either unaware, has no attraction for, or that feels that federal lands, like USFWS units, are not for them. In order to remain relevant, there is still more room to work with partners and reach out to the general population to invite them to experience, appreciate, and protect these lands that are for all Americans living today, and in the future.

Quite a few comments provided by survey respondents expressed an interest in continuing to enjoy federal lands; however, they reported that disabilities or limited mobility restricted their participation. As the Baby Boomer generation ages, it will be a challenge for federal land managers to try to provide provisions on their federal lands to continue to encourage that visitation while remaining true to the mission of the federal land. This may also, in part, relate to the question identified as a result of the responses – why does it seem that some of the older generations no longer visit federal lands when they reported having done so when they were younger? Is it because of physical limitations? Are they no longer attracted to the activities that take place on federal lands? Or do they feel that once they have seen it, they do not need to see it again? More research should be conducted to better understand why the Baby Boomer generation and possibly those beyond that generation are no longer frequenting federal lands.

Along these lines, there is also an information gap related to the limited data collected from the current Interagency Recreational Pass program. For example, it would be useful to understand where annual pass holders were recreating and where senior pass holders were recreating. If the Pass program could be upgraded to collect more usage data, it could provide information on facilities that could attract a broader audience or locations where there may be opportunities to encourage visitation to alleviate overcrowding.

Similarly, more could be understood by performing a survey of “Every Kid in a Park” pass holders. It would be helpful to know if pass recipients gained a greater understanding and appreciation of federal lands after they obtained the pass.

There is also a need to better understand how non-online purchasers of interagency recreation passes recreate, and a potential research project would be providing a survey to learn more about this from purchasers of a pass in a certain year or potentially as a longitudinal study.

The author recommends more in-depth research regarding some of the suggestions for the responses received (e.g. are Millennials more critical of road conditions or do they travel within federal lands in areas that have lower quality roads; do Millennials who travel to federal lands typical explore in the front country, or are they more frequent users of the backcountry; does a lack of interest in being in the presence of wildlife correlate to a fear of wildlife). Focus groups could be utilized in future research to better understand some of these deeper questions.

One interesting finding was that while survey respondents indicated that they wanted to learn more about nature, they showed less interest in *being* in nature. It would be of value to better understand why there is an apparent disconnect on this issue. As suggested by the question about safety concerns, it could be that potential visitors may be scared of "being in nature." As mentioned in the conclusions, it should be investigated further if the younger generations rely on their cell phones as a safety mechanism; therefore, does the inability to always connect on a federal land limit their feeling of safety? Do Millennials who engage in social media to a lesser degree tend to engage with federal lands more than those who have embraced social media as a "lifestyle"?

# 6. APPENDIX A – SSI'S SAMPLING METHOD

The following pages provide information regarding SSI's sampling method.

## ESOMAR 28

### 28 QUESTIONS TO HELP RESEARCH BUYERS OF ONLINE SAMPLES

The primary aim of these 28 Questions is to increase transparency and raise awareness of the key issues for researchers to consider when deciding whether an online sampling approach is fit for their purpose. Put another way, the aim is to help researchers to ensure that what they receive meets their expectations. The questions are also designed to introduce consistent terminology for providers to state how they maintain quality, to enable buyers to compare the services of different sample suppliers. Notes on the context of the questions explain why the questions should be asked and which issues researchers should expect to be covered in the answer.

These new questions replace ESOMAR's "26 Questions to help Research Buyers of Online Samples". ESOMAR has updated the text to recognize the ongoing development of techniques. While some of the questions remain constant, new questions have been added to incorporate new techniques and new technology in this area. In particular, this revision recognises the broad trend within the industry to build online samples from multiple sources rather than relying on a single panel.

It should be noted that these 28 Questions focus on the questions that need to be asked by those buying online samples. If the sample provider is also hosting the data collection you will need to ask additional questions to ensure that your project is carried out in a way that satisfies your quality requirements.

The 28 Questions complement ESOMAR's Guideline to Online Research which was revised in 2011 to add updated legal and ethical guidance and new sections on privacy notices, cookies, downloadable technology and interactive mobile.

### COMPANY PROFILE

1. **What experience does your company have in providing online samples for market research?**
   **Context:** This answer might help you to form an opinion about the relevant experience of the sample provider. How long has the sample provider been providing this service and do they have for example a market research, direct marketing or more technological background? Are the samples solely provided for third party research, or does the company also conduct proprietary work using their panels?

SSI, founded in 1977, was the first company to make random sample available to researchers and invented the random sampling telephone methodologies which are still considered the gold standard today. SSI has offered online sample for over 15 years. With its roots in the methodology of random telephone sample, SSI is the only provider to offer sample across the full range of modes, including telephone (both fixed/landline and wireless/mobile) address-based, mail, face-to-face, online, mobile and mixed access and mixed mode sampling. SSI is therefore uniquely positioned to recommend the best methodology for each research project.

SSI offers the broadest reach in global sample available as well as global telephone data collection services. SSI partners with researchers to conduct more than 23 million online interviews a year. The resulting deep sampling and data collection expertise enables SSI to provide consultation for each stage of the process—including sample methodology, questionnaire design as it relates to the participant experience, contact methods and rewards—ensuring that the right people complete the questionnaire carefully and attentively.

SSI has decades of experience with trackers, diaries, blogs, online bulletin boards and more, and is the sampling provider chosen by more than 3000 clients including universities, political polling and consumer and business-to-business researchers, as well as the top 50 research organizations. SSI provides sample across 72 countries, and has 26 offices spanning every time zone and staff fluent in 36 languages.

# ESOMAR 28

## SAMPLE SOURCES AND RECRUITMENT

2. **Please describe and explain the type(s) of online sample sources from which you get respondents. Are these databases? Actively managed research panels? Direct marketing lists? Social networks? Web intercept (also known as river) samples?**

   **Context:** The description of the types of sources a provider uses for delivering an online sample will provide insight into the quality of the sample.

SSI's 34 proprietary panels across the globe are at the core of SSI's online sample. Since SSI's research shows that only certain types of people want to join an online panel, SSI improves the quality and representative nature of its online sample by incorporating participants from online communities, social networks, and websites of all types. SSI's sample recruitment is quite different from the simple "river" approach: participants are invited via banners, invitations and messaging of all types, but then go through rigorous quality controls before being included in any sample.

SSI can potentially access anyone online via a network of relationships with websites, panels, communities and social media groups. SSI's goal is to provide access to people to give their opinions wherever they are in the way that best suits the needs of the research project.

3. **If you provide more than one type of sample source: How are the different sample sources blended together to ensure validity? How can this be replicated over time to provide reliability? How do you deal with the possibility of duplication of respondents across sources?**

   **Context:** The variation in data coming from different sources has been well documented. Overlap between different panel providers can be significant in some cases and de-duplication removes this source of error, and frustration for respondents.

Because sources are not only different from each other, but can also change over time, SSI uses a combination of personality and psychographic characteristics to understand and identify the underlying traits which make a difference in the way people answer survey questions. By controlling the characteristics of people within the sample, based on asking them a short set of key questions, SSI has been able to make available to the market a sample blend which is exceptionally consistent, when measured by comparison with external benchmarks, including telephone sample studies and Industry Measures such as the Grand Mean. The Grand Mean auditors commented that "SSI has clearly demonstrated an ability to be consistent in more markets than any other company." The SSI Blend is continuously monitored and calibrated by a dedicated team of methodologists and analysts.

SSI uses a suite of controls to ensure duplicates are not present in any online sample and to ensure the quality of survey data.

4. **Are your sample source(s) used solely for market research? If not, what other purposes are they used for?**

   **Context:** Combining respondents from sources set up primarily for different purposes (like direct marketing for example) may cause undesirable survey effects.

SSI does not conduct any direct marketing or allow any of its proprietary panels to be used for direct marketing. Since research shows that the appeal of joining a research panel is limited, SSI improves the breadth and

representative nature of its sample by including additional sources of all types within its sample blend, including sources which have a direct marketing purpose. SSI's recruitment practice is to include a multitude of diverse sources to minimize bias. SSI also engages in complete transparency with clients, and any potential for source effect can be fully discussed at the sample planning stage.

5. **How do you source groups that may be hard to reach on the internet?**

   **Context:** Ensuring the inclusion of hard-to-reach groups on the internet (like ethnic minority groups, young people, seniors etc.) may increase population coverage and improve the quality of the sample provided.

SSI works with communities of interest of all types to incorporate rare populations into the online sample blend. Recognizing that motivations may be very different across different demographic groups, SSI's methodology allows participants to be rewarded in the way that makes most sense for them, so that the survey-taking experience will be satisfying to them and they will want to come back and take another survey again in the future. By leveraging relationships with appealing, well-known brands, SSI uses loyalty mechanisms relevant to difficult-to-reach populations.

SSI also realizes that online may not be the best solution for every project. SSI is methodology-neutral, and able to assist clients in understanding the tradeoffs of each method and recommending the best methodology for the specific research need.

6. **If, on a particular project, you need to supplement your sample(s) with sample(s) from other providers, how do you select those partners? Is it your policy to notify a client in advance when using a third party provider?**

   **Context:** Many providers work with third parties. This means that the quality of the sample is also dependent on the quality of sample providers that the buyer did not select. Transparency is essential in this situation. Overlap between different providers can be significant in some cases and de-duplication removes this source of error, and frustration for respondents. Providers who observe process standards like the ISO standards are required to give you this information.

All partners providing significant sample for SSI's sample blend must go through SSI's Certification Process before being used for any client project. SSI monitors vendor respondent quality over time and does not enter - nor continue - with sources who cannot maintain consistently excellent scores.

The Certification Process includes the fielding of test surveys to assess the quality of the participants and their responses, including a number of proprietary Quality Control checks. Providers are also required to submit documentation describing participant recruitment, management and reward practices.

SSI always notifies a client in advance if requested when sample from a source not managed by SSI is used.

## SAMPLING AND PROJECT MANAGEMENT

7. **What steps do you take to achieve a representative sample of the target population?**

   **Context:** The sampling processes (i.e. how individuals are selected or allocated from the sample sources) used are the main factor in sample provision. A systematic approach based on market research fundamentals may increase sample quality.

## ESOMAR 28

This process starts with understanding exactly what the target population is. Participants are selected from SSI's online sample stream, a consistently managed, diverse and large frame. To minimize the risk of bias, SSI uses a three-stage randomization process in matching a participant with a survey they are likely to be able to complete. First, participants are randomly selected from SSI's panels to be invited to take a survey, and these participants are combined with others entering SSI's SSI Dynamix™ sampling platform after responding to online messaging. A set of profiling questions is randomly selected for them to answer. (These are methodologically correct questions, never affirmation questions) and upon completion, participants are matched with a survey they are likely to be able to take, using a further element of randomization.

8. **Do you employ a survey router?**

   **Context:** A survey router is a software system that allocates willing respondents to surveys for which they are likely to qualify. Respondents will have been directed to the router for different reasons, perhaps after not qualifying for another survey in which they had been directly invited to participate, or maybe as a result of a general invitation from the router itself. There is no consensus at present about whether and how the use of a router affects the responses that individuals give to survey questions.

Yes, routing is a component of the SSI Dynamix™ sampling platform. SSI sees many benefits in the use of a well-designed and carefully-managed router. Routers can provide a much better participant experience, which results in a larger available sampling frame; they allow sample providers to better meet the low-incidence, scarce-population and short-field-time needs of today's researchers; and routers greatly minimize the risk of self-selection bias.

9. **If you use a router: Please describe the allocation process within your router. How do you decide which surveys might be considered for a respondent? On what priority basis are respondents allocated to surveys?**

   **Context:** Biases of varying severity may arise from the prioritization in choices of surveys to present to respondents and the method of allocation.

SSI's router was designed from the point of view of improving the participant experience, since the biggest source of dissatisfaction among participants is being turned away from surveys we have asked them to take for us. Since participant dissatisfaction leads to smaller sampling frames and risks participant fatigue and satisficing, a properly-designed router provides real quality benefits.

Multi-stage randomization is incorporated into the SSI Dynamix™ sample platform routing. Participants are randomly assigned to a series of profiling questions. Based on their answers, they are assigned, again using a randomization factor, to a survey they are likely to be able to take. Other factors considered in the assignment include the likelihood that they will be able to complete the survey and the characteristics of the specific study, including factors such as field time and incidence.

10. **If you use a router: What measures do you take to guard against, or mitigate, any bias arising from employing a router? How do you measure and report any bias?**

    **Context:** If Person A is allocated to Survey X on the basis of some characteristic then they may not be allowed to also do Survey Y. The sample for Survey Y is potentially biased by the absence of people like Person A.

## ESOMAR 28

While bias is inherent in every router, it is minimized when the router contains a large volume of diverse projects. (A router with only a few projects, where the research topic or target population is closely correlated has an increased risk of bias.) The risk of bias is again minimized if the router is managed system-wide by a dedicated team and closely monitored for consistency.

SSI ran a test of 43 real client projects, both with the SSI Dynamix™ sample platform router and without any router. No evidence was found that the router caused differences in the data obtained. In 36 of the 43 cases, there was no difference at all in the data, and in the remaining cases, the differences were attributable to other factors such as seasonality. A detailed White Paper on these tests is available from SSI.

Several SSI methodologists and analysts have been invited to take part in developing Industry Best Practices for routers and are active on industry Task Forces and Committees on this topic.

The potential for bias introduced by routers must be weighed against biases occurring in a non-router environment, within which participants self-select from a number of individual survey invitations in their inbox. With a router, that self-selection bias, and additional potential biases caused by invitation wording, reward or survey topic are absent.

**11. If you use a router: Who in your company sets the parameters of the router? Is it a dedicated team or individual project managers?**

**Context:** It may be necessary to try to replicate your project in the future with as many of the parameters as possible set to the same values. How difficult or easy will this be?

This responsibility and ownership is firmly in the hands of a dedicated team; individual project managers do not have access to the controls. This is important because integrity of the sample must override any immediate demands of an individual project.

Since SSI has a sample blend which is controlled for consistency by underlying characteristics of participants, and the consistency of the blend is constantly monitored and calibrated using external benchmarks, clients can expect consistent sample over time. In addition to blend controls, the combination of source types is also carefully monitored for tracking studies.

**12. What profiling data is held on respondents? How is it done? How does this differ across sample sources? How is it kept up-to-date? If no relevant profiling data is held, how are low incidence projects dealt with?**

**Context:** The usefulness to your project of pre-profiled information will depend on the precise question asked and may also depend on when it was asked. If real time profiling is used, what control do you have over what question is actually asked?

SSI holds profiled information on all participants. The methodology and process is the same whatever the sample source. Profiling is important in providing a good participant experience by avoiding repetitive questions. SSI profiling selects include ailments, hobbies and lifestyles, product ownership, media consumption, auto ownership, travel, shopping habits, purchase intent by category, business titles and responsibility and employer profile information as well as deep demographic and geographic profiles.

## ESOMAR 28

SSI fields only methodologically sound profiling questions, never affirmation questions, and the precise wording of any profiling question is always available upon request. In the tradeoff between profiling accuracy and excluding eligible participants, SSI will always err on the side of ensuring all eligible participants are available for selection.

Each profiling question is stored in a library, managed by a dedicated team, and each question has an expiration date. For example, a question asking if someone likes to play golf will not be updated as frequently as one asking if someone has a current sports injury. Once again, there is a tradeoff between burdening participants with too many profiling questions and maintaining updated data. The collection date range for any profile item is configurable and can be discussed at the sample planning stage.

13. **Please describe your survey invitation process. What is the proposition that people are offered to take part in individual surveys? What information about the project itself is given in the process? Apart from direct invitations to specific surveys (or to a router), what other means of invitation to surveys are respondents exposed to? You should note that not all invitations to participate take the form of emails.**

    **Context:** The type of proposition (and associated rewards) could influence the type of people who agree to take part in specific projects and can therefore influence sample quality. The level of detail given about the project may also influence response.

SSI uses invitations of all types to bring in people with a diversity of motivations to take part in research. These include e-mail invitations, SMS and text messages, telephone alerts, banners and messaging on web sites and online communities. The messages themselves are also varied, including invitations to give your opinion, win a prize, earn cash or prizes or let your voice be heard. A diversity of motivation contributes to high-quality sample.

To avoid self-selection bias, specific project details are not generally included in the invitation. Rather, participants are invited to "take a survey". The details are disclosed later, when a survey has been selected for them to take within the system.

14. **Please describe the incentives that respondents are offered for taking part in your surveys. How does this differ by sample source, by interview length, by respondent characteristics?**

    **Context:** The reward or incentive system may impact on the reasons why people participate in a specific project and these effects can cause bias to the sample.

SSI offers great diversity in incentive as another means to increase diversity of sample frames. Some people are motivated by cash, or points, prizes or sweepstakes or by being able to donate to charity. Others are motivated by the chance to make a difference, make their voice heard, have fun taking a survey, helping out, or having a say in the products and services of the future. Others are motivated by learning opportunities provided by the survey, or by the promise of receiving information. SSI aims to respond to all of these individual motivations, in order to provide a sample which is diverse and as representative as possible of the target population.

Rewards offered may vary by survey length and the characteristics of the population being targeted. SSI uses a reasonable level of reward based on the amount of effort required, the population, and appropriate regional customs.

SSI continues to invest in research-on-research into the motivations of online research participants, and continually adjusts its reward offerings based on these findings, and on current academic thinking about motivation and industry best practices

## ESOMAR 28

15. **What information about a project do you need in order to give an accurate estimate of feasibility using your own resources?**

    **Context:** The "size" of any panel or source may not necessarily be an accurate indicator that your specific project can be completed or completed within your desired time frame.

We will need to know 1) Who you wish to speak to; 2) What you will ask of them and 3) How much time is available to gather the data. The first item incorporates geography, demographics, incidence and quota structures and the number of completed interviews required; the second covers the length of the survey, any special tasks required, the questionnaire design and completion difficulty for the participants; the third defines the fielding period, which will impact feasibility.

16. **Do you measure respondent satisfaction? Is this information made available to clients?**

    **Context:** Respondent satisfaction may be an indicator of willingness to take future surveys. Respondent reactions to your survey from self-reported feedback or from an analysis of suspend points might be very valuable to help understand survey results.

Yes, this is measured for every participant for every completed interview. The results are made available at the end of each project as a standard part of SSI's "Project Debrief Pack." SSI supports high quality questionnaire design by underwriting a series of awards called the Quest Awards, which are handed out every year at the ESOMAR Annual Congress. The questionnaire programmer and researcher are rewarded for their efforts to provide a good participant experience.

SSI's Engagement Team is dedicated to providing a positive participant experience. The team responds quickly to participant inquiries and takes immediate action to resolve any issues of dissatisfaction.

17. **What information do you provide to debrief your client after the project has finished?**

    **Context:** One should expect a full sample provider debrief report, including gross sample, start rate, participation rate, drop-out rate, the invitation/contact text, a description of the field work process, and so on. Sample providers should be able to list the standard reports and metrics that they make available.

SSI's Standard Project Debrief Pack provides basic project information. Additional information is stored and available on request.

### DATA QUALITY AND VALIDATION

18. **Who is responsible for data quality checks? If it is you, do you have in place procedures to reduce or eliminate undesired within survey behaviours, such as (a) random responding, (b) Illogical or inconsistent responding, (c) overuse of item non-response (e.g. "Don't Know") or (d) speeding (too rapid survey completion)? Please describe these procedures.**

    **Context:** The use of such procedures may increase the reliability and validity of the survey data.

Sources used by SSI undergo a Certification Program which includes a series of quality control questions fielded with the source's sample. Sources whose participants do not perform well are not included in SSI's sample. Quality Control questions are incorporated into the questions which participants see as they are being profiled. SSI also

## ESOMAR 28

works closely with clients, marking the ID of any participant who has been reported to SSI as a potential problem participant.

Both SSI's own research-on-research and multiple industry studies have concluded that questionnaire design is the biggest factor in poor quality response. For example the ARF Foundations of Quality Study into 17 online panel sources found that bad respondent behavior is 6 times as likely to happen in a long survey compared to a short one. SSI can provide consultation on the questionnaire designs most likely to provide a good participant experience and maximize attention.

If quality control questions are used incorrectly, they risk introducing bias to the data. SSI can provide advice on the best type of questions to use and how to use them, based on our own research and industry best practices.

19. **How often can the same individual be contacted to take part in a survey within a specified period whether they respond to the contact or not? How does this vary across your sample sources?**

    **Context:** Over solicitation may have an impact on respondent engagement or on self-selection and non-response bias.

Solicitation limits vary across the hundreds of sources which make up SSI's sample stream. Some restrictions are "hard" limits, others "soft" guidelines. This diversity of solicitation level increases the diversity of sample and improves its ability to reflect the target population. Restricting solicitation, however, must be weighed against the risk of bias in excluding certain people from a survey solely based on their receipt of a previous solicitation. The sample stream is closely monitored and tested for consistency to ensure that neither solicitation frequency nor any other factor is causing unexpected change.

20. **How often can the same individual take part in a survey within a specified period? How does this vary across your sample sources? How do you manage this within categories and/or time periods?**

    **Context:** Frequency of survey participation may increase the risk of undesirable conditioning effects or other potential biases.

Participation limits vary across the hundreds of sources which make ups SSI's sample stream. Some restrictions are "hard" limits, others "soft" guidelines. This diversity of participation level increases the diversity of sample and improves its ability to reflect the target population. Restricting participation, however, must be weighed against the risk of bias in excluding certain people from a survey solely based on their previous participation. The sample stream is closely monitored and tested for consistency to ensure that neither resting nor any other factor is causing unexpected change.

Participants can be excluded from projects based on previously participation in or completion of, any specific previous study on request.

21. **Do you maintain individual level data such as recent participation history, date of entry, source, etc., on your survey respondents? Are you able to supply your client with a project analysis of such individual level data?**

    **Context:** This type of data per respondent including how the total population is defined and how the sample was selected and drawn, may increase the possibilities for analysis of data quality.

Yes, this is maintained and available on request.

## ESOMAR 28

**22. Do you have a confirmation of respondent identity procedure? Do you have procedures to detect fraudulent respondents? Please describe these procedures as they are implemented at sample source registration and/or at the point of entry to a survey or router. If you offer B2B samples what are the procedures there, if any?**

**Context:** Confirmation of identity can increase quality by decreasing multiple entries, fraudulent panellists etc.

To prevent duplication, the SSI Verify suite of quality controls includes both a best-in-class capability and additional identity controls developed by SSI.
To confirm identity, SSI employs a third party data validation service which compares respondent demographics to multiple databases and data vendors specialising in consumer information to confirm key data including name, address and date of birth.

SSI uses additional controls to minimize the risk of fraud by mining observational data to predict and understand how fraud is perpetrated; partnering with reward partners to implement safeguards and to develop rewards which are not as attractive to fraudsters; leveraging technology to automate fraud prevention; and requiring two pieces of verifiable identity information before rewards can be claimed. SSI also employs validation products on request.

Following the success of the techniques SSI has developed, SSI has been consulted by other sample providers and panel owners for guidance in combating this industry-wide issue.

### POLICIES AND COMPLIANCE

**23. Please describe the 'opt-in for market research' processes for all your online sample sources.**

**Context:** The opt-in process indicates the respondents' relationship with the sample source provider. The market generally makes a distinction between single and double opt-in. Double opt-in refers to the process by which a check is made to confirm that the person joining a panel or database wishes to be a member and understands what to expect (in advance of participating in an actual survey for a paying client).

Everyone who takes surveys within the SSI Dynamix™ system has been engaged or invited to take part in research, and has agreed to give their opinions. All communications clearly communicate expectations for participation.

**24. Please provide a link to your Privacy Policy. How is your Privacy Policy provided to your respondents?**

**Context:** Not complying with local and international privacy laws might mean the sample provider is operating illegally. An example privacy policy is given in the ESOMAR Guideline for Online Research.

Click to view SSI's Privacy Policy. SSI's General Counsel periodically reviews SSI's privacy policy. The policy is prominently displayed to participants; members of SSI's managed communities and panels are alerted to any changes.

SSI staff serve on industry committees working to maintain and develop best practices for privacy. SSI strives to achieve the highest level of privacy and data protection compliance, not only because it is required by laws and regulations, but because it is an essential element in our relationship with participants. Data quality is improved when participants are confident that their personally-identifiable information is protected. Best practices are reinforced at SSI via policies, procedures and training.

## ESOMAR 28

**25. Please describe the measures you take to ensure data protection and data security.**

**Context:** The sample provider usually stores sensitive and confidential information on panellists and clients in databases. These data need to be properly secured and backed-up, as does any confidential information provided by the client. The sample provider should be able to provide you with the latest date at which their security has been evaluated by a credible third-party

All panelist and respondent information is secured via industry standard firewalls and stringent IT security policies and procedures. All computer equipment (servers, SANs, switches, routers, etc.) is redundant and is located in secure, environmentally controlled data centers with 24/7 monitoring. Access is restricted and requires authorization.

Access to participant data is restricted by password and staff job function. Access is limited to secure company networks or secure VPN. Access to databases and associated backup files is restricted by IT job function and role. Password-protected database roles further restrict data access and force any data modification to be done through the application layer only. All database connections are logged. Web traffic does not directly access the database and database requests are reversed proxy via an application server to the database.

SSI staff adhere to strict guidelines to prevent sharing of any information across projects or clients. For example, if a project moves from one research provider to another, no information will be shared to the second provider without the express written permission of the original research sponsor. All SSI employees must sign a confidentiality agreement upon joining the company which outlines the employee's obligations to protect company and client confidential information.

**26. What practices do you follow to decide whether online research should be used to present commercially sensitive client data or materials to survey respondents?**

**Context:** There are no foolproof methods for protecting audio, video, still images or concept descriptions in online surveys. In today's social media world, clients should be aware that the combination of technology solutions and respondent confidentiality agreements are "speed bumps" that mitigate but cannot guarantee that a client's stimuli will not be shared or described in social media.

SSI is highly experienced in supporting research projects with extremely sensitive material and regularly provides consultation to researchers on best practices in this area. There are a number of techniques which can discourage leaks, including disabling of copying and screen grabs, removal of images after a timed period, and special wording to the participant along with an "I agree not to share information". However there is no guarantee that sensitive information can be kept confidential online, (it is easy to take a photo of the screen with a cell phone for example) and SSI may recommend an in-person interview as a better option for extremely sensitive material.

**27. Are you certified to any specific quality system? If so, which one(s)?**

**Context:** Being certified may require the supplier to perform tasks in a pre-determined manner and document procedures that should be followed.

SSI is ISO Certified to Standard 20252, the standard for Market, Opinion and Social Research in its Sydney, Australia office, based on standard SSI procedures.

SSI's telephone methodology, which was the foundation for its online sampling methodology, has been audited and verified by the Media Ratings Council. SSI is the recipient of multiple product and service awards such as the

# 7. APPENDIX B – SURVEY INSTRUMENT

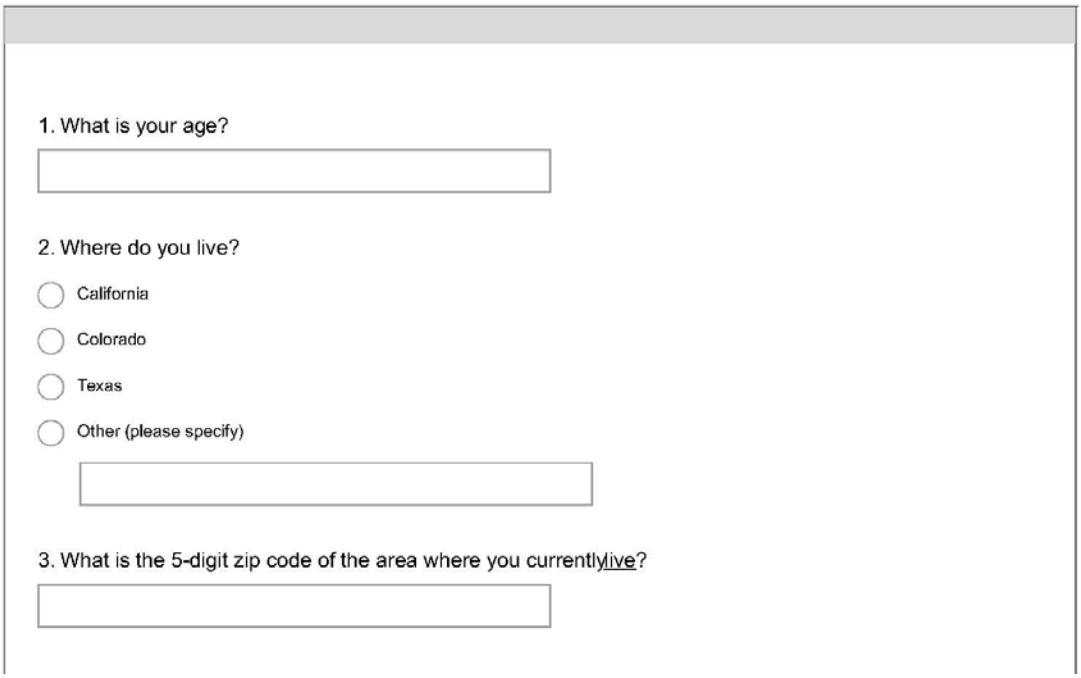
The following pages present the survey instrument.

**OMB Control No., 0596-0236**
**Expires 11/30/2017**

**Access Preferences**

**Thank you for taking time to complete this survey. Your input is critical to ensuring that access to and transportation within National Wildlife Refuges are designed to accommodate the preferences of a user like you. Your participation is voluntary. You can skip any question you want, and you can stop at any time. Thank you for taking the time to provide information for this valuable study. If you have any questions or problems completing the survey, please contact Natalie Villwock-Witte, PhD, PE at 505-414-8935 or n.villwockwitte@montana.edu**

Paperwork Reduction Act Statement: The U.S. Fish and Wildlife Service has contracted with the Western Transportation Institute at Montana State University to conduct a study to better understand transportation preferences to access and travel within National Wildlife Refuges. Your participation is voluntary. We estimate that it will take you about 15 minutes to complete the survey. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number. You may send comments on the burden or any aspect of this information collection to the Service Information Collection Clearance, U.S. Fish and Wildlife Service, Attn: BPHC, 5275 Leesburg Pike, Falls Church VA 22041-3803.

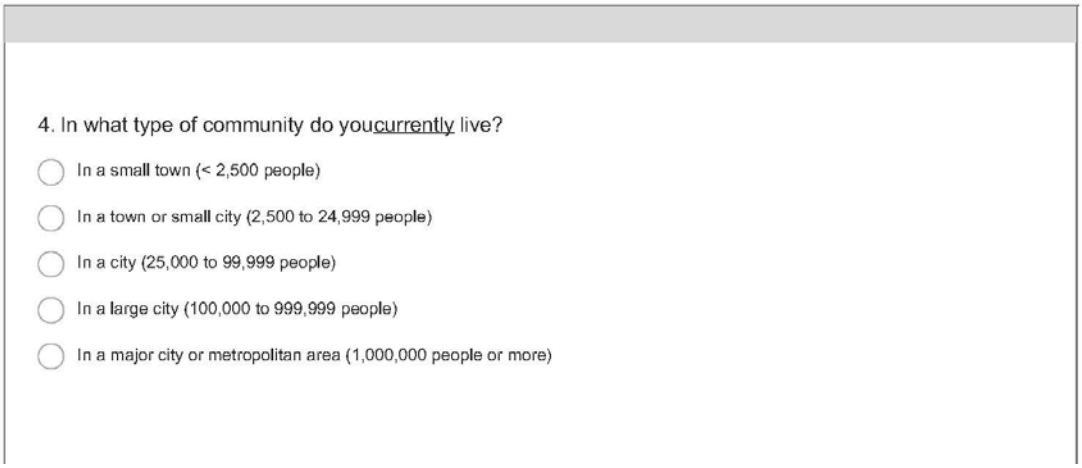


1. What is your age?

2. Where do you live?

- ◯ California
- ◯ Colorado
- ◯ Texas
- ◯ Other (please specify)

3. What is the 5-digit zip code of the area where you currentlylive?



4. In what type of community do youcurrently live?

- ◯ In a small town (< 2,500 people)
- ◯ In a town or small city (2,500 to 24,999 people)
- ◯ In a city (25,000 to 99,999 people)
- ◯ In a large city (100,000 to 999,999 people)
- ◯ In a major city or metropolitan area (1,000,000 people or more)

5. Which of the following categories best describes how often you use public transportation (e.g., bus, train, etc.) at home?

- ◯ Never
- ◯ *Less* than once a month
- ◯ At least once a month
- ◯ At least once a **week**
- ◯ Almost everyday

6. In the past year, did you participate in any of the following activities, and if so, with whom: (Please check all that apply.)

| | Alone | With Family or Friends | Did Not Participate |
|---|---|---|---|
| Hunting | ☐ | ☐ | ☐ |
| Boating | ☐ | ☐ | ☐ |
| Fishing | ☐ | ☐ | ☐ |
| Photography | ☐ | ☐ | ☐ |
| Walking | ☐ | ☐ | ☐ |
| Bicycling | ☐ | ☐ | ☐ |
| Driving to Sightsee | ☐ | ☐ | ☐ |
| Wildlife Observation | ☐ | ☐ | ☐ |

7. Please identify your agreement with the following statements thinking in terms of when you travel.

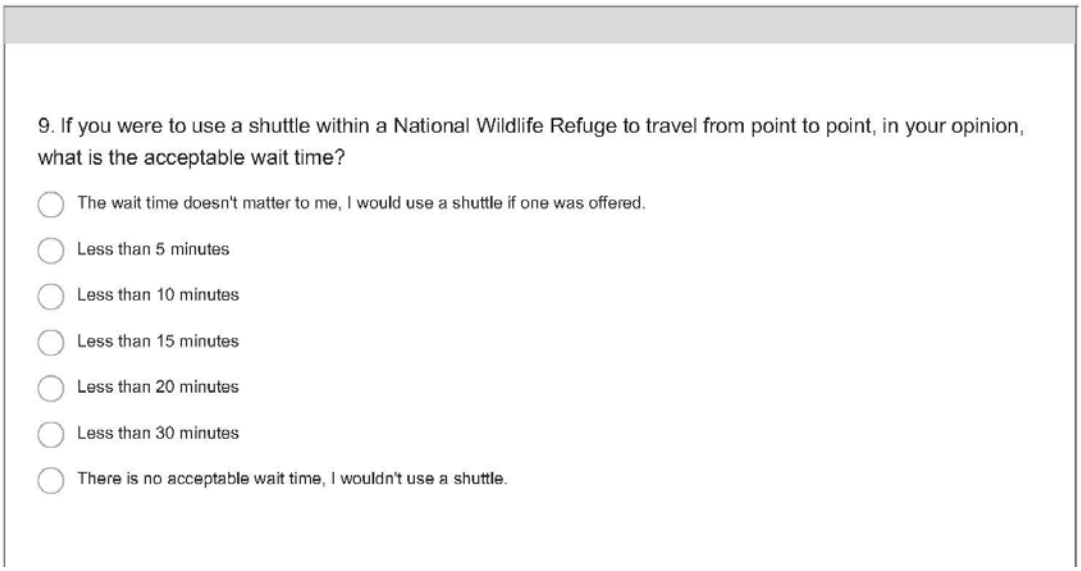
| | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| I look for a sense of adventure. | ○ | ○ | ○ | ○ | ○ |
| I enjoy experiencing solitude. | ○ | ○ | ○ | ○ | ○ |
| I enjoy the unpredictability of nature. | ○ | ○ | ○ | ○ | ○ |
| I enjoy being in the wilderness. | ○ | ○ | ○ | ○ | ○ |
| I try to connect and immerse myself in nature. | ○ | ○ | ○ | ○ | ○ |
| I look for experiences that allow me to be in the presence of wildlife. | ○ | ○ | ○ | ○ | ○ |
| I enjoy learning about nature. | ○ | ○ | ○ | ○ | ○ |
| I look for information about history, a connection with the past. | ○ | ○ | ○ | ○ | ○ |

**Questions 8 and 9 ask your for your opinion when thinking specifically about National Wildlife Refuges.**

8. Below are different transportation options that could be offered at some National Wildlife Refuges in the future. If you were to visit a National Wildlife Refuge, please tell us how likely you would use:

| | Extremely likely | Very likely | Moderately likely | Slightly likely | Not at all likely |
|---|---|---|---|---|---|
| A bus or tram that takes passengers to different points on the refuge (such as the Visitor Center/Contact Station)? | ○ | ○ | ○ | ○ | ○ |
| A bike that was offered through a Bike Share Program for use while on the Refuge? | ○ | ○ | ○ | ○ | ○ |
| A bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources? | ○ | ○ | ○ | ○ | ○ |
| A boat that goes to different points on Refuge waterways? | ○ | ○ | ○ | ○ | ○ |
| A bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)? | ○ | ○ | ○ | ○ | ○ |
| An offsite parking lot that provides trail access for walking/hiking onto the Refuge? | ○ | ○ | ○ | ○ | ○ |

Some other transportation option?



9. If you were to use a shuttle within a National Wildlife Refuge to travel from point to point, in your opinion, what is the acceptable wait time?

- ◯ The wait time doesn't matter to me, I would use a shuttle if one was offered.
- ◯ Less than 5 minutes
- ◯ Less than 10 minutes
- ◯ Less than 15 minutes
- ◯ Less than 20 minutes
- ◯ Less than 30 minutes
- ◯ There is no acceptable wait time, I wouldn't use a shuttle.

10. Have you ever experienced any of the following safety concerns while on Federal public lands (e.g., National Wildlife Refuge, National Park, National Forest, Bureau of Land Management unit)?

| | Yes | No |
|---|---|---|
| Wildlife encounter | ◯ | ◯ |
| Bad weather | ◯ | ◯ |
| Got lost | ◯ | ◯ |
| Poor road conditions | ◯ | ◯ |
| Poor trail conditions | ◯ | ◯ |
| Vehicles parked along the side of the road | ◯ | ◯ |
| Conflict between vehicles and bicycles | ◯ | ◯ |
| Conflict between vehicles and pedestrians | ◯ | ◯ |
| Ran out of gas or other supplies in a remote area | ◯ | ◯ |
| Lack of cell phone coverage | ◯ | ◯ |
| Needing emergency services | ◯ | ◯ |

Other (please specify)

11. Do you or do members of your household own any of the following Interagency Recreation Passes? These passes are honored at all National Forest Service, National Park Service, Bureau of Land Management, Bureau of Land Reclamation, and U.S. Fish and Wildlife Service sites. (Please check all that apply.)

- [ ] Interagency Annual Pass ($80)
- [ ] Interagency Annual Military Pass (Free)
- [ ] Interagency Senior Pass ($10, Lifetime)
- [ ] Interagency Access Pass (Free, Lifetime)
- [ ] Interagency Volunteer Pass (Free, One Year)
- [ ] Every Kid in a Park
- [ ] No one in my household owns a pass
- [ ] Not sure

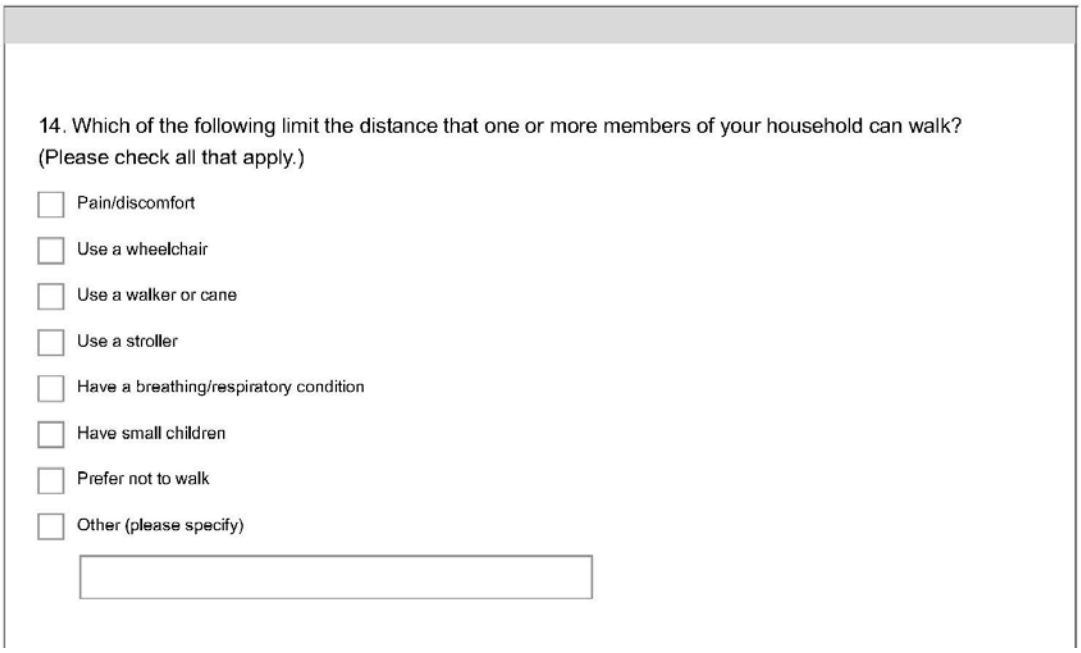
12. Please tell us how much you agree or disagree with each of the following statements.

| | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| I feel that I have a variety of transportation options that allow me to **access** (travel to) Federal lands. | ○ | ○ | ○ | ○ | ○ |
| The distance from my house to a Federal land influences how I travel (e.g., by car, bus, train) | ○ | ○ | ○ | ○ | ○ |
| The availability of hiking/walking trails on a Federal land affects my interest in visiting it. | ○ | ○ | ○ | ○ | ○ |
| The availability of biking trails within a Federal land affects my interest in visiting it. | ○ | ○ | ○ | ○ | ○ |
| The allowance of bicycling on roadways within a Federal land affects my interest in visiting it. | ○ | ○ | ○ | ○ | ○ |
| It is important for me to stay connected to the internet/phone. | ○ | ○ | ○ | ○ | ○ |
| Cost influences how I travel (e.g. by automobile, bus, or train) | ○ | ○ | ○ | ○ | ○ |
| I consider climate change when making transportation choices. | ○ | ○ | ○ | ○ | ○ |

13. Are there any individuals in your household who can only walk limited distances because of their age (including children too young to walk far) or a physical condition?

○ Yes

○ No



14. Which of the following limit the distance that one or more members of your household can walk? (Please check all that apply.)

- [ ] Pain/discomfort
- [ ] Use a wheelchair
- [ ] Use a walker or cane
- [ ] Use a stroller
- [ ] Have a breathing/respiratory condition
- [ ] Have small children
- [ ] Prefer not to walk
- [ ] Other (please specify)

15. What is your gender?

- ◯ Male
- ◯ Female
- ◯ Other (please specify)

16. Which of the following categories applies to you? (Please check all that apply.)

- [ ] Employed, Full-Time
- [ ] Employed, Part-Time
- [ ] Unable to work due to a disability
- [ ] Retired
- [ ] Homemaker
- [ ] Stay-at-home parent
- [ ] Unemployed
- [ ] Self-Employed
- [ ] Student

17. Including yourself, how many people currently live in your household?

18. How many children under the age of 18 live in your household?

19. How long have you lived at your current residence?

- ( ) 1 year or less
- ( ) More than 1 year but less than 5 years
- ( ) More than 5 years but less than 10 years
- ( ) More than 10 years

20. How many operable vehicle(s) are available for use by your household?

21. Which of the following best describes your current living situation?

- ◯ Married and living with my spouse
- ◯ Living with a significant other or partner
- ◯ Living with parents or other family members
- ◯ Living with roommates or friends
- ◯ Living alone

22. What was your total household income before taxes in 2015?

- ◯ Less than $25,000
- ◯ $25,000 to $49,999
- ◯ $50,000 to $74,999
- ◯ $75,000 to $99,999
- ◯ $100,000 to $149,999
- ◯ $150,000 or more

23. Please indicate the highest level of education that you have completed. (Please select only one.)

- ◯ Less than High School
- ◯ High School Graduate/GED
- ◯ Vocational or Technical School Certificate
- ◯ Associate's Degree
- ◯ Some College
- ◯ Bachelor's Degree
- ◯ Graduate degree or professional degree (MA, MS, PhD, JD, MBA, etc.)

24. Are you of Hispanic or Latino origin or descent?

- ◯ Yes, Hispanic or Latino
- ◯ No, not Hispanic or Latino

25. With which racial group(s) do you most closely identify? (Please select one or more.)

- ☐ American Indian/or Alaska Native
- ☐ Asian
- ☐ Black or/African American
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White

26. Please share with us any additional comments.

Thank you for completing our survey.

# 8. APPENDIX C – ADDITIONAL FINDINGS

What follows are figures and tables for each survey question.

## 8.1. QUESTION 1 – Age

Table 5 presents the exact number of survey respondents by age.

**Table 5: Number of Survey Respondents by Age**

| Age | Number of Survey Respondents |
|---|---|
| 18 | 47 |
| 19 | 48 |
| 20 | 56 |
| 21 | 53 |
| 22 | 80 |
| 23 | 81 |
| 24 | 82 |
| 25 | 116 |
| 26 | 115 |
| 27 | 91 |
| 28 | 111 |
| 29 | 99 |
| 30 | 133 |
| 31 | 111 |
| 32 | 111 |
| 33 | 100 |
| 34 | 154 |
| 35 | 130 |
| 36 | 100 |

| | |
|---|---|
| 37 | 77 |
| 38 | 88 |
| 39 | 75 |
| 40 | 91 |
| 41 | 82 |
| 42 | 73 |
| 43 | 60 |
| 44 | 71 |
| 45 | 81 |
| 46 | 68 |
| 47 | 54 |
| 48 | 52 |
| 49 | 66 |
| 50 | 59 |
| 51 | 74 |
| 52 | 66 |
| 53 | 65 |
| 54 | 98 |
| 55 | 92 |
| 56 | 86 |
| 57 | 89 |
| 58 | 83 |
| 59 | 84 |
| 60 | 67 |
| 61 | 65 |
| 62 | 68 |
| 63 | 88 |
| 64 | 66 |
| 65 | 85 |

| | |
|---|---|
| 66 | 68 |
| 67 | 73 |
| 68 | 76 |
| 69 | 67 |
| 70 | 42 |

## 8.2. QUESTION 2 – Number of Survey Respondents

**Table 6: Number of Survey Respondents by State & Generation**

| STATE | Millennials | Generation X | Baby Boomers | TOTAL |
|---|---|---|---|---|
| California | 490 | 475 | 468 | 1,433 |
| Colorado | 444 | 469 | 453 | 1,366 |
| Texas | 500 | 511 | 507 | 1,518 |
| TOTAL | 1,434 | 1,455 | 1,428 | 4,317 |

Figure 51 through Figure 59 show the geographical location of Millennial, Generation X, and Baby Boomer survey respondents for each state (California, Colorado and Texas) from which data was collected.

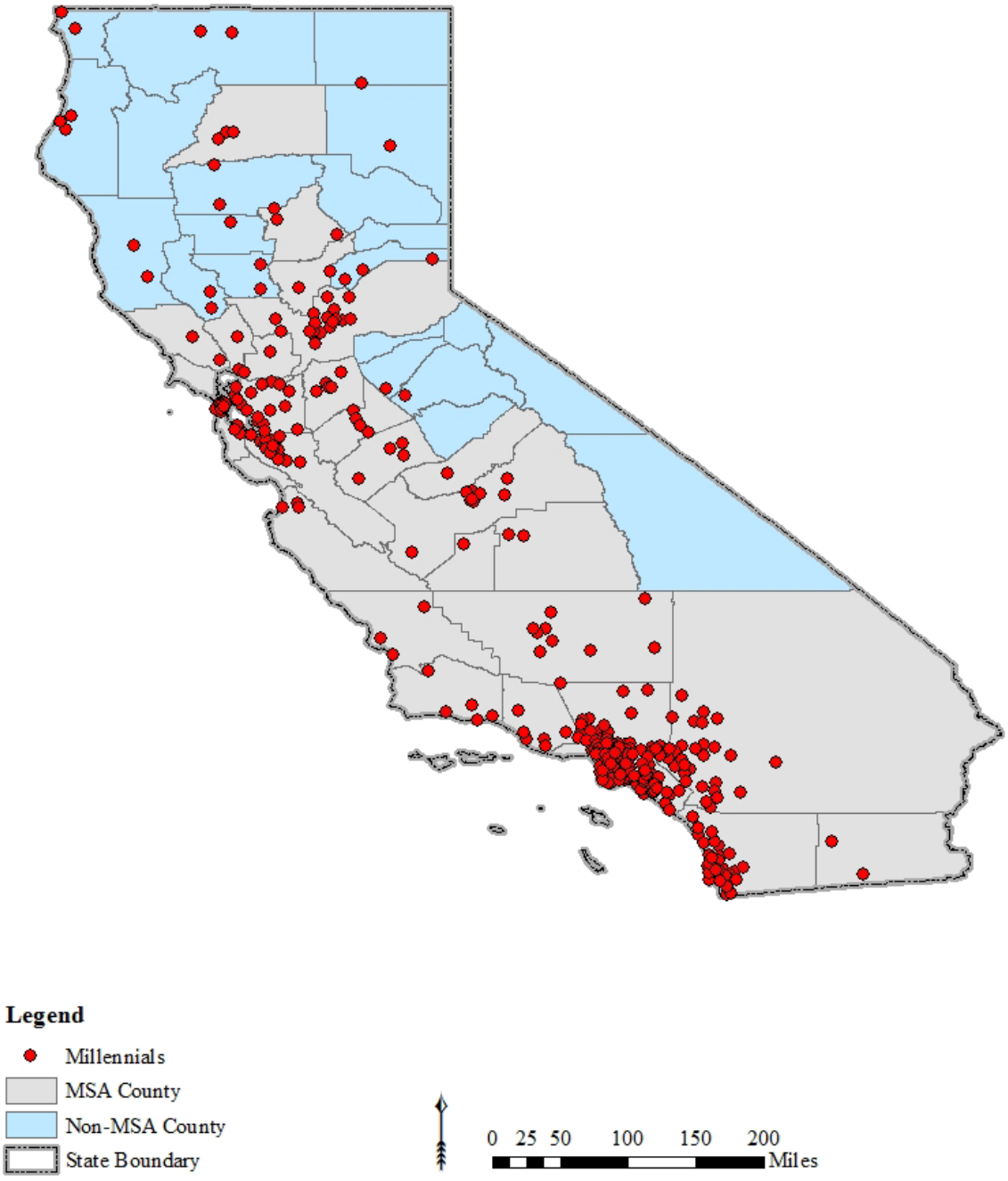



**Figure 51: California, Millennial Survey Respondents**

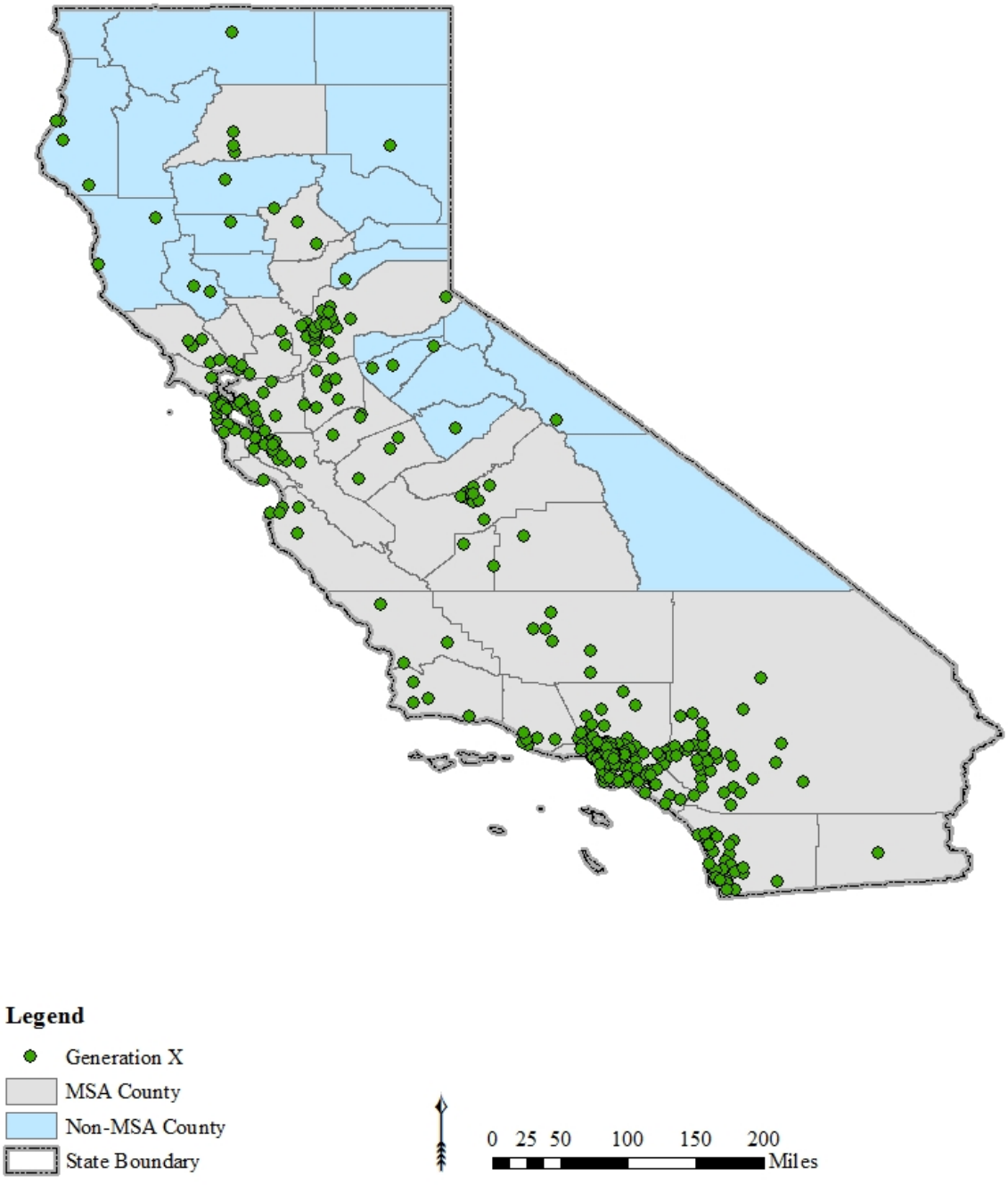



**Figure 52: California, Generation X Survey Respondents**

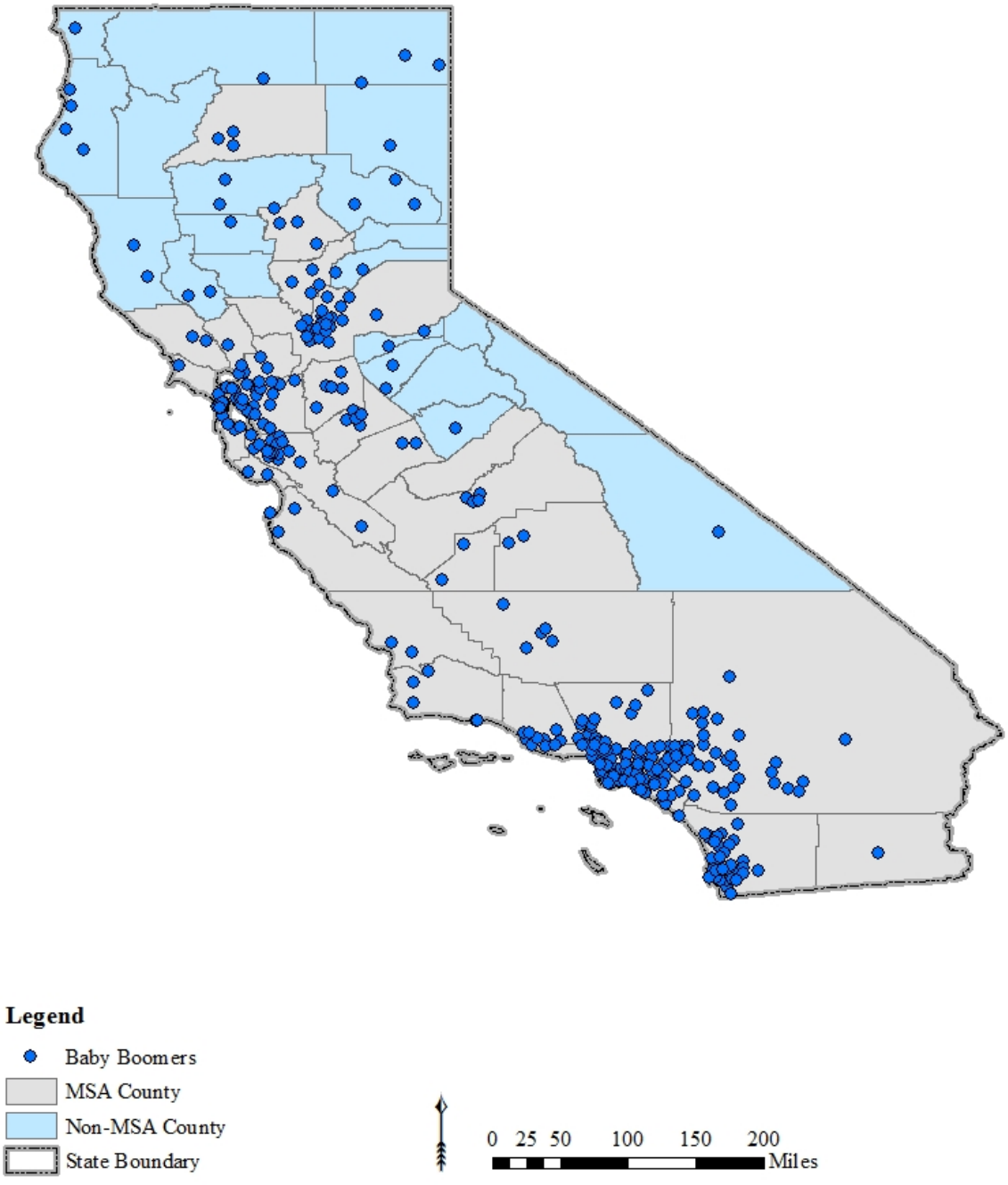



**Figure 53: California, Baby Boomer Survey Respondents**

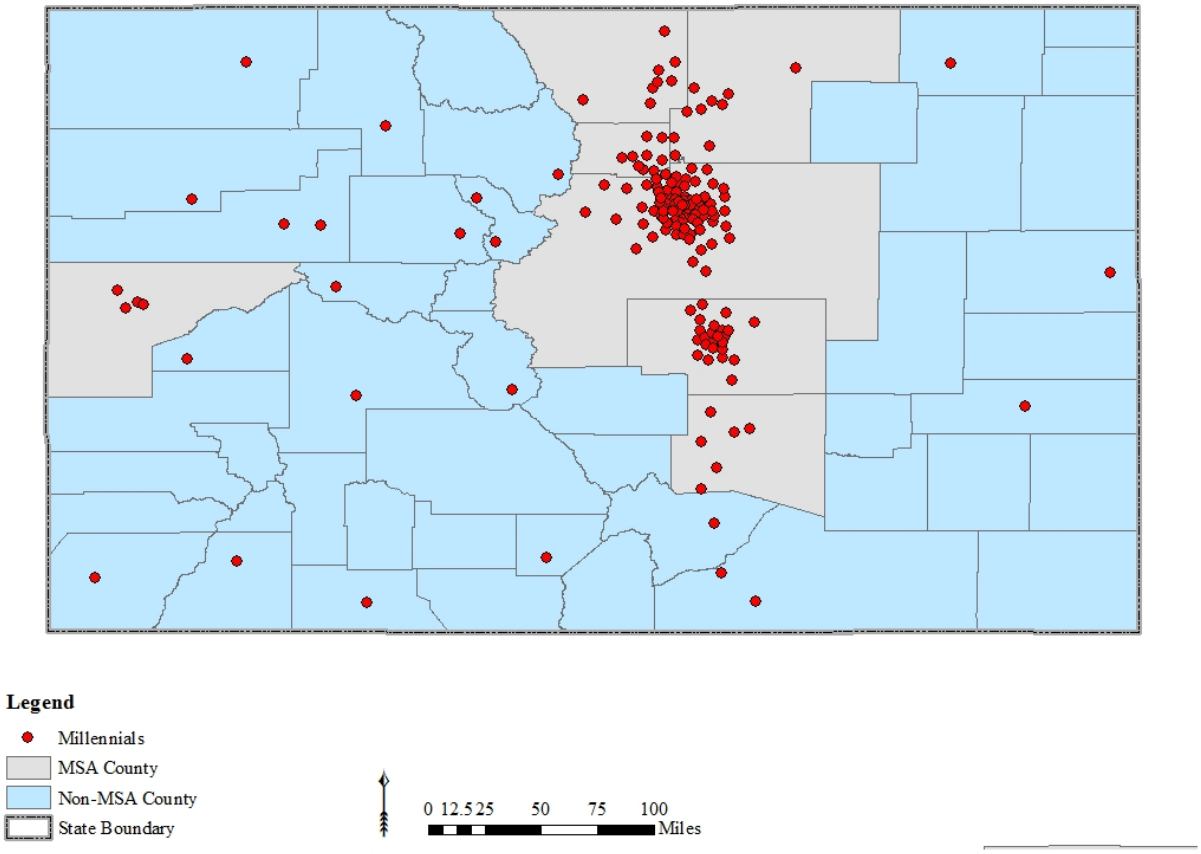



**Figure 54: Colorado, Millennial Survey Respondents**

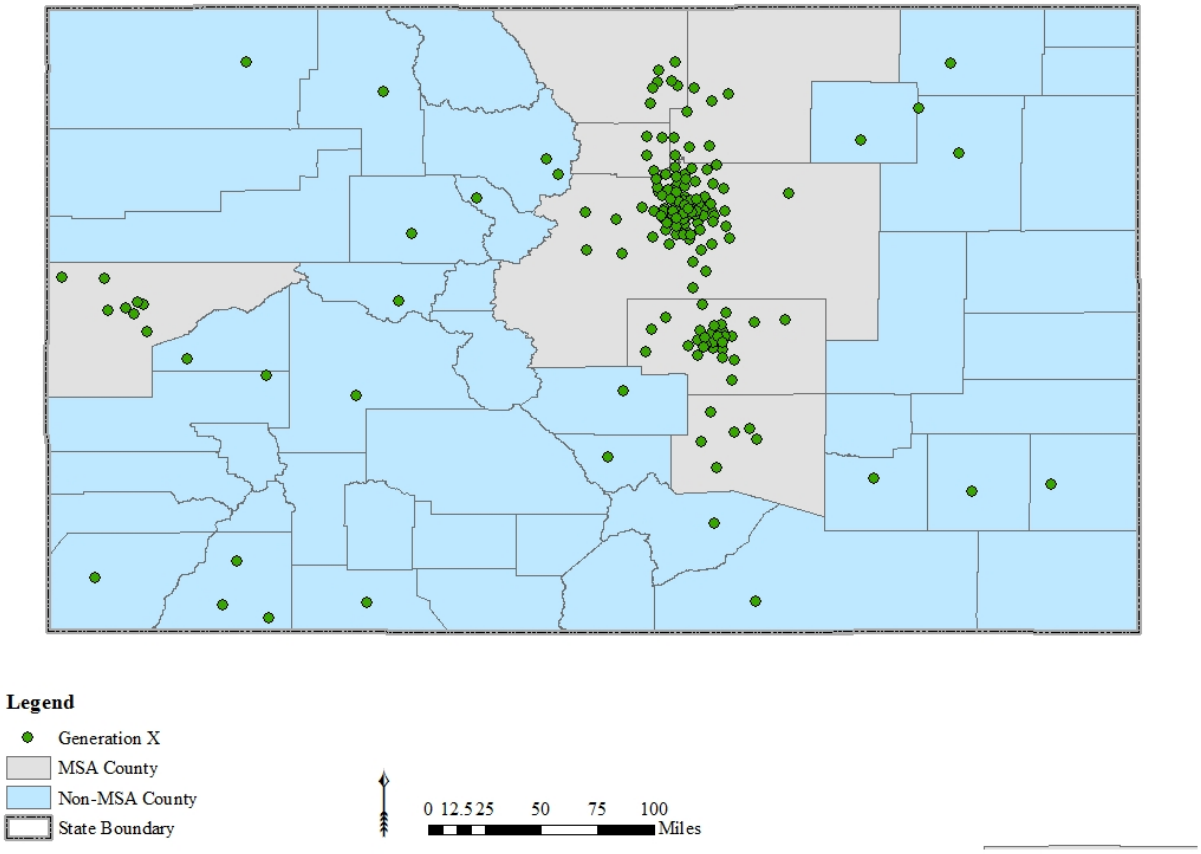



**Figure 55: Colorado, Generation X Survey Respondents**

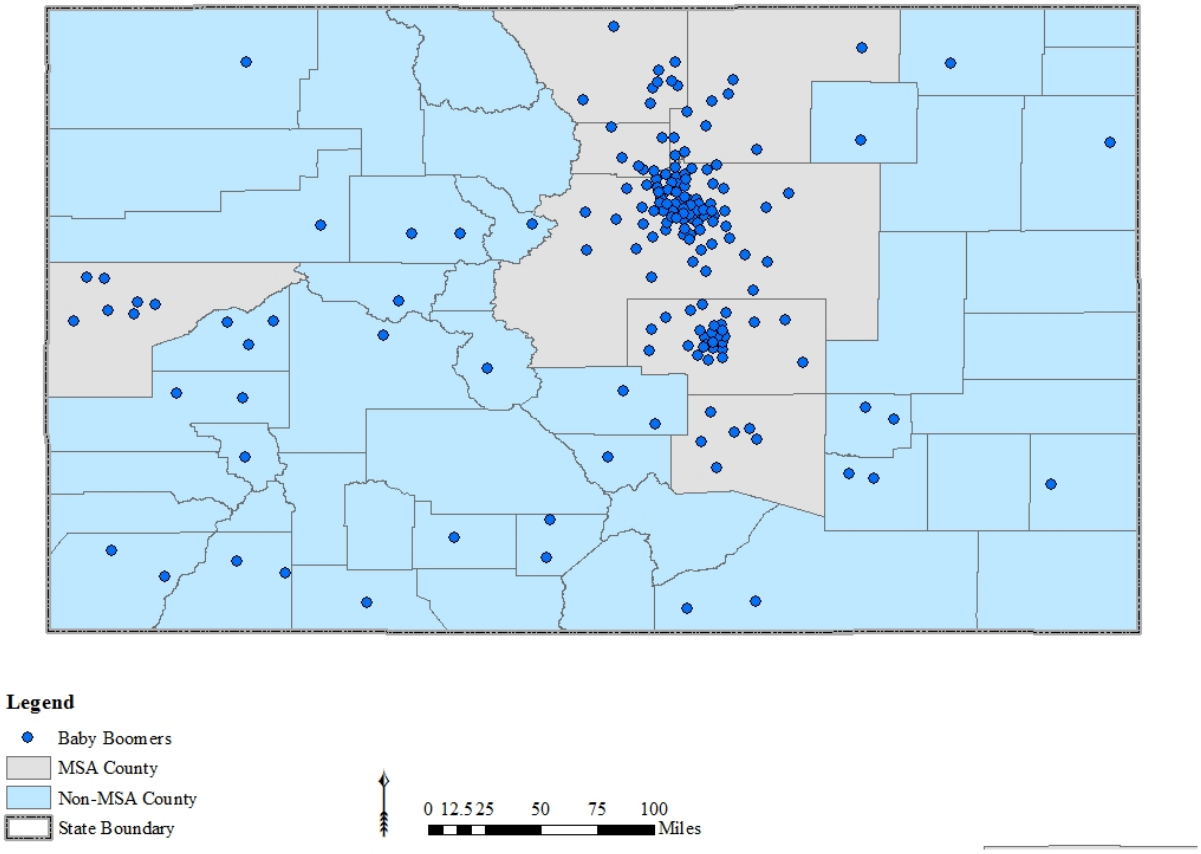



**Figure 56: Colorado, Baby Boomer Survey Respondents**

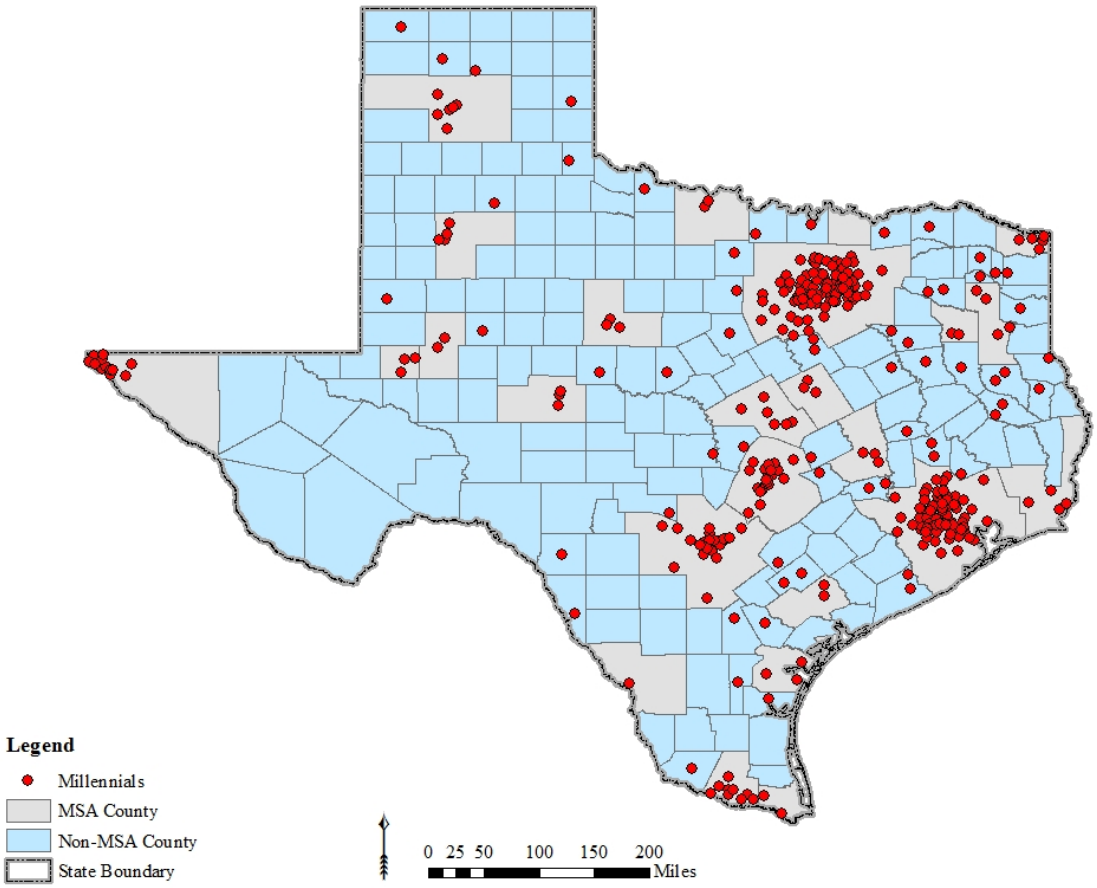



**Figure 57: Texas, Millennial Survey Respondents**

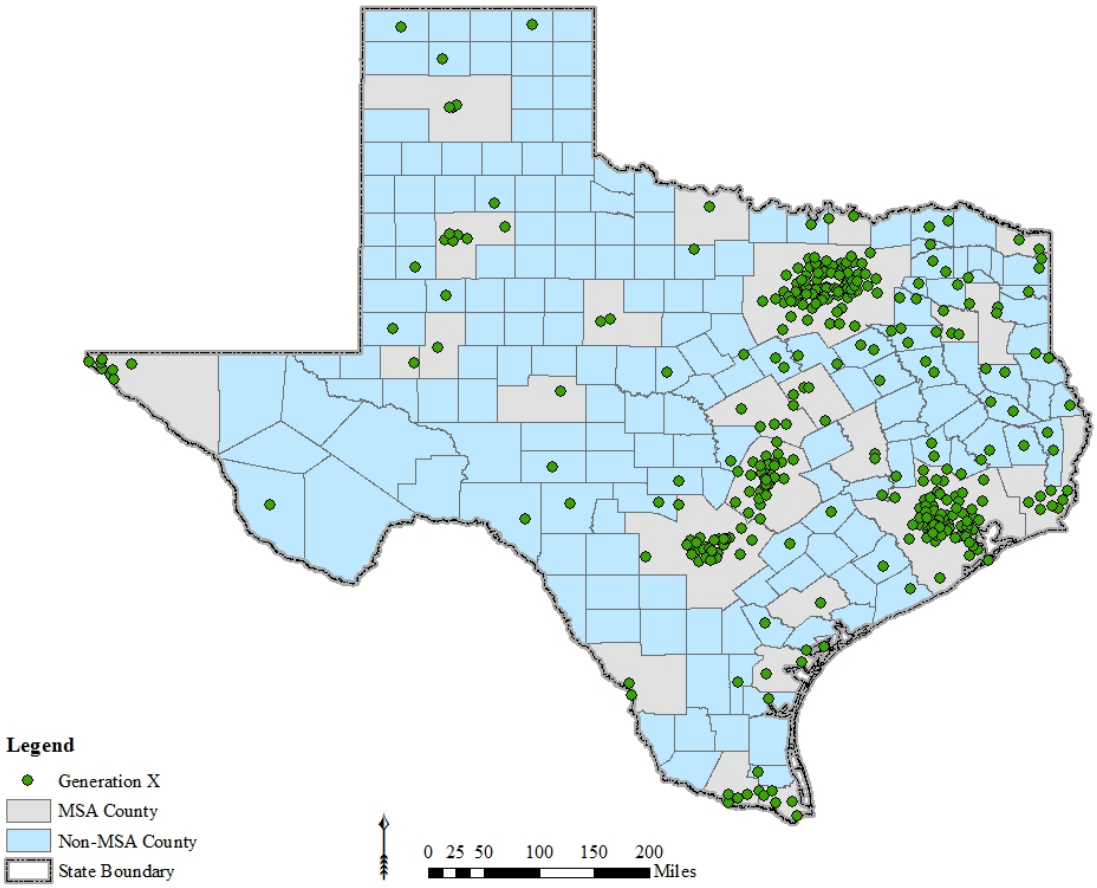



**Figure 58: Texas, Generation X Survey Respondents**

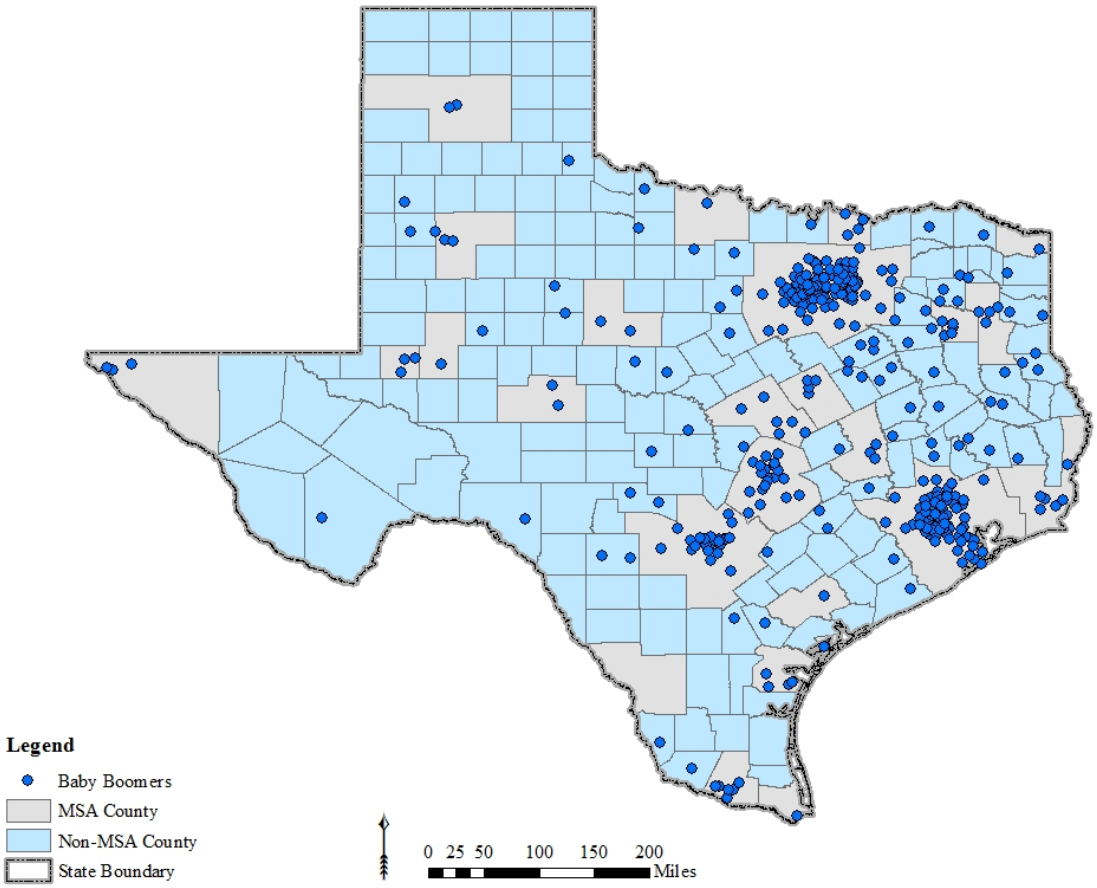



**Figure 59: Texas, Baby Boomer Survey Respondents**

## 8.3. QUESTION 3 – Zip Code

Question 3 asked survey respondents, "What is the 5-digit zip code of the area where you currently live? The zip codes were used to more precisely locate where a person lives within the state, without trying to dissuade the survey respondent from providing more specific information which is often unanswered, like someone's home address. The maps showing the locations of survey respondents were presented in the Methodology & Data Collection section.

## 8.4. QUESTION 4 – Community Type

Question 4 asked survey respondents, "In what type of community do you currently live?" Five responses were provided:

1) In a small town (<2,500 people)
2) In a town or small city (2,500 to 24,999 people)
3) In a city (25,000 to 99,999 people)
4) In a large city (100,000 to 999,999 people)
5) In a major city or metropolitan area (1,000,000 people or more)

The majority of the data, approximately 69%, was from urban areas (city or larger) (Table 7). The average chosen response corresponded to: "In a city (25,000 to 99,999 people)." Some survey respondents did not answer the question.

Table 7 shows the number of survey respondents by state and generation identifying what type of community they lived in. As mentioned previously, the majority of survey respondents identified that they lived in the city (1214), followed by large city (934), then small city (893), major city (827) and small town (439).

**Table 7: Community Type, Number of Survey Respondents by State & Generation**

| State | Generation | Community Type | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Small Town | Small City | City | Large City | Major City | No Response | TOTAL |
| California | Millennials | 31 | 107 | 186 | 87 | 79 | 0 | 490 |
| | Generation X | 31 | 82 | 143 | 129 | 88 | 2 | 475 |
| | Baby Boomers | 32 | 75 | 151 | 123 | 84 | 3 | 468 |
| Colorado | Millennials | 27 | 104 | 134 | 108 | 71 | 0 | 444 |
| | Generation X | 30 | 86 | 125 | 123 | 104 | 1 | 469 |
| | Baby Boomers | 56 | 88 | 107 | 117 | 84 | 1 | 453 |
| Texas | Millennials | 68 | 122 | 126 | 96 | 87 | 1 | 500 |
| | Generation X | 86 | 124 | 125 | 73 | 102 | 1 | 511 |
| | Baby Boomers | 78 | 105 | 117 | 78 | 128 | 1 | 507 |
| TOTAL | Millennials | 126 | 333 | 446 | 291 | 237 | 1 | 1434 |
| | Generation X | 147 | 292 | 393 | 325 | 294 | 4 | 1455 |
| | Baby Boomers | 166 | 268 | 375 | 318 | 296 | 5 | 1428 |
| TOTAL | | 439 | 893 | 1214 | 934 | 827 | 10 | 4317 |

When looking at the community type reported by survey respondents by state, it appears that Texas has the largest representation of small town survey respondents (Figure 60). In general, this appears to represent well what is seen in Figure 1, Figure 2, and Figure 3, where Texas seems to have MSAs that represent more discrete geographical areas. This contrasts with

California, where the majority of the state is identified as an MSA, and Colorado, which has two, rather large, MSA areas. Overall, the majority of survey respondents seem to be drawn from megaregions of all three states, as identified in Beyond Traffic 2045 (33).

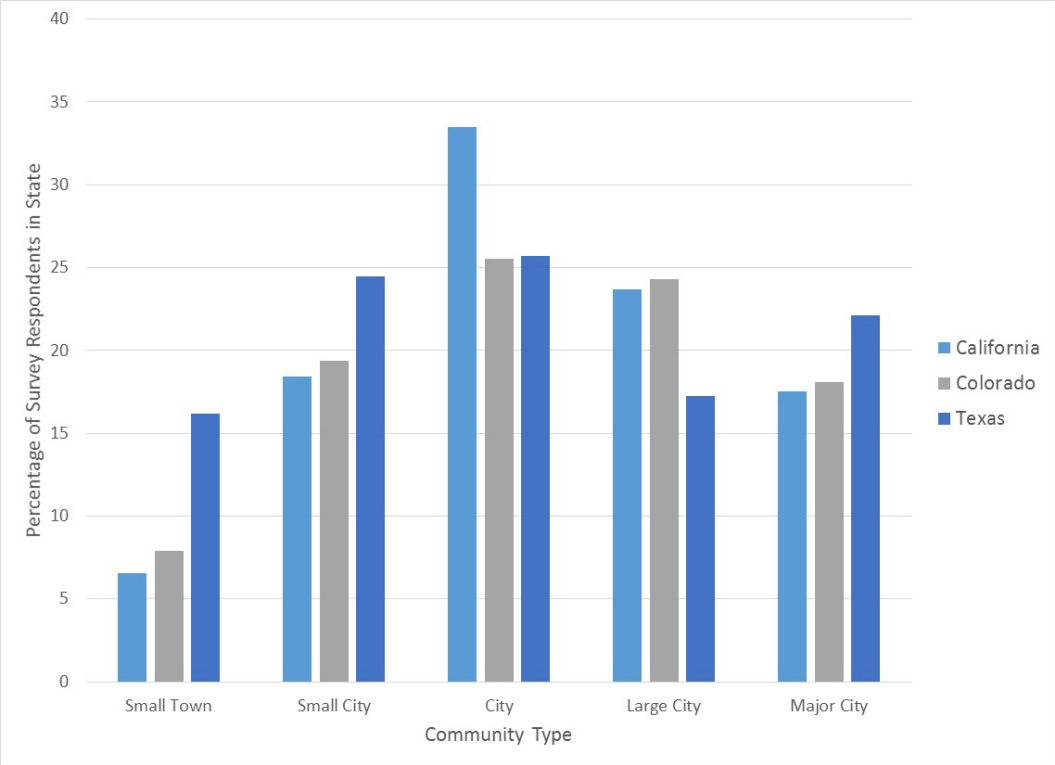



**Figure 60: Community Type Representation by State**

## 8.5. QUESTION 5 – Public Transportation at Home

Question 5 asked survey respondents, "Which of the following categories best describes how often you use public transportation (e.g., bus, train, etc.) at home? Five responses were provided:

1) Never,
2) Less than once a month,
3) At least once a month,
4) At least once a week, and
5) Almost everyday.

On average, survey respondents chose, "Less than once a month." Some survey respondents did not answer the question.

The in-depth results for this question were presented in the *Significant Survey Findings* section.

## 8.6. QUESTION 6 – Activity Interests

*Hunting*

**Table 8: Hunting, Alone**

| State | Generation | Hunting, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 34 | 448 | 8 | 490 |
| | Generation X | 33 | 426 | 16 | 475 |
| | Baby Boomers | 6 | 454 | 8 | 468 |
| Colorado | Millennials | 26 | 414 | 4 | 444 |
| | Generation X | 37 | 423 | 9 | 469 |
| | Baby Boomers | 6 | 434 | 13 | 453 |
| Texas | Millennials | 40 | 453 | 7 | 500 |
| | Generation X | 37 | 463 | 11 | 511 |
| | Baby Boomers | 17 | 476 | 14 | 507 |
| Subtotal | Millennials | 100 | 1315 | 19 | 1434 |
| | Generation X | 107 | 1312 | 36 | 1455 |
| | Baby Boomers | 29 | 1364 | 35 | 1428 |
| TOTAL | | 236 | 3991 | 90 | 4317 |

**Table 9: Hunting, Family/Friends**

| State | Generation | Hunting, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 71 | 411 | 8 | 490 |
| | Generation X | 67 | 392 | 16 | 475 |
| | Baby Boomers | 19 | 441 | 8 | 468 |
| Colorado | Millennials | 59 | 381 | 4 | 444 |
| | Generation X | 63 | 397 | 9 | 469 |
| | Baby Boomers | 19 | 421 | 13 | 453 |
| Texas | Millennials | 100 | 393 | 7 | 500 |
| | Generation X | 90 | 410 | 11 | 511 |
| | Baby Boomers | 37 | 456 | 14 | 507 |
| Subtotal | Millennials | 230 | 1185 | 19 | 1434 |
| | Generation X | 220 | 1199 | 36 | 1455 |
| | Baby Boomers | 75 | 1318 | 35 | 1428 |
| TOTAL | | 525 | 3702 | 90 | 4317 |

*Boating*

**Table 10: Boating, Alone**

| State | Generation | Boating, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 25 | 458 | 7 | 490 |
| | Generation X | 26 | 434 | 15 | 475 |
| | Baby Boomers | 7 | 453 | 8 | 468 |
| Colorado | Millennials | 18 | 422 | 4 | 444 |
| | Generation X | 14 | 443 | 12 | 469 |
| | Baby Boomers | 7 | 432 | 14 | 453 |
| Texas | Millennials | 17 | 473 | 10 | 500 |
| | Generation X | 17 | 486 | 8 | 511 |
| | Baby Boomers | 6 | 489 | 12 | 507 |
| Subtotal | Millennials | 60 | 1353 | 21 | 1434 |
| | Generation X | 57 | 1363 | 35 | 1455 |
| | Baby Boomers | 20 | 1374 | 34 | 1428 |
| TOTAL | | 137 | 4090 | 90 | 4317 |

**Table 11: Boating, Family/Friends**

| State | Generation | Boating, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 202 | 281 | 7 | 490 |
| | Generation X | 166 | 294 | 15 | 475 |
| | Baby Boomers | 81 | 379 | 8 | 468 |
| Colorado | Millennials | 182 | 258 | 4 | 444 |
| | Generation X | 162 | 295 | 12 | 469 |
| | Baby Boomers | 80 | 359 | 14 | 453 |
| Texas | Millennials | 206 | 284 | 10 | 500 |
| | Generation X | 183 | 320 | 8 | 511 |
| | Baby Boomers | 96 | 399 | 12 | 507 |
| Subtotal | Millennials | 590 | 823 | 21 | 1434 |
| | Generation X | 511 | 909 | 35 | 1455 |
| | Baby Boomers | 257 | 1137 | 34 | 1428 |
| TOTAL | | 1358 | 2869 | 90 | 4317 |

*Fishing*

**Table 12: Fishing, Alone**

| State | Generation | Fishing, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 41 | 442 | 7 | 490 |
| | Generation X | 51 | 412 | 12 | 475 |
| | Baby Boomers | 23 | 437 | 8 | 468 |
| Colorado | Millennials | 37 | 403 | 4 | 444 |
| | Generation X | 44 | 414 | 11 | 469 |
| | Baby Boomers | 22 | 415 | 16 | 453 |
| Texas | Millennials | 45 | 448 | 7 | 500 |
| | Generation X | 43 | 457 | 11 | 511 |
| | Baby Boomers | 25 | 471 | 11 | 507 |
| Subtotal | Millennials | 123 | 1293 | 18 | 1434 |
| | Generation X | 138 | 1283 | 34 | 1455 |
| | Baby Boomers | 70 | 1323 | 35 | 1428 |
| TOTAL | | 331 | 3899 | 87 | 4317 |

**Table 13: Fishing, Family/Friends**

| State | Generation | Fishing, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 199 | 284 | 7 | 490 |
| | Generation X | 159 | 304 | 12 | 475 |
| | Baby Boomers | 92 | 368 | 8 | 468 |
| Colorado | Millennials | 215 | 225 | 4 | 444 |
| | Generation X | 191 | 267 | 11 | 469 |
| | Baby Boomers | 107 | 330 | 16 | 453 |
| Texas | Millennials | 248 | 245 | 7 | 500 |
| | Generation X | 228 | 272 | 11 | 511 |
| | Baby Boomers | 127 | 369 | 11 | 507 |
| Subtotal | Millennials | 662 | 754 | 18 | 1434 |
| | Generation X | 578 | 843 | 34 | 1455 |
| | Baby Boomers | 326 | 1067 | 35 | 1428 |
| TOTAL | | 1566 | 2664 | 87 | 4317 |

*Photography*

**Table 14: Photography, Alone**

| State | Generation | Photography, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 202 | 281 | 7 | 490 |
| | Generation X | 164 | 295 | 16 | 475 |
| | Baby Boomers | 124 | 336 | 8 | 468 |
| Colorado | Millennials | 166 | 273 | 5 | 444 |
| | Generation X | 153 | 309 | 7 | 469 |
| | Baby Boomers | 115 | 322 | 16 | 453 |
| Texas | Millennials | 161 | 329 | 10 | 500 |
| | Generation X | 141 | 359 | 11 | 511 |
| | Baby Boomers | 117 | 381 | 9 | 507 |
| Subtotal | Millennials | 529 | 883 | 22 | 1434 |
| | Generation X | 458 | 963 | 34 | 1455 |
| | Baby Boomers | 356 | 1039 | 33 | 1428 |
| TOTAL | | 1343 | 2885 | 89 | 4317 |

**Table 15: Photography, Family/Friends**

| State | Generation | Photography, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 257 | 226 | 7 | 490 |
| | Generation X | 222 | 237 | 16 | 475 |
| | Baby Boomers | 141 | 319 | 8 | 468 |
| Colorado | Millennials | 233 | 206 | 5 | 444 |
| | Generation X | 214 | 248 | 7 | 469 |
| | Baby Boomers | 160 | 277 | 16 | 453 |
| Texas | Millennials | 248 | 242 | 10 | 500 |
| | Generation X | 230 | 270 | 11 | 511 |
| | Baby Boomers | 140 | 358 | 9 | 507 |
| Subtotal | Millennials | 738 | 674 | 22 | 1434 |
| | Generation X | 666 | 755 | 34 | 1455 |
| | Baby Boomers | 441 | 954 | 33 | 1428 |
| TOTAL | | 1845 | 2383 | 89 | 4317 |

*Walking*

**Table 16: Walking, Alone**

| State | Generation | Walking, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 307 | 177 | 6 | 490 |
| | Generation X | 264 | 204 | 7 | 475 |
| | Baby Boomers | 279 | 186 | 3 | 468 |
| Colorado | Millennials | 277 | 166 | 1 | 444 |
| | Generation X | 260 | 206 | 3 | 469 |
| | Baby Boomers | 246 | 204 | 3 | 453 |
| Texas | Millennials | 260 | 236 | 4 | 500 |
| | Generation X | 259 | 248 | 4 | 511 |
| | Baby Boomers | 250 | 254 | 3 | 507 |
| Subtotal | Millennials | 844 | 579 | 11 | 1434 |
| | Generation X | 783 | 658 | 14 | 1455 |
| | Baby Boomers | 775 | 644 | 9 | 1428 |
| TOTAL | | 2402 | 1881 | 34 | 4317 |

**Table 17: Walking, Family/Friends**

| State | Generation | Walking, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 366 | 118 | 6 | 490 |
| | Generation X | 325 | 143 | 7 | 475 |
| | Baby Boomers | 249 | 216 | 3 | 468 |
| Colorado | Millennials | 380 | 63 | 1 | 444 |
| | Generation X | 364 | 102 | 3 | 469 |
| | Baby Boomers | 263 | 187 | 3 | 453 |
| Texas | Millennials | 371 | 125 | 4 | 500 |
| | Generation X | 352 | 155 | 4 | 511 |
| | Baby Boomers | 249 | 255 | 3 | 507 |
| Subtotal | Millennials | 1117 | 306 | 11 | 1434 |
| | Generation X | 1041 | 400 | 14 | 1455 |
| | Baby Boomers | 761 | 658 | 9 | 1428 |
| TOTAL | | 2919 | 1364 | 34 | 4317 |

*Bicycling*

**Table 18: Bicycling, Alone**

| State | Generation | Bicycling, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 147 | 342 | 1 | 490 |
| | Generation X | 125 | 343 | 7 | 475 |
| | Baby Boomers | 75 | 388 | 5 | 468 |
| Colorado | Millennials | 121 | 316 | 7 | 444 |
| | Generation X | 112 | 348 | 9 | 469 |
| | Baby Boomers | 89 | 347 | 17 | 453 |
| Texas | Millennials | 95 | 398 | 7 | 500 |
| | Generation X | 86 | 420 | 5 | 511 |
| | Baby Boomers | 68 | 429 | 10 | 507 |
| Subtotal | Millennials | 363 | 1056 | 15 | 1434 |
| | Generation X | 323 | 1111 | 21 | 1455 |
| | Baby Boomers | 232 | 1164 | 32 | 1428 |
| TOTAL | | 918 | 3331 | 68 | 4317 |

**Table 19: Bicycling, Family/Friends**

| State | Generation | Bicycling, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 180 | 309 | 1 | 490 |
| | Generation X | 168 | 300 | 7 | 475 |
| | Baby Boomers | 71 | 392 | 5 | 468 |
| Colorado | Millennials | 167 | 270 | 7 | 444 |
| | Generation X | 155 | 305 | 9 | 469 |
| | Baby Boomers | 80 | 356 | 17 | 453 |
| Texas | Millennials | 155 | 338 | 7 | 500 |
| | Generation X | 143 | 363 | 5 | 511 |
| | Baby Boomers | 61 | 436 | 10 | 507 |
| Subtotal | Millennials | 502 | 917 | 15 | 1434 |
| | Generation X | 466 | 968 | 21 | 1455 |
| | Baby Boomers | 212 | 1184 | 32 | 1428 |
| TOTAL | | 1180 | 3069 | 68 | 4317 |

*Driving to Sightsee*

**Table 20: Driving to Sightsee, Alone**

| State | Generation | Driving to Sightsee, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 109 | 376 | 5 | 490 |
| | Generation X | 108 | 356 | 11 | 475 |
| | Baby Boomers | 80 | 385 | 3 | 468 |
| Colorado | Millennials | 117 | 323 | 4 | 444 |
| | Generation X | 95 | 366 | 8 | 469 |
| | Baby Boomers | 86 | 361 | 6 | 453 |
| Texas | Millennials | 100 | 393 | 7 | 500 |
| | Generation X | 104 | 401 | 6 | 511 |
| | Baby Boomers | 68 | 430 | 9 | 507 |
| Subtotal | Millennials | 326 | 1092 | 16 | 1434 |
| | Generation X | 307 | 1123 | 25 | 1455 |
| | Baby Boomers | 234 | 1176 | 18 | 1428 |
| TOTAL | | 867 | 3391 | 59 | 4317 |

**Table 21: Driving to Sightsee, Family/Friends**

| State | Generation | Driving to Sightsee, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 319 | 166 | 5 | 490 |
| | Generation X | 287 | 177 | 11 | 475 |
| | Baby Boomers | 266 | 199 | 3 | 468 |
| Colorado | Millennials | 339 | 101 | 4 | 444 |
| | Generation X | 331 | 130 | 8 | 469 |
| | Baby Boomers | 309 | 138 | 6 | 453 |
| Texas | Millennials | 304 | 189 | 7 | 500 |
| | Generation X | 333 | 172 | 6 | 511 |
| | Baby Boomers | 300 | 198 | 9 | 507 |
| Subtotal | Millennials | 962 | 456 | 16 | 1434 |
| | Generation X | 951 | 479 | 25 | 1455 |
| | Baby Boomers | 875 | 535 | 18 | 1428 |
| TOTAL | | 2788 | 1470 | 59 | 4317 |

*Wildlife*

**Table 22: Wildlife, Alone**

| State | Generation | Wildlife, Alone | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 120 | 359 | 11 | 490 |
| | Generation X | 89 | 369 | 17 | 475 |
| | Baby Boomers | 88 | 375 | 5 | 468 |
| Colorado | Millennials | 88 | 348 | 8 | 444 |
| | Generation X | 116 | 345 | 8 | 469 |
| | Baby Boomers | 91 | 356 | 6 | 453 |
| Texas | Millennials | 75 | 413 | 12 | 500 |
| | Generation X | 86 | 415 | 10 | 511 |
| | Baby Boomers | 90 | 407 | 10 | 507 |
| Subtotal | Millennials | 283 | 1120 | 31 | 1434 |
| | Generation X | 291 | 1129 | 35 | 1455 |
| | Baby Boomers | 269 | 1138 | 21 | 1428 |
| TOTAL | | 843 | 3387 | 87 | 4317 |

**Table 23: Wildlife, Family/Friends**

| State | Generation | Wildlife, Family/Friends | | | |
|---|---|---|---|---|---|
| | | Participates | Does Not Participate | No Response | Subtotal |
| California | Millennials | 231 | 248 | 11 | 490 |
| | Generation X | 226 | 232 | 17 | 475 |
| | Baby Boomers | 188 | 275 | 5 | 468 |
| Colorado | Millennials | 295 | 141 | 8 | 444 |
| | Generation X | 297 | 164 | 8 | 469 |
| | Baby Boomers | 256 | 191 | 6 | 453 |
| Texas | Millennials | 237 | 251 | 12 | 500 |
| | Generation X | 245 | 256 | 10 | 511 |
| | Baby Boomers | 188 | 309 | 10 | 507 |
| Subtotal | Millennials | 763 | 640 | 31 | 1434 |
| | Generation X | 768 | 652 | 35 | 1455 |
| | Baby Boomers | 632 | 775 | 21 | 1428 |
| TOTAL | | 2163 | 2067 | 87 | 4317 |

## 8.7. QUESTION 7 – Adventure, Solitude, Unpredictability of Nature, Wilderness, Connect and Immerse with Nature, Presence of Wildlife, Learning about Nature, History

### *Adventure*

This sub-section discusses the results for a survey respondent's answer to, **"I look for a sense of adventure."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was a 3.94. This most closely relates to agreement. Therefore, overall, survey respondents agree that they are looking for adventure when they travel. The details regarding the number of survey respondents who chose each agreement category by generation and state can be found in Table 24.

**Table 24: Level of Agreement, Adventure When Traveling, By Generation & State**

| State | Generation | Sense of Adventure | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 207 | 209 | 59 | 13 | 1 | 1 | 490 |
| | Generation X | 142 | 225 | 83 | 20 | 5 | 0 | 475 |
| | Baby Boomers | 76 | 202 | 149 | 28 | 11 | 2 | 468 |
| Colorado | Millennials | 176 | 194 | 61 | 11 | 2 | 0 | 444 |
| | Generation X | 135 | 216 | 91 | 24 | 3 | 0 | 469 |
| | Baby Boomers | 78 | 204 | 118 | 41 | 10 | 2 | 453 |
| Texas | Millennials | 190 | 230 | 61 | 12 | 7 | 0 | 500 |
| | Generation X | 128 | 232 | 117 | 27 | 6 | 1 | 511 |
| | Baby Boomers | 93 | 225 | 146 | 24 | 18 | 1 | 507 |
| Subtotal | Millennials | 573 | 633 | 181 | 36 | 10 | 1 | 1434 |
| | Generation X | 405 | 673 | 291 | 71 | 14 | 1 | 1455 |
| | Baby Boomers | 247 | 631 | 413 | 93 | 39 | 5 | 1428 |
| TOTAL | | 1225 | 1937 | 885 | 200 | 63 | 7 | 4317 |

Overall, the results were similar across the states (Figure 61). Therefore, residents of one state do not seem to describe themselves as more adventuresome when they travel when compared with another.

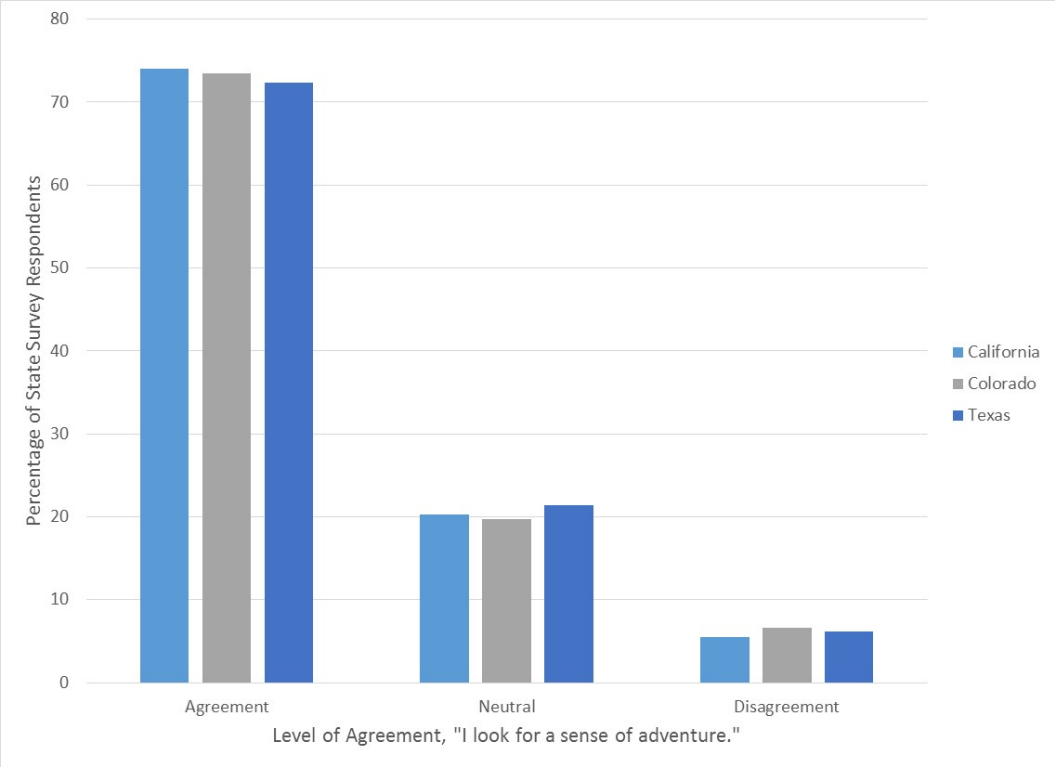



**Figure 61: Adventure Desired When Traveling, By State**

Differences are found, however, when comparing generations (Figure 62). As expected, Millennials, the younger generation, reported seeking out adventure more than the older generations.

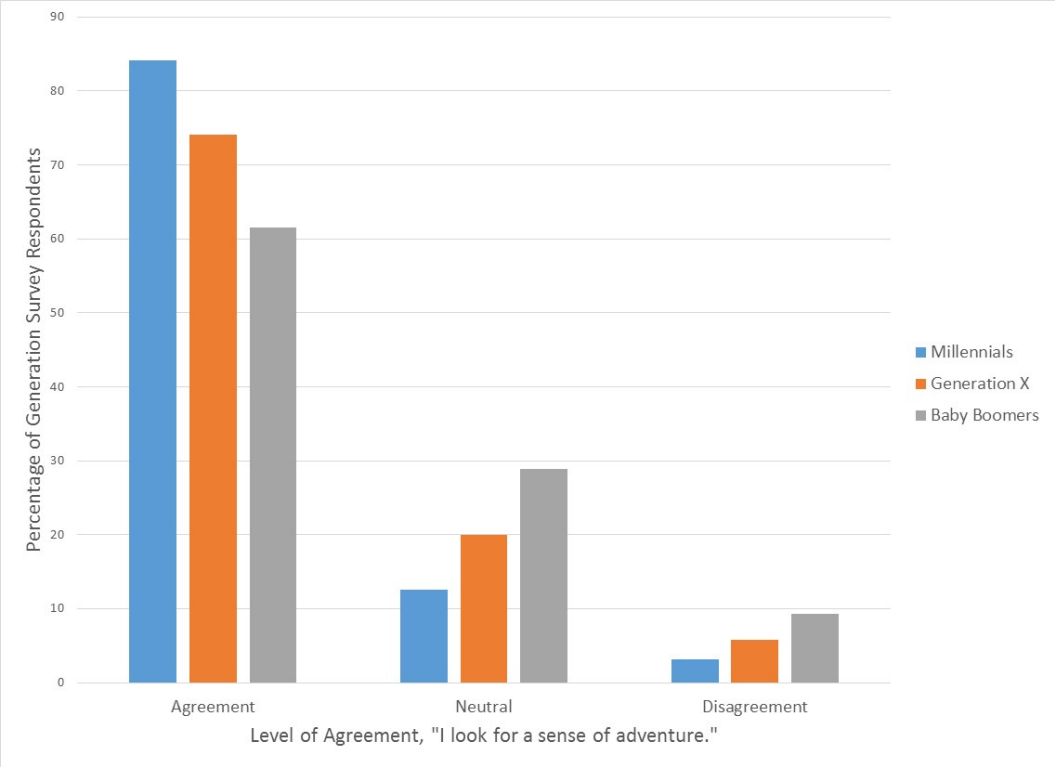



**Figure 62: Adventure Desired When Traveling, By Generation**

What does this mean when considering whether or not Millennials or Baby Boomers might want to access Refuges? If Millennials perceived an opportunity to engage in an adventure on a Refuge, they might be drawn to one. For example, maybe there are opportunities which provide visitors with a hands-on opportunity to assist a biologist in a study that would provide some element of adventure. It may be of interest to pose some kind of option and whether or not that would be perceived as an adventure by a Millennial.

## *Solitude*

This sub-section discusses the results for a survey respondent's answer to, **"I enjoy experiencing solitude."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was a 3.94. This most closely relates to agreement. Therefore, overall, survey respondents agree that they enjoy experiencing solitude when they travel.

From a state perspective, while California survey respondents reported a stronger level of agreement with an interest in solitude, when considering all affirmative responses ("Strongly Agree" or "Agree"), Colorado survey respondents reported the highest level of agreement with an interest in solitude (Figure 63).

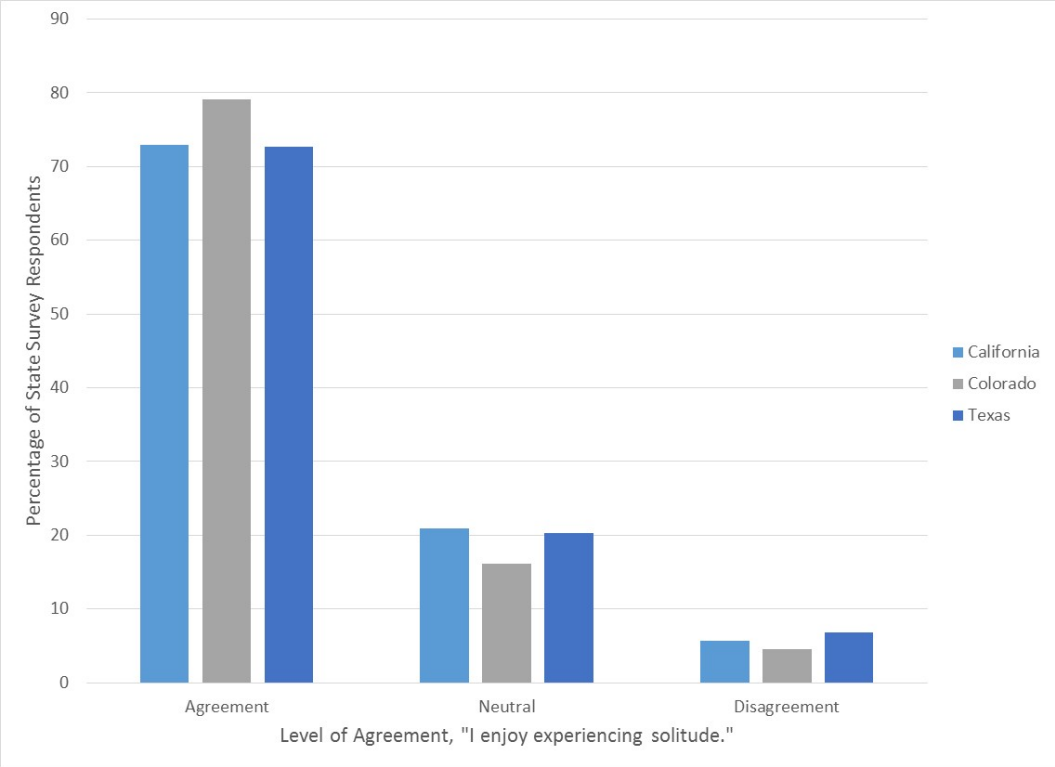



**Figure 63: Interest in Experiencing Solitude when Traveling, By State**

Furthermore, from a generational perspective, while Millennials reported a stronger level of agreement with an interest in solitude, when considering all affirmative responses ("Strongly Agree" or "Agree"), Generation X reported the highest level of agreement with an interest in solitude, although the overall representation is similar (Figure 64).

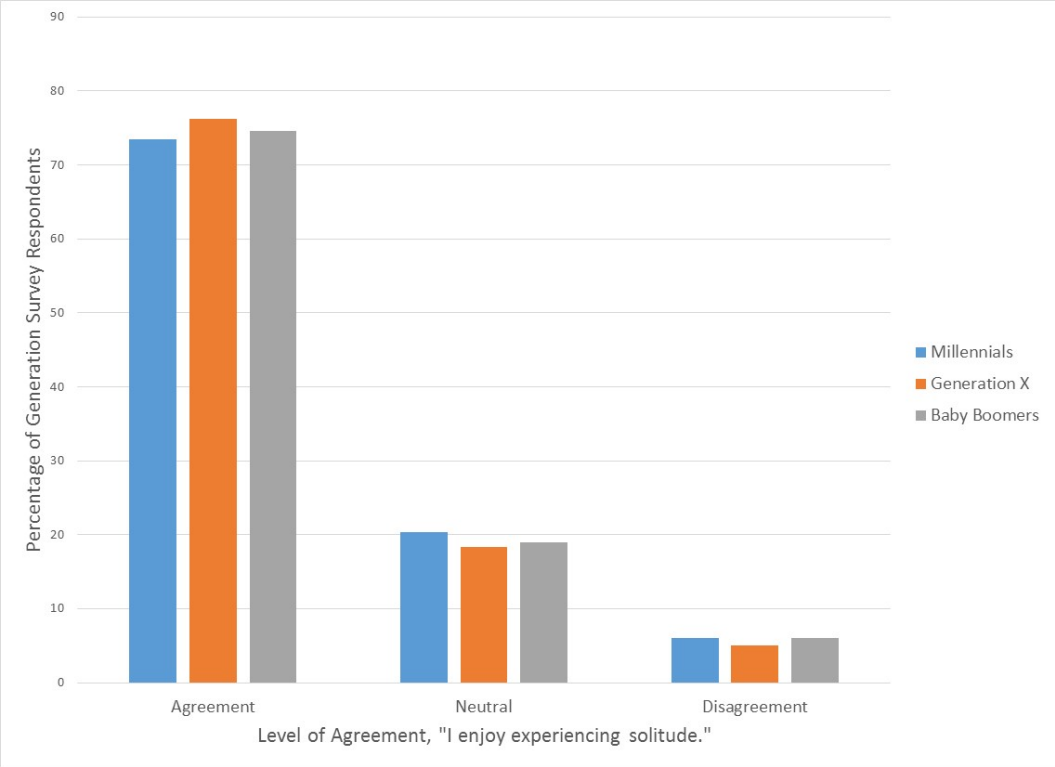



**Figure 64: Interest in Experiencing Solitude when Traveling, By Generation**

Category details can be found in Table 25.

**Table 25: Level of Agreement, Interest in Experiencing Solitude, By Generation & State**

| State | Generation | Experiencing Solitude | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 160 | 189 | 110 | 25 | 4 | 2 | 490 |
| | Generation X | 133 | 222 | 95 | 18 | 5 | 2 | 475 |
| | Baby Boomers | 115 | 226 | 95 | 26 | 4 | 2 | 468 |
| Colorado | Millennials | 105 | 234 | 81 | 21 | 3 | 0 | 444 |
| | Generation X | 128 | 265 | 59 | 14 | 1 | 2 | 469 |
| | Baby Boomers | 126 | 222 | 81 | 20 | 3 | 1 | 453 |
| Texas | Millennials | 141 | 224 | 100 | 28 | 6 | 1 | 500 |
| | Generation X | 123 | 238 | 113 | 29 | 7 | 1 | 511 |
| | Baby Boomers | 142 | 235 | 95 | 29 | 5 | 1 | 507 |
| Subtotal | Millennials | 406 | 647 | 291 | 74 | 13 | 3 | 1434 |
| | Generation X | 384 | 725 | 267 | 61 | 13 | 5 | 1455 |
| | Baby Boomers | 383 | 683 | 271 | 75 | 12 | 4 | 1428 |
| TOTAL | | 1173 | 2055 | 829 | 210 | 38 | 12 | 4317 |

## *Unpredictability of Nature*

This sub-section discusses the results for a survey respondent's answer to, **"I enjoy the unpredictability of nature."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was 3.90. This most closely relates to agreement. Therefore, overall, survey respondents agree that they enjoy the unpredictability of nature when they travel. However, compared to the two previous statements, the level of agreement has slightly diminished.

Survey respondents from Colorado reported the greatest acceptance of the unpredictability of nature when they are traveling (Figure 65).

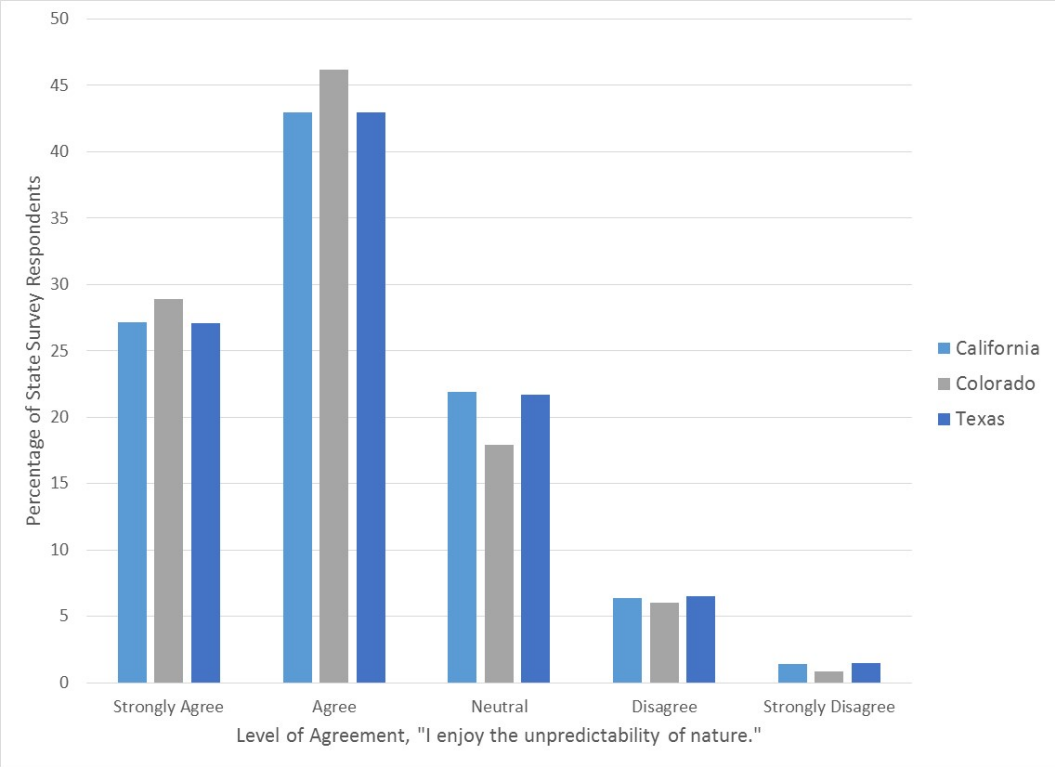



**Figure 65: Enjoy the Unpredictability of Nature, By State**

While all generations reported similar percentages of strongly agree, for agree, Baby Boomer survey respondents also reported the greatest acceptance of the unpredictability of nature when traveling (Figure 66).

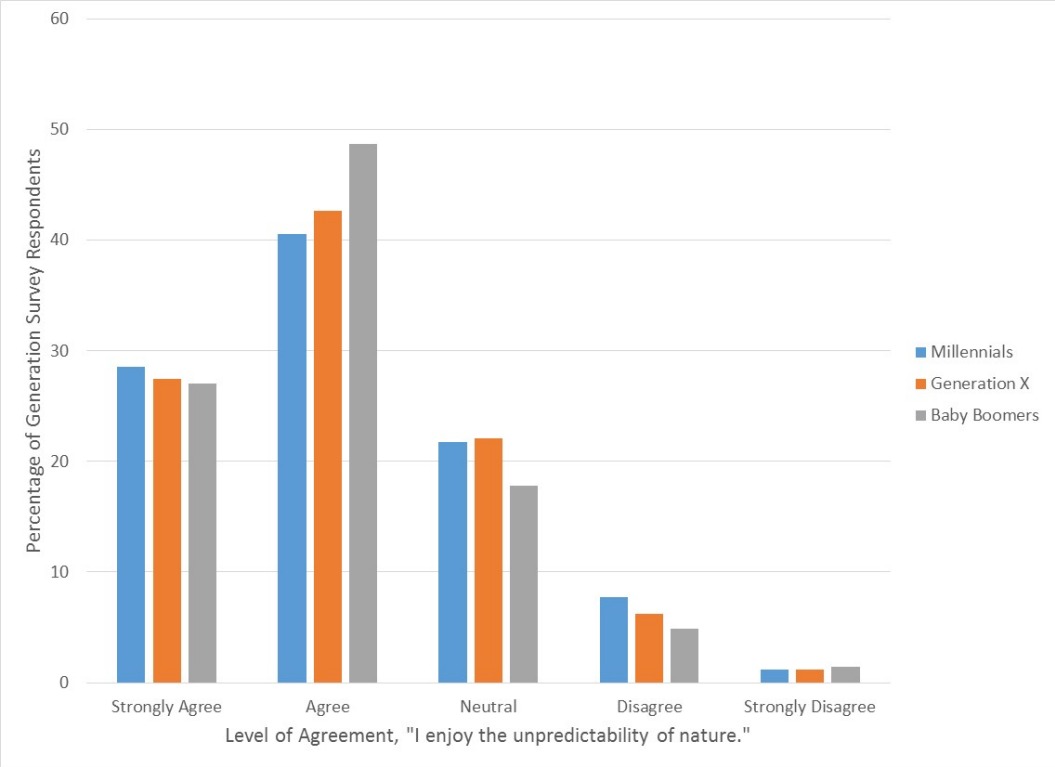



**Figure 66: Enjoy the Unpredictability of Nature, By Generation**

This result may be a bit unexpected because Baby Boomers due to their life stage may be perceived as desiring more comfortable travel that would not involve nature being unpredictable. Therefore, future research may seek to better understand the underlying acceptance by the Baby Boomer in the unpredictability of nature. Is there a difference between Millennials and Baby Boomers in that if, for example, Millennials engage in more backcountry travel activities, the unpredictability of nature may not be as appealing? In contrast, viewing thunderstorms from the comfort of a vehicle may be exhilarating.

The number of survey respondents by generation and state who reported the various levels of agreement can be found in Table 26.

.

**Table 26: Level of Agreement, Enjoy Unpredictability of Nature, By Generation & State**

| State | Generation | Unpredictability of Nature | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 154 | 182 | 114 | 31 | 7 | 2 | 490 |
| | Generation X | 125 | 193 | 113 | 35 | 8 | 1 | 475 |
| | Baby Boomers | 110 | 241 | 87 | 25 | 5 | 0 | 468 |
| Colorado | Millennials | 132 | 185 | 84 | 39 | 4 | 0 | 444 |
| | Generation X | 135 | 222 | 84 | 25 | 2 | 1 | 469 |
| | Baby Boomers | 128 | 224 | 77 | 18 | 6 | 0 | 453 |
| Texas | Millennials | 123 | 215 | 114 | 41 | 6 | 1 | 500 |
| | Generation X | 140 | 206 | 125 | 31 | 7 | 2 | 511 |
| | Baby Boomers | 148 | 231 | 90 | 27 | 9 | 2 | 507 |
| Subtotal | Millennials | 409 | 582 | 312 | 111 | 17 | 3 | 1434 |
| | Generation X | 400 | 621 | 322 | 91 | 17 | 4 | 1455 |
| | Baby Boomers | 386 | 696 | 254 | 70 | 20 | 2 | 1428 |
| TOTAL | | 1195 | 1899 | 888 | 272 | 54 | 9 | 4317 |

## *Wilderness*

This sub-section discusses the results for a survey respondent's answer to, **"I enjoy being in the wilderness."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was 3.85. While the average most closely relates to agreement, the level of agreement is diminishing as compared with some of the other statements regarding travel. Still, survey respondents seem to enjoy being in the wilderness. It would have been interesting to ask survey respondents what they define as wilderness.

Colorado survey respondents reported the greatest interest in being in the wilderness (Figure 67).

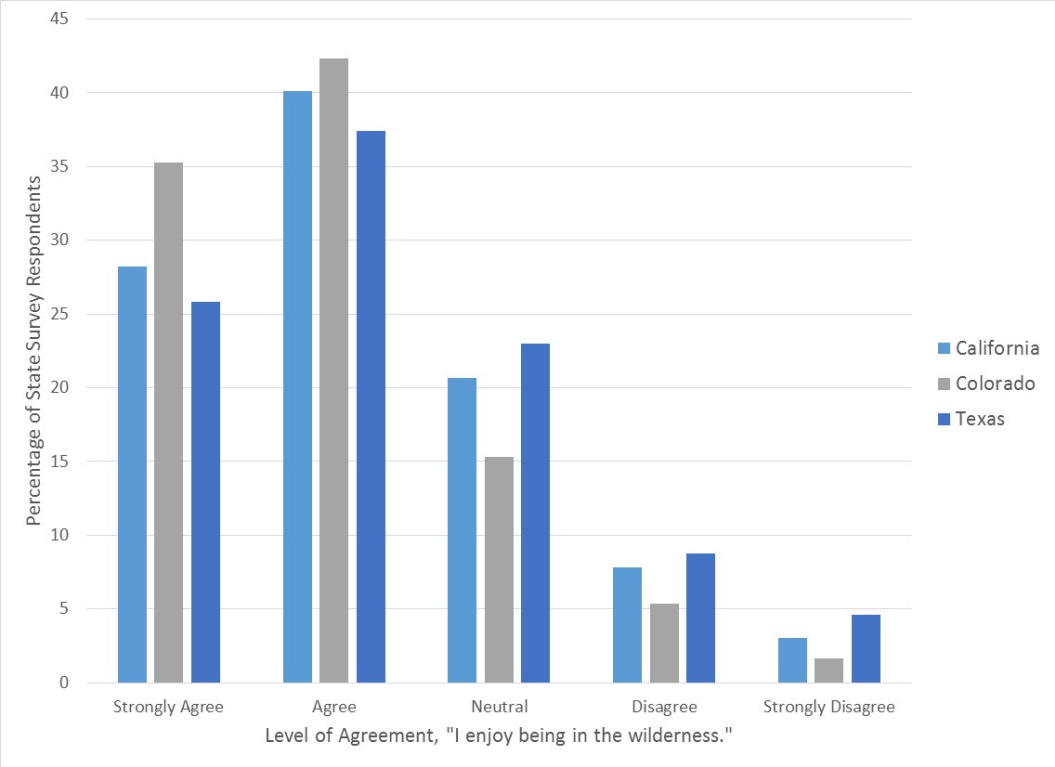



**Figure 67: Enjoyment of being in the Wilderness, By State**

However, this result does not directly correlate with the representation of wildernesses in the three states under consideration. The states within the U.S. that have the most wilderness areas are California, Arizona, Nevada, Alaska, and Oregon (34). Colorado has 44 designated wilderness areas covering 3,762,731 acres whereas California has 149 designated wilderness areas covering 15,037,287 acres. (Note: Texas was identified as having 6 wilderness areas covering 85,167 acres.)

As a whole, Millennials seem to have a greater degree of interest in being in the wilderness (Figure 68).

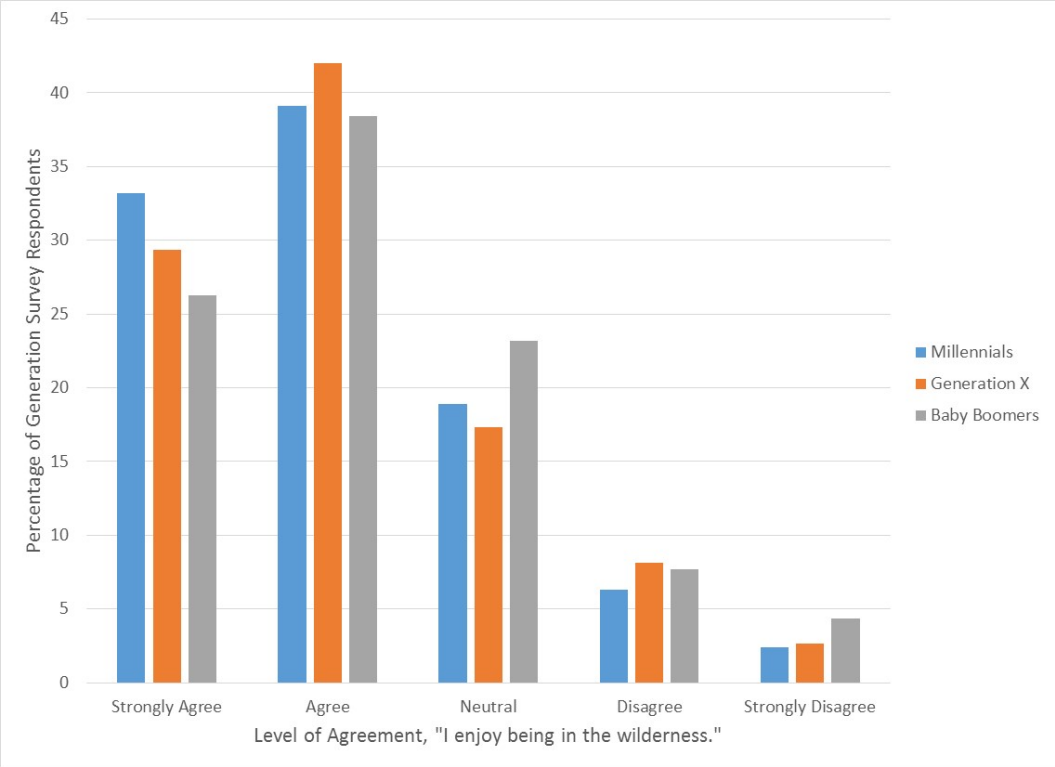



**Figure 68: Enjoyment of being in the Wilderness, By Generation**

This becomes clearer when grouping the affirmative and negative categories (Figure 69).

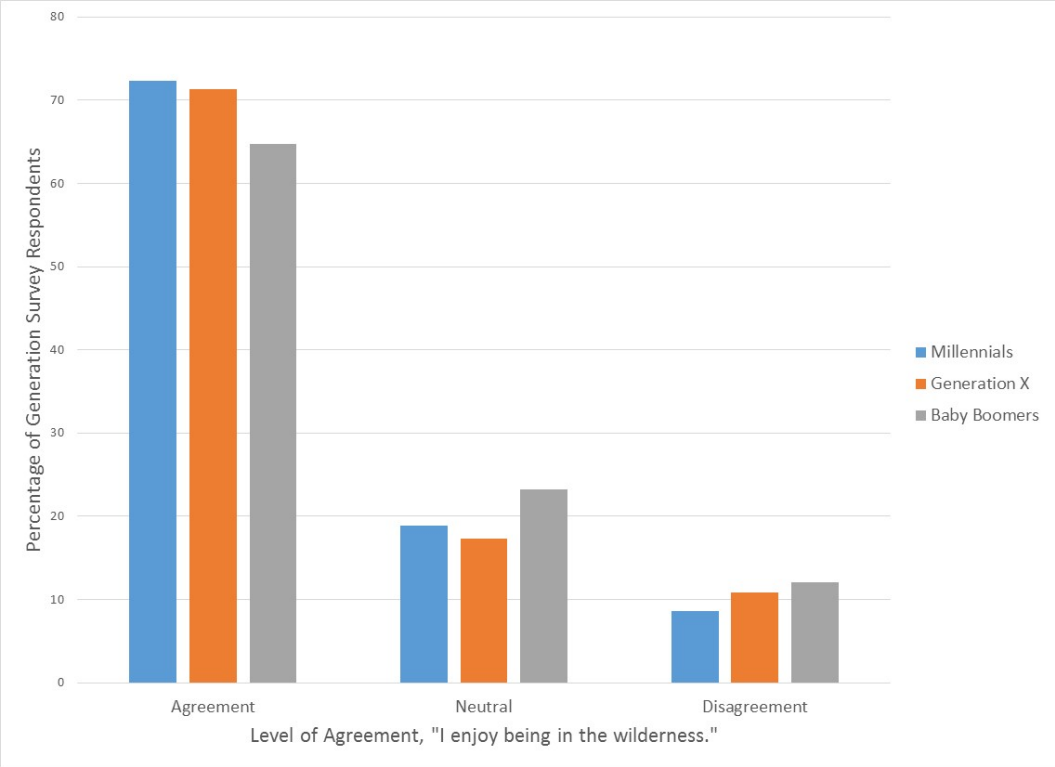



**Figure 69: Enjoyment of being in the Wilderness, By Generation, Condensed**

The number of survey respondents by generation and state who reported the various levels of agreement can be found in Table 27.

**Table 27: Level of Agreement, Enjoy Being in Wilderness, By Generation & State**

| State | Generation | Enjoy Wilderness | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 166 | 183 | 98 | 31 | 11 | 1 | 490 |
| | Generation X | 127 | 207 | 85 | 41 | 13 | 2 | 475 |
| | Baby Boomers | 111 | 185 | 113 | 40 | 19 | 0 | 468 |
| Colorado | Millennials | 169 | 184 | 62 | 22 | 6 | 1 | 444 |
| | Generation X | 167 | 207 | 61 | 29 | 4 | 1 | 469 |
| | Baby Boomers | 146 | 187 | 86 | 22 | 12 | 0 | 453 |
| Texas | Millennials | 141 | 194 | 111 | 37 | 17 | 0 | 500 |
| | Generation X | 133 | 197 | 106 | 48 | 22 | 5 | 511 |
| | Baby Boomers | 118 | 177 | 132 | 48 | 31 | 1 | 507 |
| Subtotal | Millennials | 476 | 561 | 271 | 90 | 34 | 2 | 1434 |
| | Generation X | 427 | 611 | 252 | 118 | 39 | 8 | 1455 |
| | Baby Boomers | 375 | 549 | 331 | 110 | 62 | 1 | 1428 |
| TOTAL | | 1278 | 1721 | 854 | 318 | 135 | 11 | 4317 |

## *Connect & Immerse with Nature*

This sub-section discusses the results for a survey respondent's answer to, **"I try to connect and immerse myself in nature."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was a 3.78. While generally closer to agreement than the other options, as compared with the previous statements, this question is moving more towards neutrality. Similar to "wilderness," it would be interesting to have a survey respondent define nature.

Both California and Colorado provided relatively similar responses regarding their interest in connecting and immersing themselves in nature, whereas Texan survey respondents seemed least interested (Figure 70).

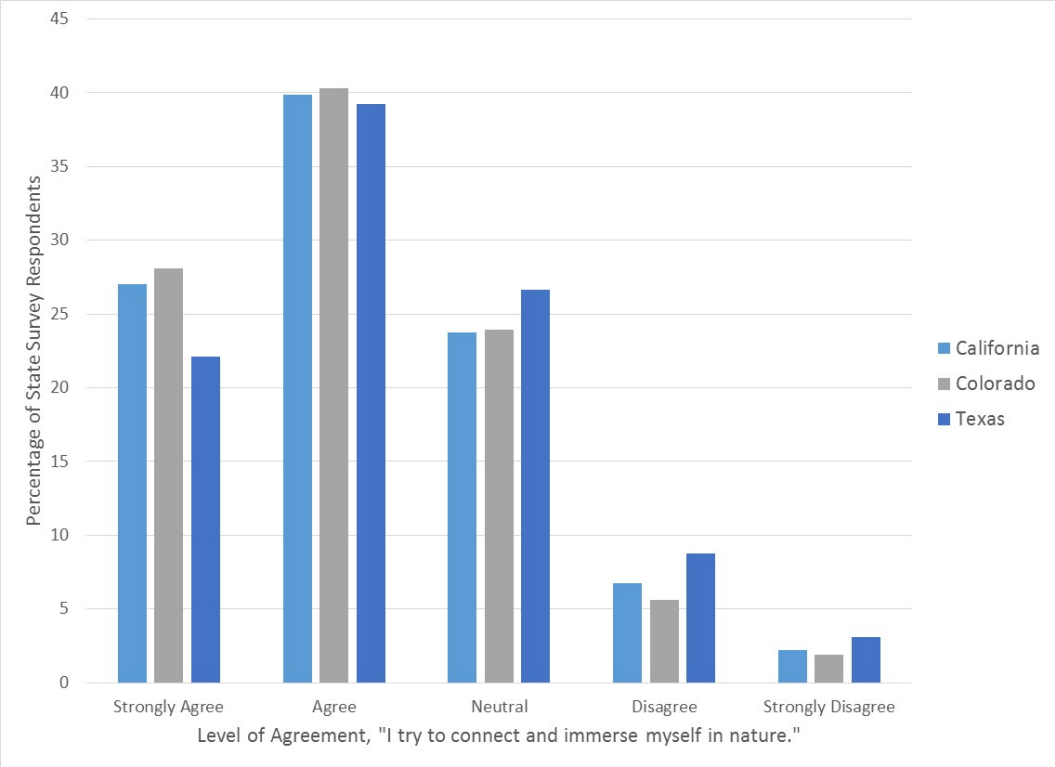



**Figure 70: Interest in Connection & Immersion with Nature, By State**

Millennials indicated the most interest in connecting themselves with nature, with each successive generation reporting less of an interest (Figure 71).

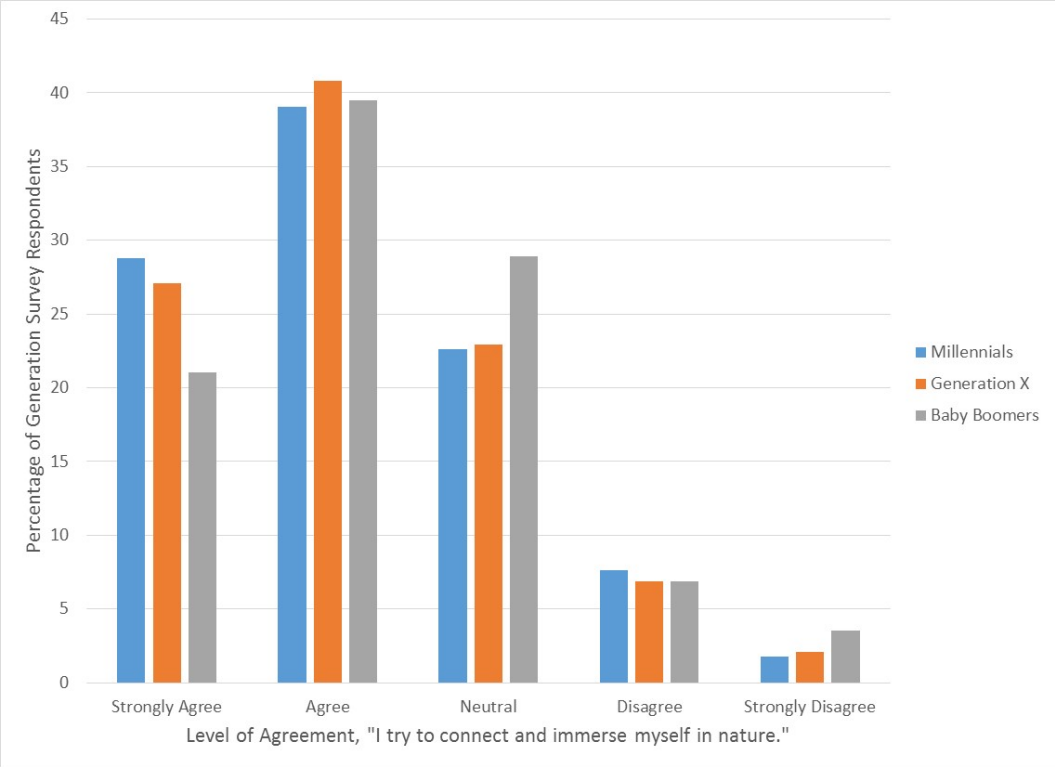



**Figure 71: Interest in Connection & Immersion with Nature, By Generation**

A particularly notable difference is between the younger generations and the Baby Boomer generations in the “Strongly Agree” category.

The number of survey respondents by generation and state who reported the various levels of agreement can be found in Table 28.

.

**Table 28: Level of Agreement, Connect & Immerse in Nature, By Generation & State**

| State | Generation | Connect & Immerse in Nature | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 150 | 186 | 109 | 36 | 7 | 2 | 490 |
| | Generation X | 145 | 185 | 105 | 28 | 11 | 1 | 475 |
| | Baby Boomers | 92 | 200 | 126 | 33 | 14 | 3 | 468 |
| Colorado | Millennials | 139 | 177 | 97 | 23 | 7 | 1 | 444 |
| | Generation X | 140 | 197 | 99 | 26 | 7 | 0 | 469 |
| | Baby Boomers | 105 | 177 | 131 | 28 | 12 | 0 | 453 |
| Texas | Millennials | 124 | 197 | 118 | 50 | 11 | 0 | 500 |
| | Generation X | 109 | 212 | 130 | 46 | 12 | 2 | 511 |
| | Baby Boomers | 103 | 187 | 156 | 37 | 24 | 0 | 507 |
| Subtotal | Millennials | 413 | 560 | 324 | 109 | 25 | 3 | 1434 |
| | Generation X | 394 | 594 | 334 | 100 | 30 | 3 | 1455 |
| | Baby Boomers | 300 | 564 | 413 | 98 | 50 | 3 | 1428 |
| TOTAL | | 1107 | 1718 | 1071 | 307 | 105 | 9 | 4317 |

## *Presence of Wildlife*

This sub-section discusses the results for a survey respondent's answer to, **"I look for experiences that allow me to be in the presence of wildlife."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was 3.71. This most closely relates to agreement. Therefore, overall, survey respondents report interest in being in the presence of wildlife.

Colorado, more than the other two states, expressed an interest in looking for experiences to engage with wildlife (Figure 72).

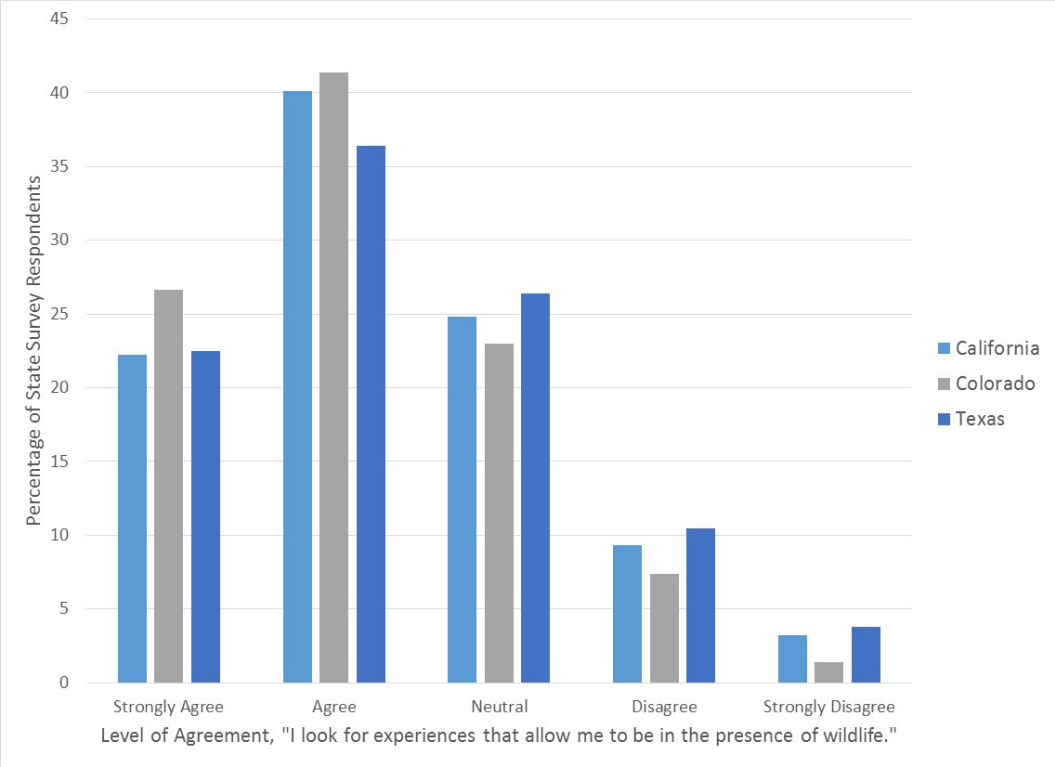



**Figure 72: Presence of Wildlife, By State**

Millennials expressed the most interest in engaging with wildlife, with each successive generation expressing less interest (Figure 73). However, there was a more notable drop between Generation X and the Baby Boomers as compared with Millennials and Generation X.

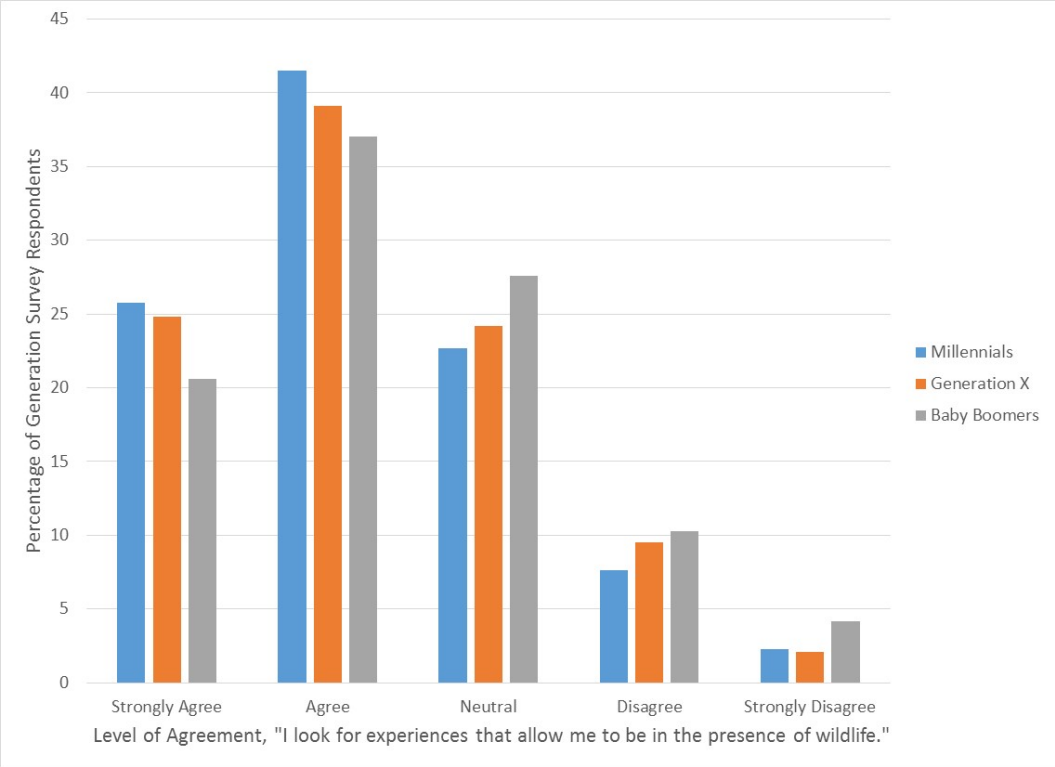



**Figure 73: Presence of Wildlife, By Generation**

The number of survey respondents by generation and state who reported the various levels of agreement can be found in Table 29.

**Table 29: Level of Agreement, Presence of Wildlife, By Generation & State**

| State | Generation | Presence of Wildlife | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 122 | 208 | 107 | 39 | 13 | 1 | 490 |
| | Generation X | 116 | 184 | 120 | 44 | 10 | 1 | 475 |
| | Baby Boomers | 81 | 183 | 129 | 51 | 23 | 1 | 468 |
| Colorado | Millennials | 127 | 190 | 95 | 24 | 7 | 1 | 444 |
| | Generation X | 132 | 200 | 95 | 39 | 2 | 1 | 469 |
| | Baby Boomers | 105 | 175 | 124 | 38 | 10 | 1 | 453 |
| Texas | Millennials | 120 | 197 | 123 | 46 | 13 | 1 | 500 |
| | Generation X | 113 | 185 | 137 | 55 | 18 | 3 | 511 |
| | Baby Boomers | 108 | 171 | 141 | 58 | 26 | 3 | 507 |
| Subtotal | Millennials | 369 | 595 | 325 | 109 | 33 | 3 | 1434 |
| | Generation X | 361 | 569 | 352 | 138 | 30 | 5 | 1455 |
| | Baby Boomers | 294 | 529 | 394 | 147 | 59 | 5 | 1428 |
| TOTAL | | 1024 | 1693 | 1071 | 394 | 122 | 13 | 4317 |

## *Learning about Nature*

This sub-section discusses the results for a survey respondent's answer to, **"I enjoy learning about nature."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was 4.12. Therefore, overall, survey respondents report being interested in learning about nature. It is interesting that many report an interest in learning about nature, but there is a hint that many survey respondents are scared of nature by their somewhat lower level of agreement with wanting to immerse in nature and being in the wilderness.

Although generally pretty consistent, there seems to be a slightly greater interest by Colorado residents than the other two states in learning about nature.

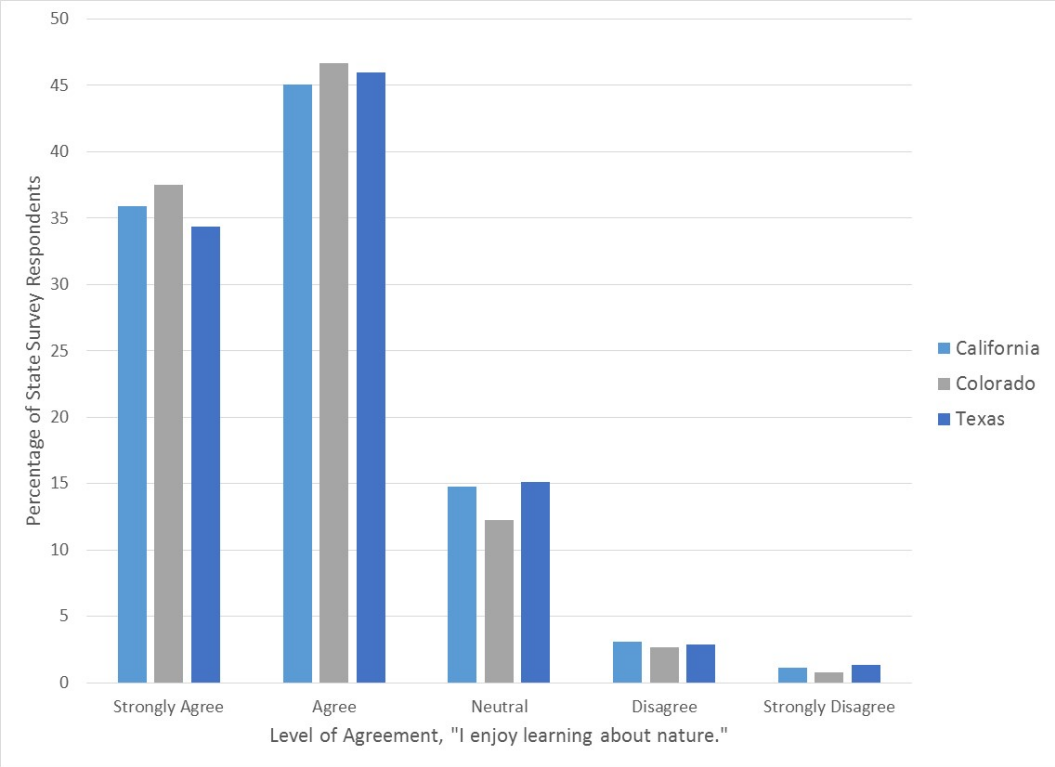



**Figure 74: Learning About Nature, By State**

When asked about their interest in nature, a significantly smaller percentage of Baby Boomer survey respondents chose “Strongly Agree” as compared with the other two generations, yet, when grouping the positive and negative categories, in general, the interest is pretty consistent across generations.

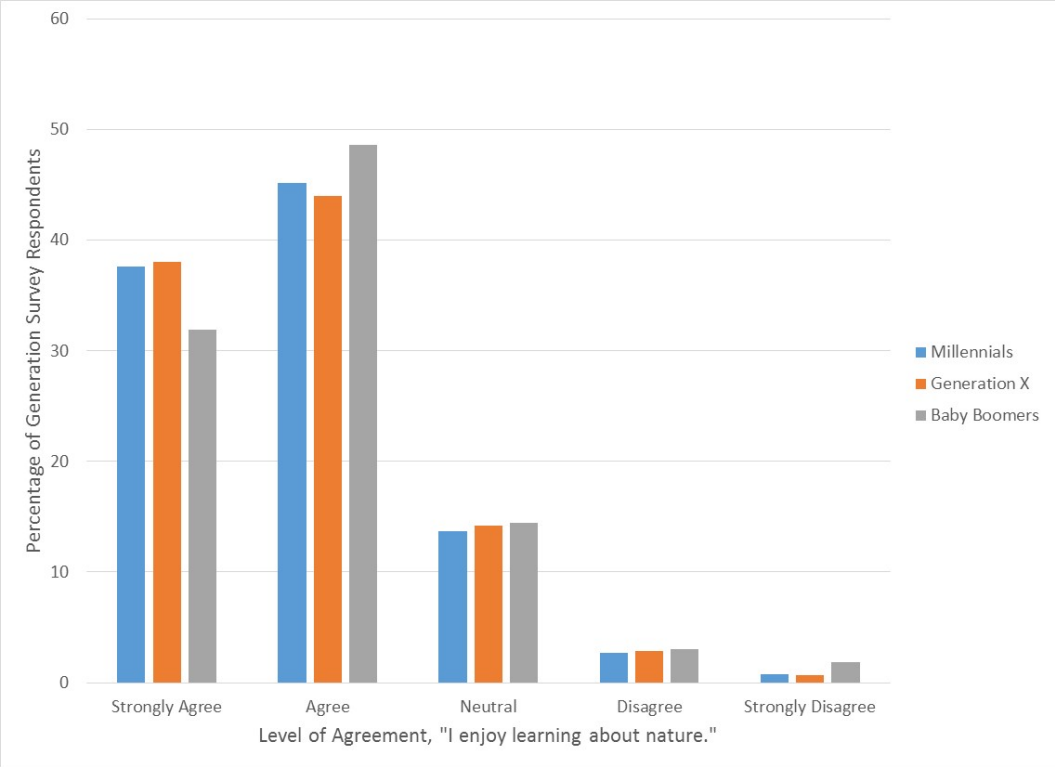



**Figure 75: Learning About Nature, By Generation**

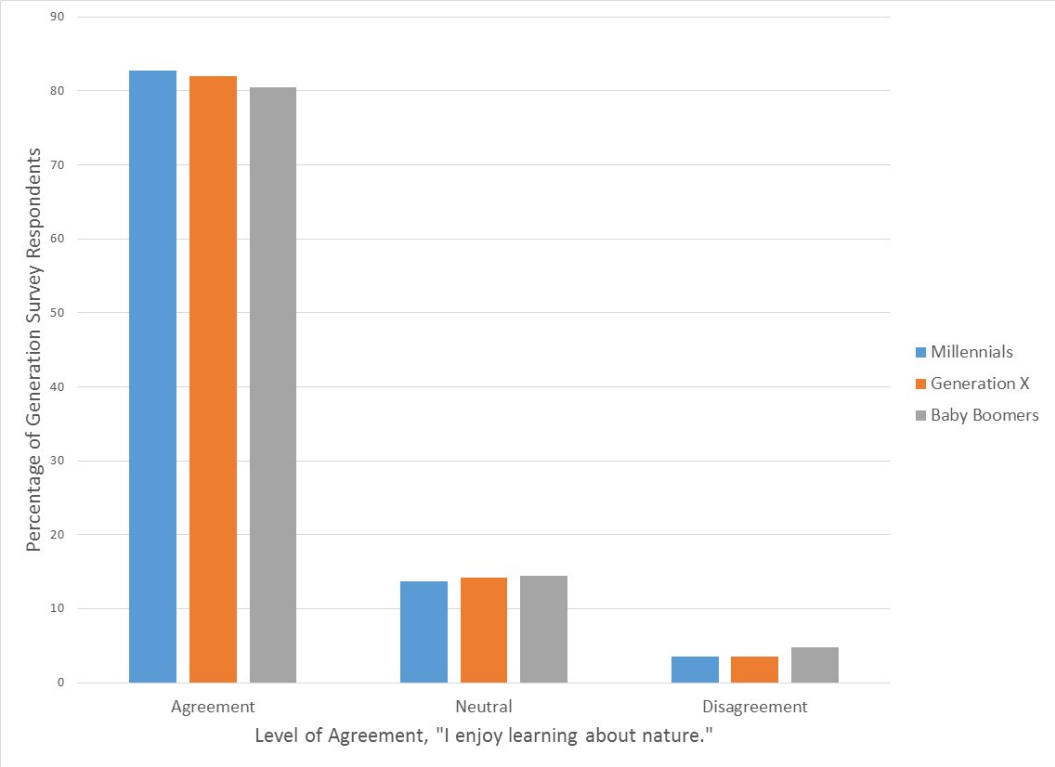



**Figure 76: Learning About Nature, By Generation, Condensed**

The number of survey respondents by generation and state who reported the various levels of agreement can be found in Table 30.

**Table 30: Level of Agreement, Learning About Nature, By Generation & State**

| State | Generation | Learning About Nature | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 197 | 208 | 68 | 15 | 2 | 0 | 490 |
| | Generation X | 172 | 212 | 72 | 14 | 4 | 1 | 475 |
| | Baby Boomers | 145 | 226 | 72 | 15 | 10 | 0 | 468 |
| Colorado | Millennials | 170 | 204 | 55 | 10 | 5 | 0 | 444 |
| | Generation X | 193 | 210 | 53 | 12 | 0 | 1 | 469 |
| | Baby Boomers | 149 | 224 | 59 | 14 | 6 | 1 | 453 |
| Texas | Millennials | 172 | 236 | 73 | 14 | 4 | 1 | 500 |
| | Generation X | 188 | 218 | 82 | 16 | 6 | 1 | 511 |
| | Baby Boomers | 162 | 244 | 75 | 14 | 10 | 2 | 507 |
| Subtotal | Millennials | 539 | 648 | 196 | 39 | 11 | 1 | 1434 |
| | Generation X | 553 | 640 | 207 | 42 | 10 | 3 | 1455 |
| | Baby Boomers | 456 | 694 | 206 | 43 | 26 | 3 | 1428 |
| TOTAL | | 1548 | 1982 | 609 | 124 | 47 | 7 | 4317 |

## *History*

This sub-section discusses the results for a survey respondent's answer to, **"I look for information about history, a connection with the past."** With 1 representative of "Strongly Disagree" and 5 of "Strongly Agree," the average across all survey respondents was a 3.95. This most closely relates to agreement. Therefore, overall, survey respondents, including Millennials, agree that they are interested in history.

While looking at the individual categories, there seems to be less of an interest by California residents in travel experiences with history as compared with the other states. However, when grouping the positive and negative categories, the difference is less pronounced.

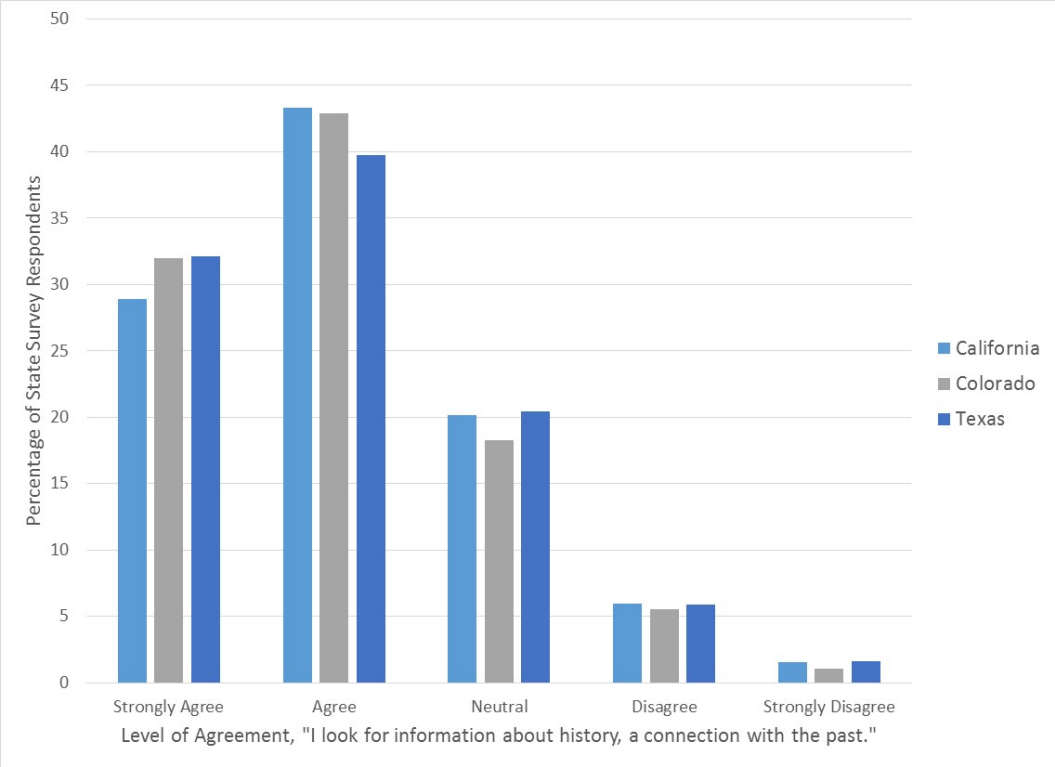



**Figure 77: History, Connection with the Past, By State**

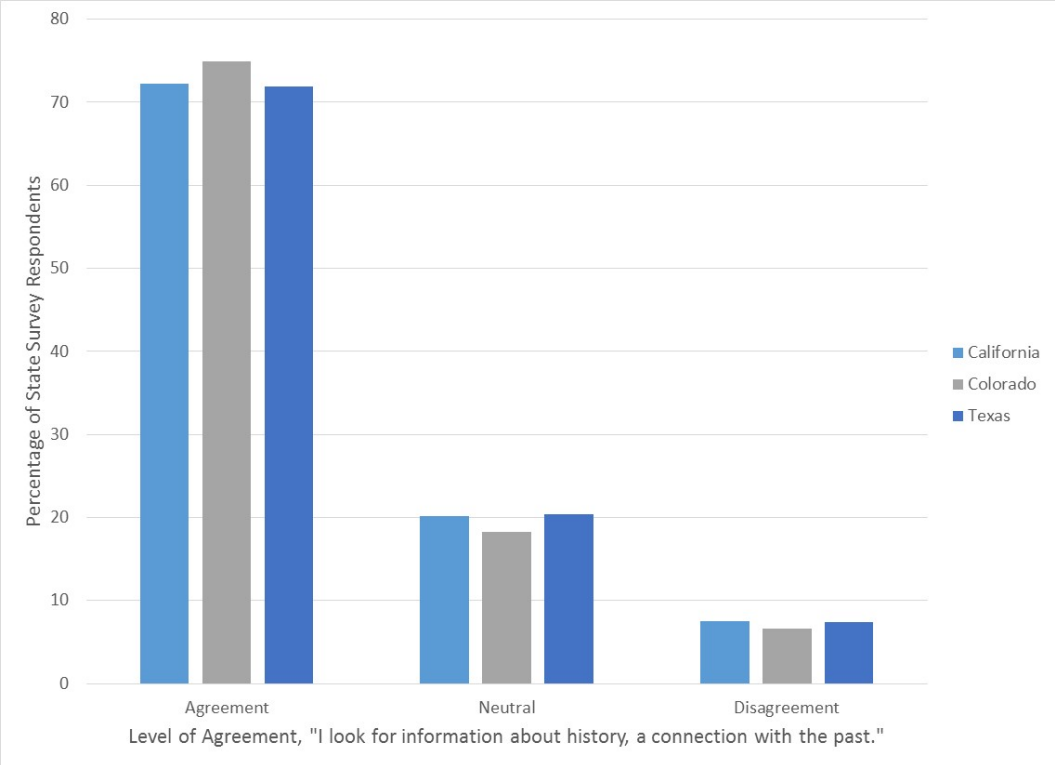



**Figure 78: History, Connection with the Past, By State, Condensed**

By generation, there is more interest in history in each successively older generation, although this difference is small (Figure 79).

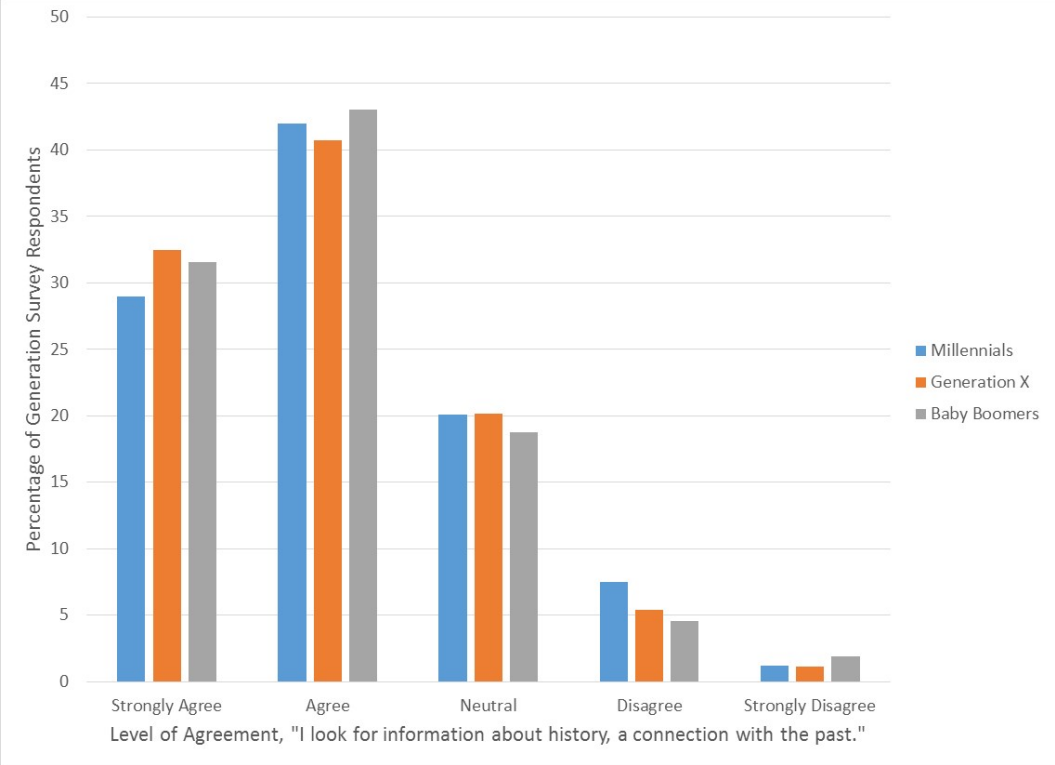



**Figure 79: History, Connection with the Past, By Generation**

This difference is even more notable when grouping the positive and negative categories (Figure 80).

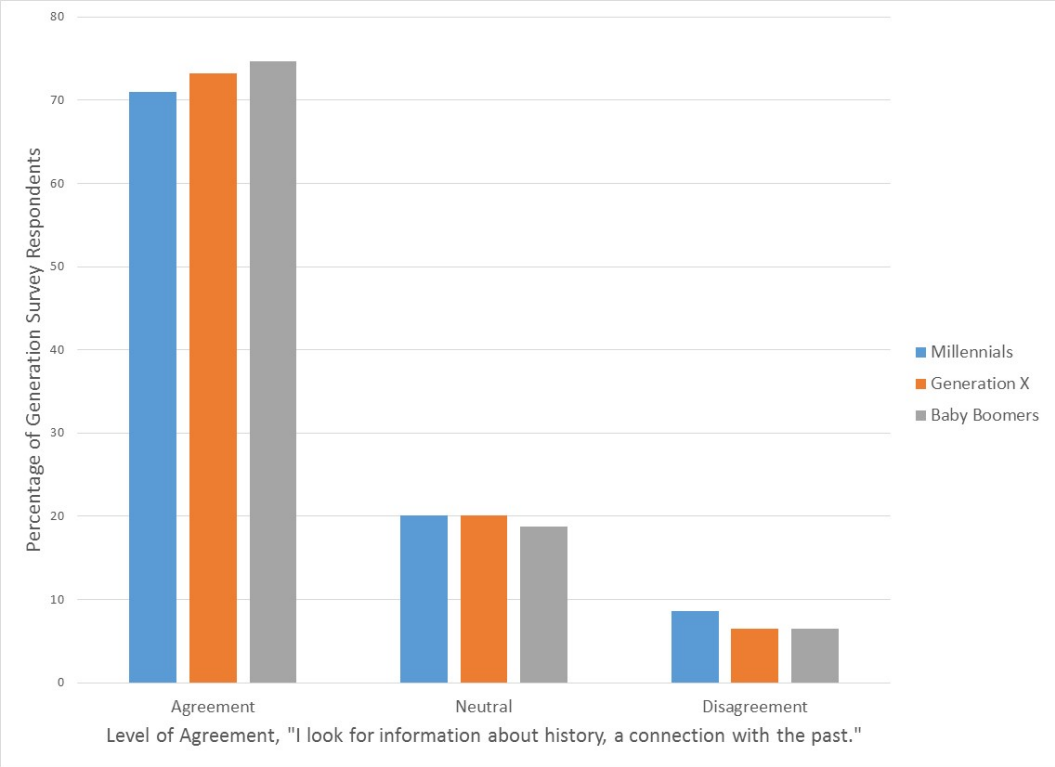



**Figure 80: History, Connection with the Past, By Generation, Condensed**

This result supports that found in the literature in that Millennials seem to value historical experiences less than other generations ( (10), (12)), although these results would suggest that it is not as pronounced as the literature suggested, with approximately seventy percent of this sample indicating general agreement.

The number of survey respondents by generation and state who reported the various levels of agreement can be found in Table 31.

**Table 31: Level of Agreement, History/Connection with the Past, By Generation & State**

| State | Generation | History, Connection with the Past | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Subtotal |
| California | Millennials | 140 | 213 | 98 | 29 | 8 | 2 | 490 |
| | Generation X | 140 | 201 | 103 | 27 | 4 | 0 | 475 |
| | Baby Boomers | 134 | 207 | 88 | 29 | 10 | 0 | 468 |
| Colorado | Millennials | 124 | 189 | 86 | 40 | 4 | 1 | 444 |
| | Generation X | 167 | 200 | 78 | 19 | 3 | 2 | 469 |
| | Baby Boomers | 146 | 197 | 86 | 17 | 7 | 0 | 453 |
| Texas | Millennials | 152 | 200 | 104 | 38 | 5 | 1 | 500 |
| | Generation X | 165 | 192 | 112 | 32 | 9 | 1 | 511 |
| | Baby Boomers | 171 | 211 | 94 | 19 | 10 | 2 | 507 |
| Subtotal | Millennials | 416 | 602 | 288 | 107 | 17 | 4 | 1434 |
| | Generation X | 472 | 593 | 293 | 78 | 16 | 3 | 1455 |
| | Baby Boomers | 451 | 615 | 268 | 65 | 27 | 2 | 1428 |
| TOTAL | | 1339 | 1810 | 849 | 250 | 60 | 9 | 4317 |

## 8.8. QUESTION 8 – Refuge Transportation Options

Question 8 asked survey respondents, "Below are different transportation options that could be offered at some National Wildlife Refuges in the future. If you were to visit a National Wildlife Refuge, please tell us how likely you would use." The following options were listed:

- A bus or tram that takes passengers to different points on the Refuge (such as the Visitor Center/Contact Station)?
- A bike that was offered through a Bike Share Program for use while on the Refuge?
- A bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?
- A boat that goes to different points on Refuge waterways?
- A bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?
- An offsite parking lot that provides trail access for walking/hiking onto the Refuge?

### *Bus/Tram to Refuge Points*

The first type of transportation option identified was "A bus or tram that takes passengers to different points on the refuge (such as the Visitor Center/Contact Station)?" With "Extremely Likely" representing a 5 and "Not at all likely" representing a 1, survey respondents reported an average interest level of 3.77 in using this transportation mode. Therefore, it would seem as if survey respondents were generally very likely to use a bus/tram to travel to points on a Refuge.

The total count of survey respondents choosing each option, separated out by both state and generation can be found in Table 32.

.

**Table 32: Likelihood, Bus/Tram Points on Refuge, By Generation & State**

| State | Generation | Bus/Tram to Points on the Refuge | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Extremely Likely | Very Likely | Moderately Likely | Slightly Likely | Not at all likely | No Response | Subtotal |
| California | Millennials | 168 | 166 | 116 | 29 | 11 | 0 | 490 |
| | Generation X | 156 | 171 | 99 | 27 | 21 | 1 | 475 |
| | Baby Boomers | 146 | 157 | 91 | 39 | 34 | 1 | 468 |
| Colorado | Millennials | 116 | 152 | 123 | 34 | 19 | 0 | 444 |
| | Generation X | 155 | 146 | 99 | 43 | 25 | 1 | 469 |
| | Baby Boomers | 88 | 170 | 124 | 43 | 26 | 2 | 453 |
| Texas | Millennials | 130 | 191 | 124 | 26 | 28 | 1 | 500 |
| | Generation X | 177 | 191 | 94 | 22 | 25 | 2 | 511 |
| | Baby Boomers | 168 | 178 | 93 | 29 | 38 | 1 | 507 |
| Subtotal | Millennials | 414 | 509 | 363 | 89 | 58 | 1 | 1434 |
| | Generation X | 488 | 508 | 292 | 92 | 71 | 4 | 1455 |
| | Baby Boomers | 402 | 505 | 308 | 111 | 98 | 4 | 1428 |
| TOTAL | | 1304 | 1522 | 963 | 292 | 227 | 9 | 4317 |

*Bus/Tram Points & Use of Public Transportation at Home*

There was an interest in understanding how the frequency of public transportation use at home influences a survey respondent's response to, "A bus or tram that takes passengers to different points on the refuge (such as the Visitor Center/Contact Station)?" The potential correlation corresponds to the phenomena experience-use-history (23). This phenomena indicates that if people use public transportation in their everyday life, they are more likely to make use of it while vacationing. The results when comparing how frequently a survey respondent makes use of public transportation at home to their reported interest in using a bus/tram to travel to different points on a Refuge are strongly correlated. The less frequent public transportation users at home also reported less interest in using a bus/tram on a Refuge to travel to different points. (Note: Survey respondents who indicated that they did not use public transportation at home or who did not answer the question were removed from the sample to develop Figure 81.)

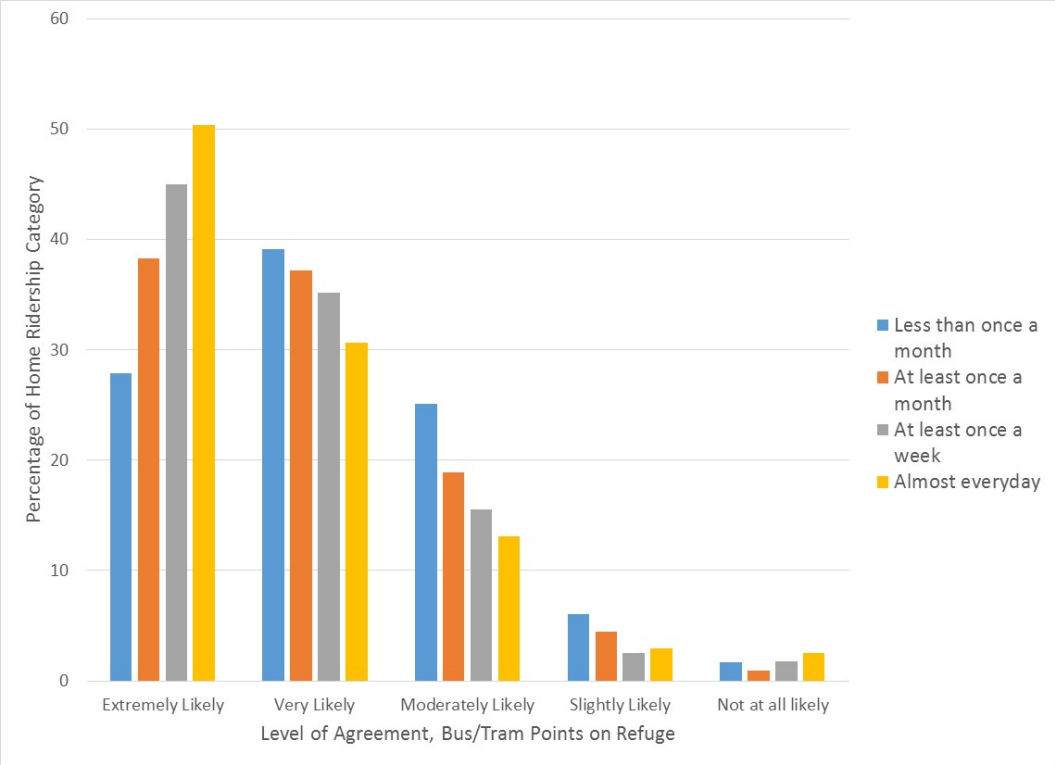



**Figure 81: Relationship of Public Transportation Use at Home to Preference for Bus/Tram to Travel to Different Points on Refuge**

In addition, researchers further studied the results for the Millennials and Generation X (Baby Boomers could not be analyzed because of the small number of survey respondents who indicated that they used public transportation at home). Looking at the successive chart comparisons of reported interest in using a bus/tram to travel around to points on a Refuge, the more often that Millennial/Generation X survey respondents reported using public transportation at home, the stronger their interest in having a bus/tram to assist them with traveling to points within a Refuge. More interestingly, Generation X expressed more interest than the Millennial generation. This could indicate that Millennials have less of an interest in traveling to a Refuge, thereby resulting in them expressing less interest in this option. It could also indicate that Generation X survey respondents that report using public transportation are more dependent upon public transportation to travel than Millennials.

*Bus/Tram Points & Community Type*

The researchers also investigated the relationship between a survey respondent's interest in using a bus or tram to points on a Refuge as it relates to their community type. Figure 82 shows the findings.

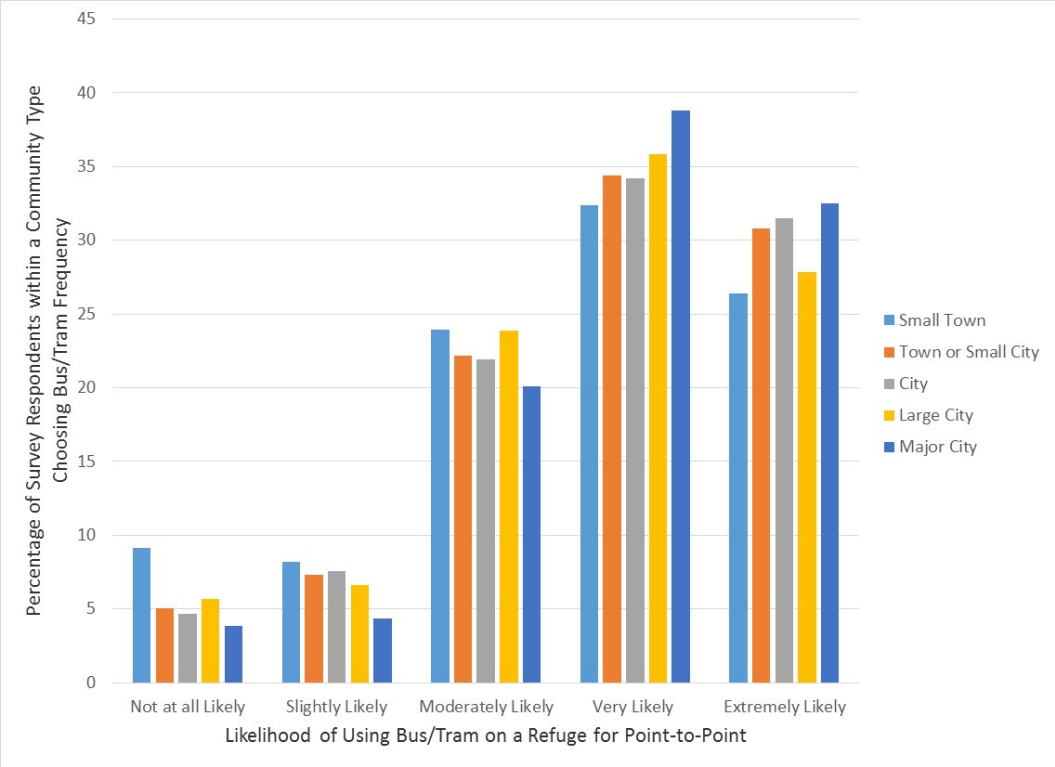



**Figure 82: Relationship Between Community Type and Interest in Using a Bus/Tram for Traveling Point-to-Point on a Refuge**

As expected, small town survey respondents showed the least interest in using this type of public transportation on a Refuge. Also as expected, those from major cities showed the greatest interest in using this type of provision on a Refuge. It is also interesting that those who identified as living in a "Large City" showed less enthusiasm for this type of public transportation provision on a Refuge as compared with survey respondents from a city or town or small city, which may hint at survey respondents who identified their community type as "Large City" being representative of suburban areas, where there is a perception that public transportation is often not viewed favorably.

## *Bike Share on Refuge*

Some of the results are presented within the Significant Survey Findings section.

### *Bike Share & Community Type*

The researchers looked at the relationship between survey respondents' reported community type and their reported interest in using bike share to tour a Refuge. Similar to the results for bus/tram point-to-point, small town survey respondents seemed to be least interested in a bike share provision on a Refuge (Figure 83).

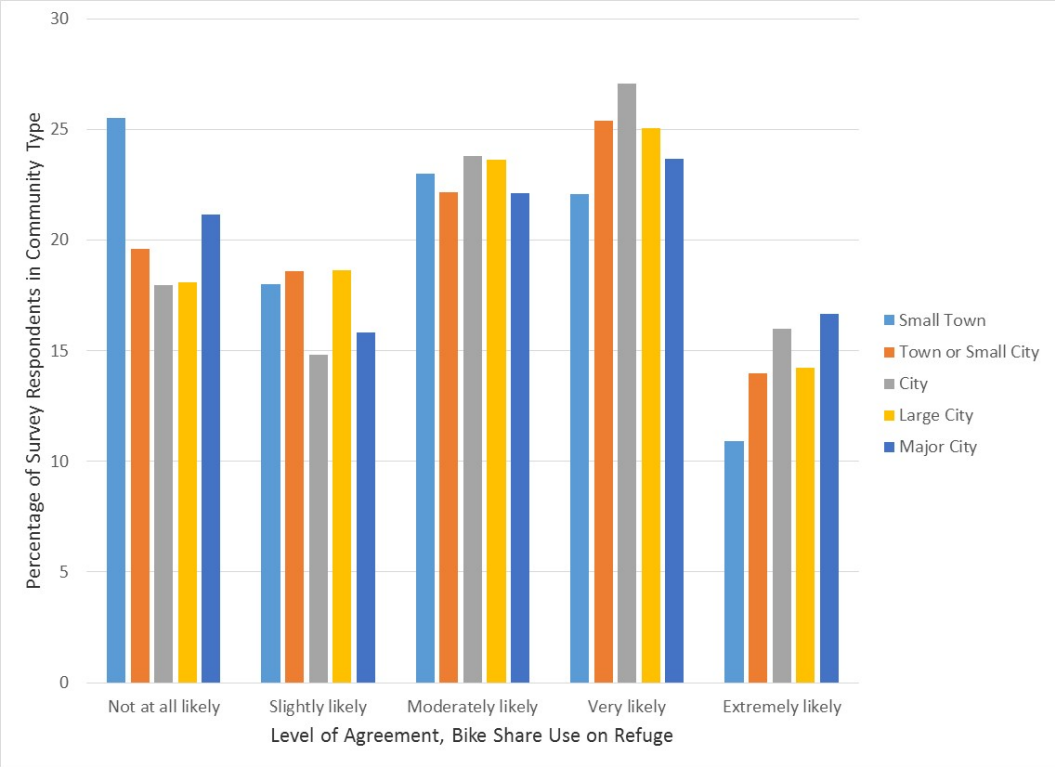



**Figure 83: Relationship Between Community Type and Interest in Using Bike Share for Refuge Travel**

In addition, although the percentages were different, for the "Extremely Likely" category there was a similar pattern. Overall, as compared with the bus/tram provisions, as discussed earlier in this section, the enthusiasm for this type of transportation on a Refuge is lower, with more people choosing "Not at all likely," and a lower percentage of survey respondents choosing "Extremely likely."

**Table 33: Likelihood, Bike Share Program, By Generation & State**

| State | Generation | Bike Share Program on Refuge | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Extremely Likely | Very Likely | Moderately Likely | Slightly Likely | Not at all likely | No Response | Subtotal |
| California | Millennials | 104 | 154 | 123 | 61 | 46 | 2 | 490 |
| | Generation X | 107 | 137 | 97 | 67 | 64 | 3 | 475 |
| | Baby Boomers | 33 | 75 | 120 | 100 | 138 | 2 | 468 |
| Colorado | Millennials | 69 | 157 | 113 | 56 | 49 | 0 | 444 |
| | Generation X | 59 | 129 | 115 | 96 | 68 | 2 | 469 |
| | Baby Boomers | 34 | 75 | 96 | 92 | 154 | 2 | 453 |
| Texas | Millennials | 101 | 150 | 125 | 68 | 55 | 1 | 500 |
| | Generation X | 86 | 138 | 108 | 88 | 89 | 2 | 511 |
| | Baby Boomers | 45 | 72 | 97 | 105 | 187 | 1 | 507 |
| Subtotal | Millennials | 274 | 461 | 361 | 185 | 150 | 3 | 1434 |
| | Generation X | 252 | 404 | 320 | 251 | 221 | 7 | 1455 |
| | Baby Boomers | 112 | 222 | 313 | 297 | 479 | 5 | 1428 |
| TOTAL | | 638 | 1087 | 994 | 733 | 850 | 15 | 4317 |

## *Bus/Tram Guided Tour*

The third type of transportation option identified was "A bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?" With "Extremely Likely" representing a 5 and "Not at all likely" representing a 1, survey respondents reported an average interest level of 3.83 in using this transportation mode. Therefore, it would seem as if survey respondents were generally very likely.

### *Bus/Tram Guided Tour & Community Type*

The researchers investigated the relationship between survey respondents' reported community type and their level of agreement with using a bus/tram guided tour on a Refuge (Figure 84).

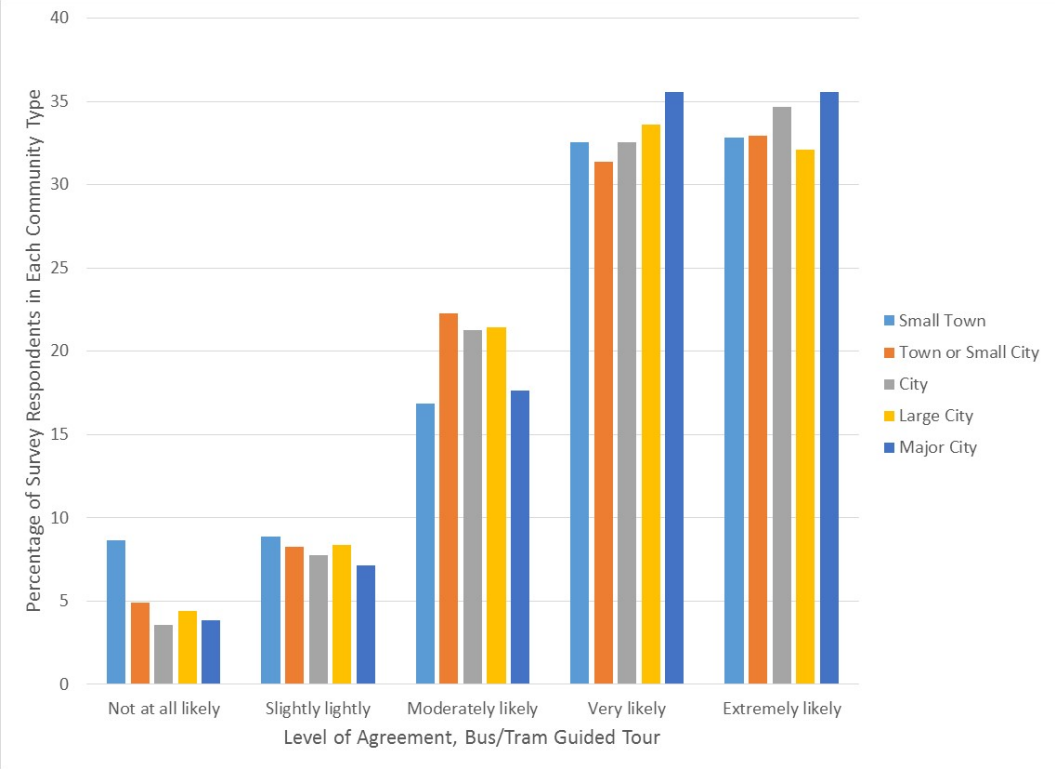



**Figure 84: Relationship Between Community Type and Interest in Using a Bus/Tram for a Guided Tour on a Refuge**

The results had similar patterns to that for the bus/tram to points on a Refuge. In particular, there was the same percentage of survey respondents from a small town that indicated that they are "Not at all likely." However, when compared with the bus/tram to points on a Refuge results, there seems to be more support for a bus/tram that is a guided tour, as is shown by the slightly larger percentages of survey respondents choosing the more positive categories.

**Table 34: Likelihood, Guided Tour, By Generation & State**

| State | Generation | Bus/Tram Guided Tour | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Extremely Likely | Very Likely | Moderately Likely | Slightly Likely | Not at all likely | No Response | Subtotal |
| California | Millennials | 166 | 154 | 111 | 43 | 16 | 0 | 490 |
| | Generation X | 157 | 178 | 92 | 26 | 19 | 3 | 475 |
| | Baby Boomers | 166 | 144 | 81 | 51 | 26 | 0 | 468 |
| Colorado | Millennials | 131 | 147 | 110 | 38 | 15 | 3 | 444 |
| | Generation X | 151 | 138 | 107 | 56 | 17 | 0 | 469 |
| | Baby Boomers | 105 | 166 | 119 | 36 | 25 | 2 | 453 |
| Texas | Millennials | 159 | 172 | 104 | 37 | 28 | 0 | 500 |
| | Generation X | 201 | 175 | 87 | 26 | 22 | 0 | 511 |
| | Baby Boomers | 217 | 156 | 71 | 32 | 30 | 1 | 507 |
| Subtotal | Millennials | 456 | 473 | 325 | 118 | 59 | 3 | 1434 |
| | Generation X | 509 | 491 | 286 | 108 | 58 | 3 | 1455 |
| | Baby Boomers | 488 | 466 | 271 | 119 | 81 | 3 | 1428 |
| TOTAL | | 1453 | 1430 | 882 | 345 | 198 | 9 | 4317 |

## *Boat*

### *Boat & Community Type*

The researchers looked at the relationship between community type and a survey respondent's interest in taking a boat to different points within a Refuge (Figure 85).

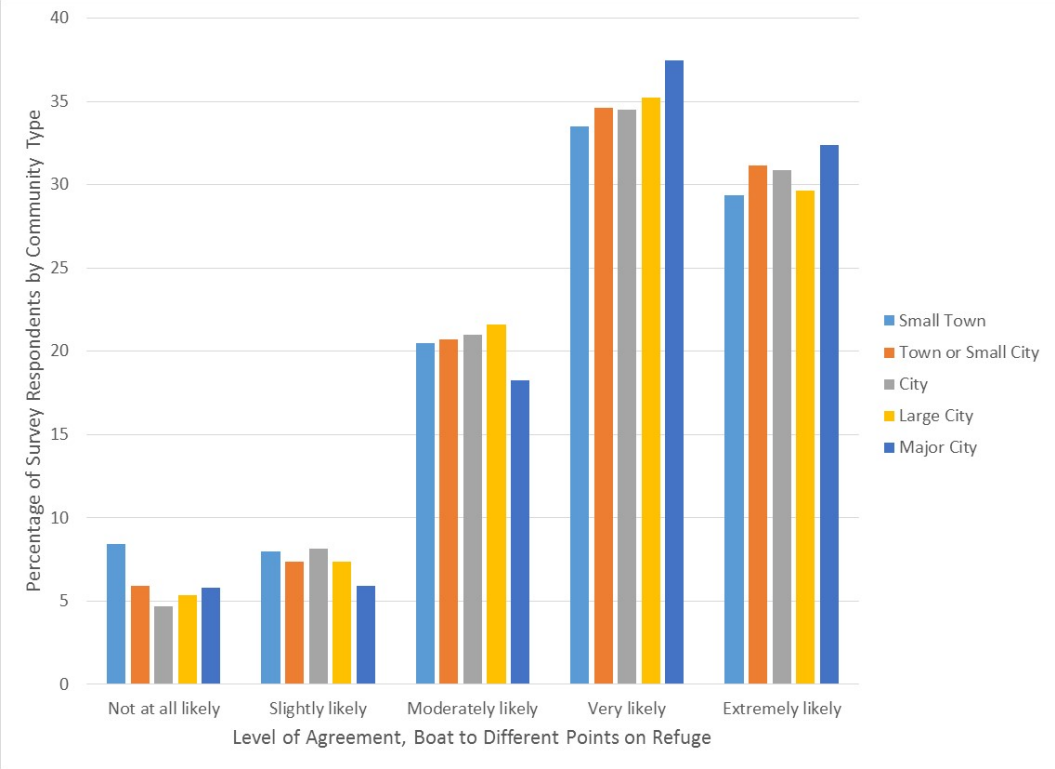



**Figure 85: Relationship Between Community Type and Interest in Using a Boat to Travel to Points on a Refuge**

Overall, the distribution was similar to that for bus/tram to points on a Refuge.

**Table 35: Likelihood, Boat to Different Points on Refuge, By Generation & State**

| State | Generation | Boat to Points on the Refuge | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Extremely Likely | Very Likely | Moderately Likely | Slightly Likely | Not at all likely | No Response | Subtotal |
| California | Millennials | 146 | 167 | 123 | 35 | 14 | 5 | 490 |
| | Generation X | 146 | 164 | 105 | 35 | 24 | 1 | 475 |
| | Baby Boomers | 135 | 140 | 103 | 46 | 41 | 3 | 468 |
| Colorado | Millennials | 126 | 188 | 84 | 32 | 13 | 1 | 444 |
| | Generation X | 146 | 152 | 98 | 48 | 22 | 3 | 469 |
| | Baby Boomers | 106 | 177 | 108 | 35 | 25 | 2 | 453 |
| Texas | Millennials | 168 | 175 | 99 | 29 | 27 | 2 | 500 |
| | Generation X | 188 | 179 | 86 | 25 | 31 | 2 | 511 |
| | Baby Boomers | 167 | 176 | 80 | 35 | 48 | 1 | 507 |
| Subtotal | Millennials | 440 | 530 | 306 | 96 | 54 | 8 | 1434 |
| | Generation X | 480 | 495 | 289 | 108 | 77 | 6 | 1455 |
| | Baby Boomers | 408 | 493 | 291 | 116 | 114 | 6 | 1428 |
| TOTAL | | 1328 | 1518 | 886 | 320 | 245 | 20 | 4317 |

## *Bus/Tram Special Event*

### *Bus/Tram Special Events & Community Type*

The researchers investigated the relationship between the reported community type and a survey respondent's reported interest in using a shuttle during a special event (Figure 86).

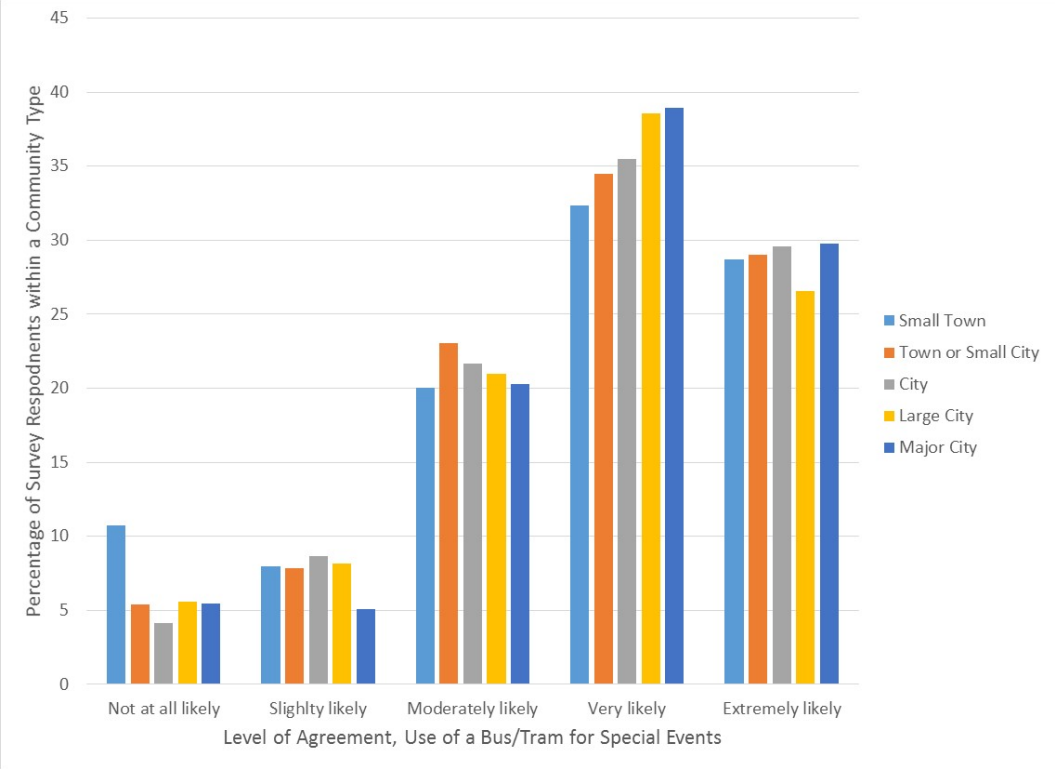



**Figure 86: Relationship Between Community Type and Interest in Using a Bus/Tram for a Refuge Special Event**

The results are generally similar to the responses to other questions, particularly with the large percentage of small town survey respondents indicating that they are not at all likely to use such a transportation option.

**Table 36: Likelihood, Bus/Tram Special Event, By Generation & State**

| State | Generation | Bus/Tram for a Special Event | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Extremely Likely | Very Likely | Moderately Likely | Slightly Likely | Not at all likely | No Response | Subtotal |
| California | Millennials | 152 | 185 | 100 | 40 | 13 | 0 | 490 |
| | Generation X | 147 | 179 | 91 | 29 | 27 | 2 | 475 |
| | Baby Boomers | 122 | 160 | 100 | 45 | 38 | 3 | 468 |
| Colorado | Millennials | 130 | 160 | 106 | 32 | 15 | 1 | 444 |
| | Generation X | 134 | 162 | 115 | 37 | 19 | 2 | 469 |
| | Baby Boomers | 96 | 170 | 111 | 37 | 37 | 2 | 453 |
| Texas | Millennials | 129 | 191 | 111 | 39 | 28 | 2 | 500 |
| | Generation X | 160 | 187 | 101 | 35 | 26 | 2 | 511 |
| | Baby Boomers | 169 | 171 | 89 | 37 | 40 | 1 | 507 |
| Subtotal | Millennials | 411 | 536 | 317 | 111 | 56 | 3 | 1434 |
| | Generation X | 441 | 528 | 307 | 101 | 72 | 6 | 1455 |
| | Baby Boomers | 387 | 501 | 300 | 119 | 115 | 6 | 1428 |
| TOTAL | | 1239 | 1565 | 924 | 331 | 243 | 15 | 4317 |

## *Offsite Parking*

Most of the findings for this heading are found within the Significant Survey Findings section.

### *Offsite Parking Walking/Hiking & Community Type*

The researchers investigated the relationship between survey respondents' reported community type and their likelihood to use an offsite parking lot for trail access to a Refuge (Figure 87).

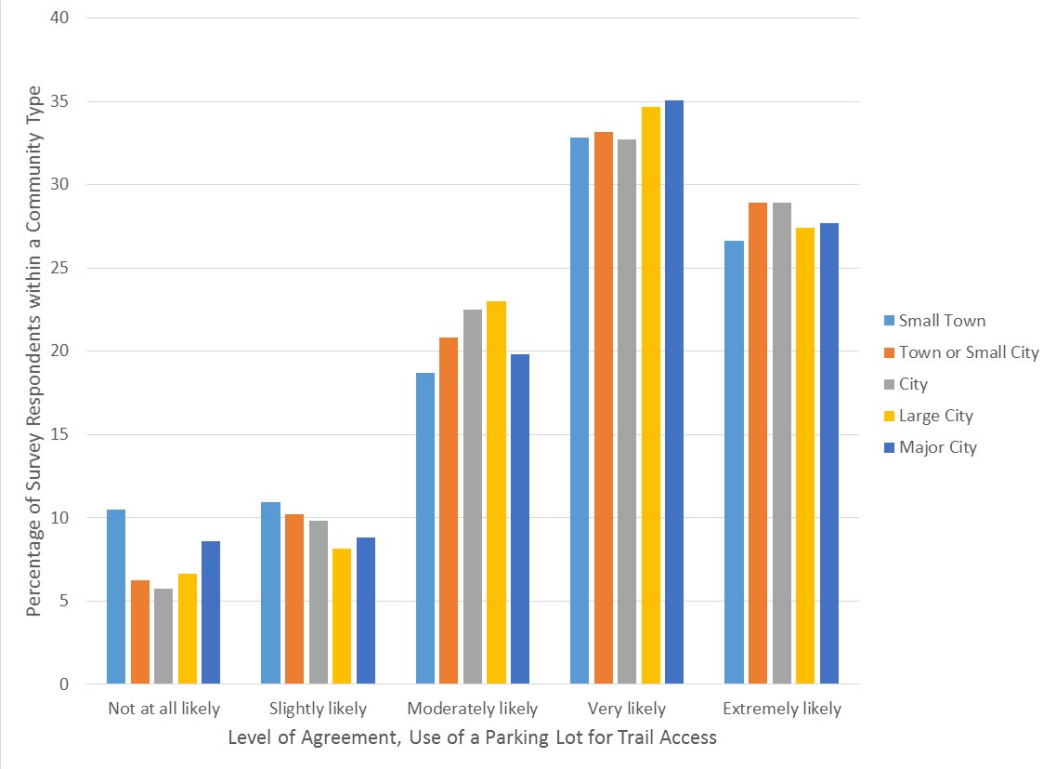



**Figure 87: Relationship Between Community Type and Interest in Using an Offsite Parking Lot to Access a Trail for Walking/Hiking onto the Refuge**

As seen with all of the other options, survey respondents from small towns seem to report the largest percentage of survey respondents that are not interested in this transportation option. Otherwise, relatively speaking, the results from the survey respondents seem to be pretty consistent across community type.

**Table 37: Likelihood, Offsite Parking for Walking/Hiking on Refuge, By Generation & State**

| State | Generation | Offsite Parking for Trail Access onto the Refuge | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Extremely Likely | Very Likely | Moderately Likely | Slightly Likely | Not at all likely | No Response | Subtotal |
| California | Millennials | 176 | 164 | 96 | 43 | 10 | 1 | 490 |
| | Generation X | 143 | 175 | 97 | 32 | 26 | 2 | 475 |
| | Baby Boomers | 98 | 145 | 112 | 61 | 50 | 2 | 468 |
| Colorado | Millennials | 177 | 165 | 70 | 18 | 14 | 0 | 444 |
| | Generation X | 145 | 167 | 92 | 50 | 14 | 1 | 469 |
| | Baby Boomers | 94 | 154 | 116 | 46 | 41 | 2 | 453 |
| Texas | Millennials | 151 | 171 | 105 | 45 | 25 | 3 | 500 |
| | Generation X | 127 | 181 | 116 | 42 | 44 | 1 | 511 |
| | Baby Boomers | 101 | 133 | 118 | 71 | 83 | 1 | 507 |
| Subtotal | Millennials | 504 | 500 | 271 | 106 | 49 | 4 | 1434 |
| | Generation X | 415 | 523 | 305 | 124 | 84 | 4 | 1455 |
| | Baby Boomers | 293 | 432 | 346 | 178 | 174 | 5 | 1428 |
| TOTAL | | 1212 | 1455 | 922 | 408 | 307 | 13 | 4317 |

## 8.9. QUESTION 9 – Refuge Shuttle Wait Time

Question 9 asked survey respondents, "If you were to use a shuttle within a National Wildlife Refuge to travel from point to point, in your opinion, what is the acceptable wait time?" The following seven responses were presented:

- The wait time doesn't matter to me, I would use a shuttle if one was offered.
- Less than 5 minutes
- Less than 10 minutes
- Less than 15 minutes
- Less than 20 minutes
- Less than 30 minutes
- There is no acceptable wait time, I wouldn't use a shuttle.

The majority of the results for this section can be found in Significant Survey Findings of the main body of the report.

**Table 38: Baby Boomers, State and Age Impact on Use of Point-to-Point Shuttle Service on a National Wildlife Refuge**

| State | Metrics | Wait Times | | |
|---|---|---|---|---|
| | | No acceptable wait time | Would Use Shuttle | Difference |
| California | Minimum | 54 | 52 | 2 |
| | Average | 62 | 60 | 2 |
| | Maximum | 70 | 70 | 0 |
| Colorado | Minimum | 52 | 52 | 0 |
| | Average | 60 | 59 | 1 |
| | Maximum | 67 | 70 | -3 |
| Texas | Minimum | 54 | 52 | 2 |
| | Average | 62 | 61 | 1 |
| | Maximum | 70 | 70 | 0 |

**Table 39: Baby Boomers, State and Gender Impact on Use of Point-to-Point Shuttle Service on a National Wildlife Refuge**

| Gender | State | Wait Times | | | |
|---|---|---|---|---|---|
| | | No Acceptable Wait Time | Would Use Shuttle | TOTAL | % No Acceptable Wait Time |
| Male | California | 6 | 31 | 37 | 19 |
| | Colorado | 6 | 21 | 27 | |
| | Texas | 8 | 31 | 39 | |
| Female | California | 13 | 54 | 67 | 15 |
| | Colorado | 7 | 53 | 60 | |
| | Texas | 13 | 80 | 93 | |

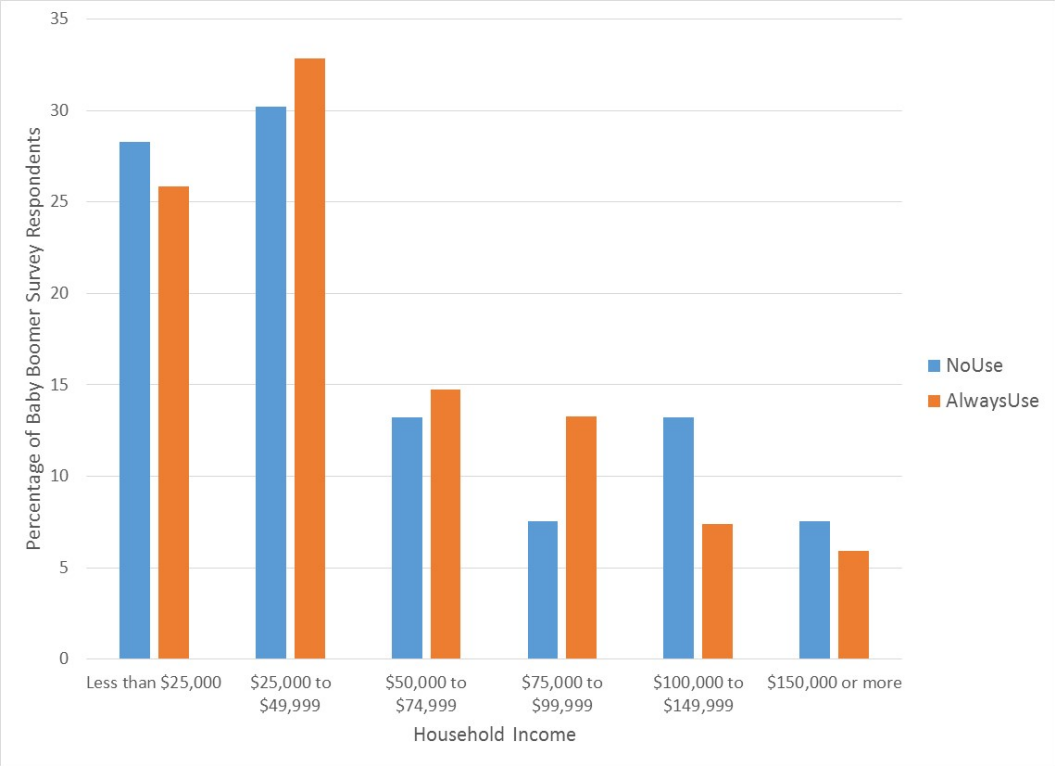



**Figure 88: Baby Boomers, Always or Never Use a Point-to-Point Shuttle, Impacts of Income**

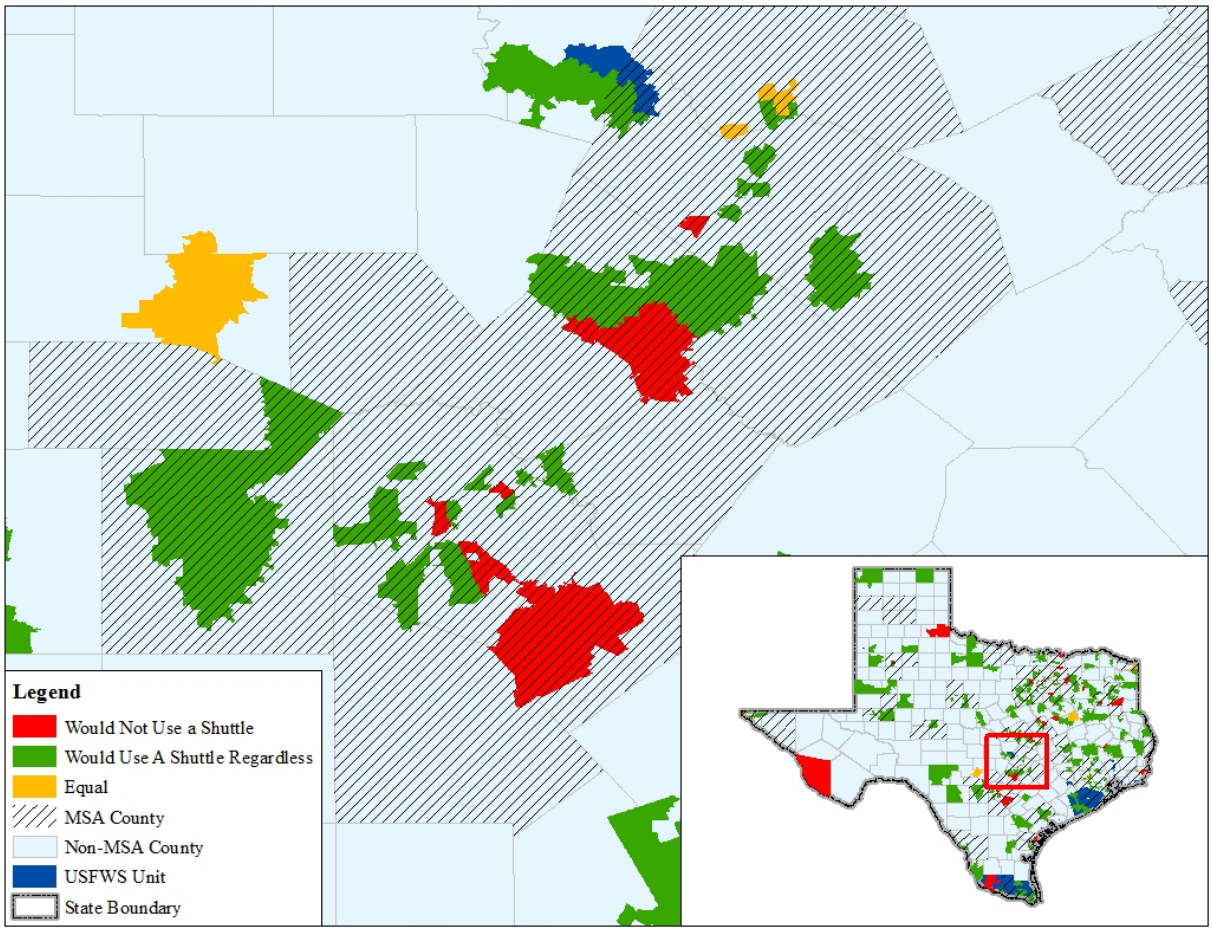



**Figure 89: Texas, Survey Respondents Who Would Always (Green) and Never (Red) Use a Shuttle on a Refuge – San Antonio/Austin Close-up**

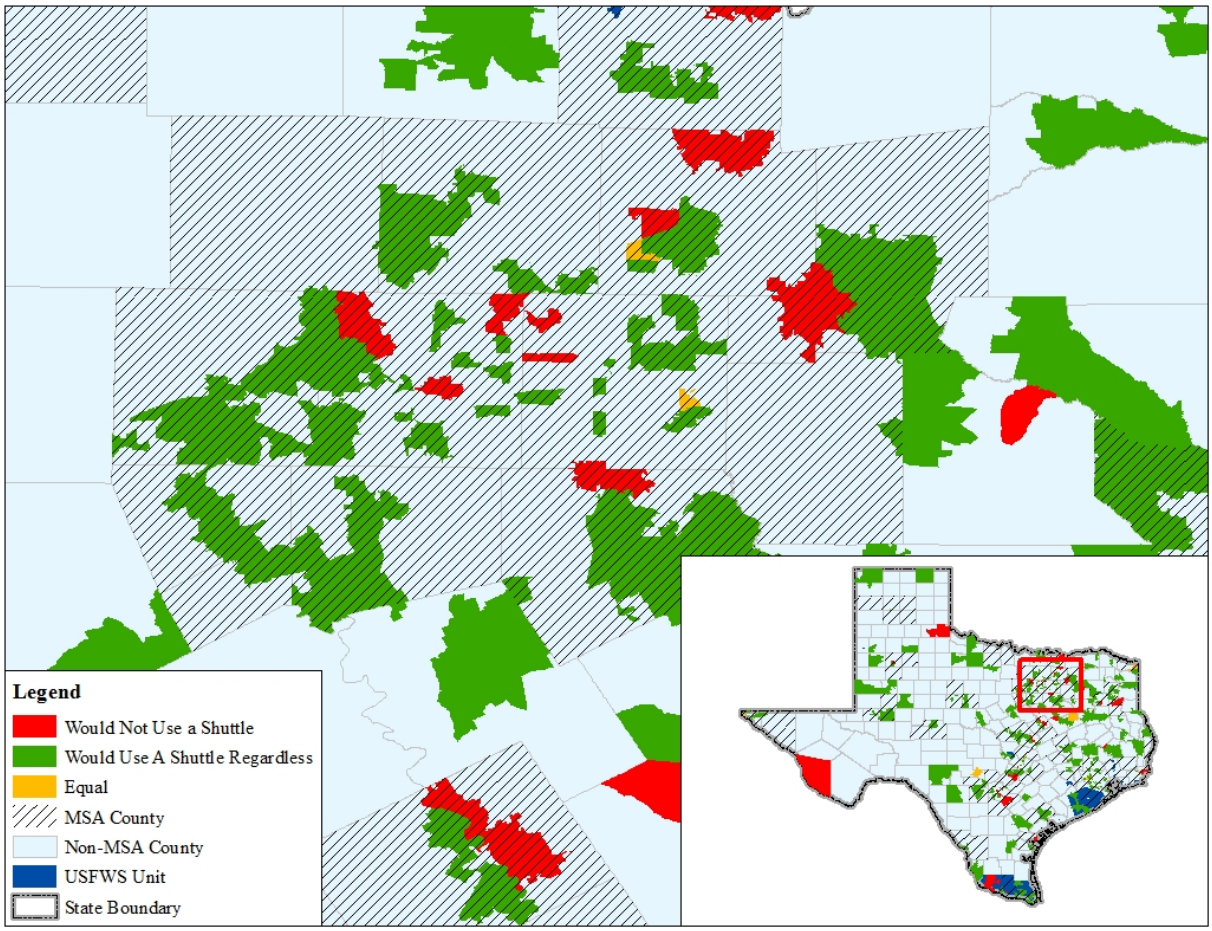



**Figure 90: Texas, Survey Respondents Who Would Always (Green) and Never (Red) Use a Shuttle on a Refuge – Dallas Close-up**

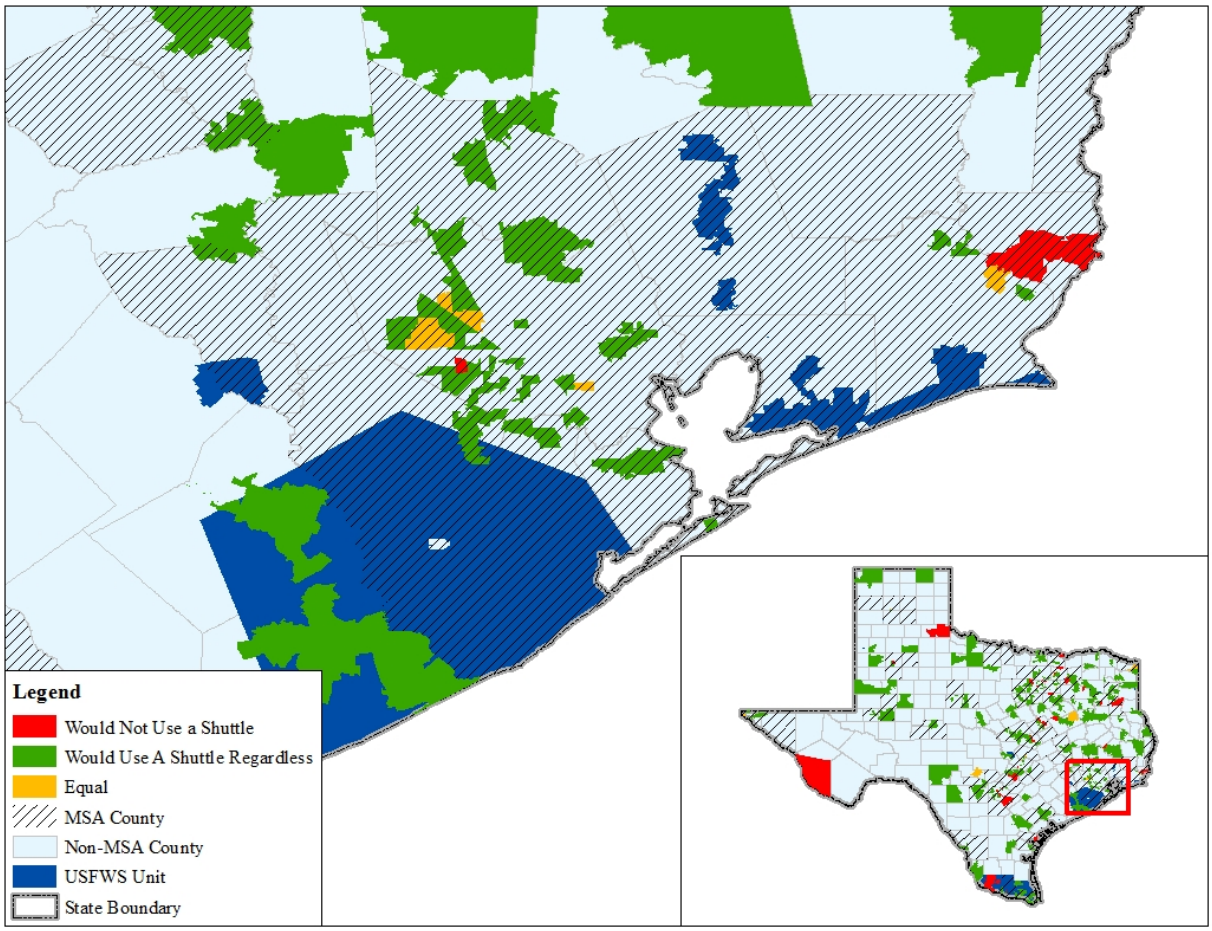



**Figure 91: Texas, Survey Respondents Who Would Always (Green) and Never (Red) Use a Shuttle on a Refuge – Houston Close-up**

## 8.10. QUESTION 10 – Safety Concerns

Question 10 asked survey respondents, "Have you ever experienced any of the following safety concerns while on Federal public lands (e.g., National Wildlife Refuge, National Park, National Forest, Bureau of Land Management unit)? Respondents were asked to choose "Yes" or "No" to the following potential safety concerns:

- Wildlife encounter
- Bad weather
- Got lost
- Poor road conditions
- Poor trail conditions
- Vehicles parked along the side of the road
- Conflict between vehicles and bicycles
- Conflict between vehicles and pedestrians
- Ran out of gas or other supplies in a remote area
- Lack of cell phone coverage
- Needing emergency services

In addition, survey respondents were asked to identify any other safety concerns that they may have encountered.

**Table 40: Percentage of Survey Respondents, By Generation, Reporting, Yes, Safety Concern**

| | Percentage Reporting Yes | | |
|---|---|---|---|
| **Safety Concern** | **Millennials** | **Generation X** | **Baby Boomers** |
| Wildlife Encounter | 40.6 | 42.3 | 33.5 |
| Bad Weather | 57.7 | 55.6 | 48.7 |
| Got Lost | 26.2 | 18.9 | 8.5 |
| Poor Road Conditions | 44.5 | 38.8 | 31.2 |
| Poor Trail Conditions | 42.1 | 39.9 | 28.9 |
| Vehicles Parked Along the Side of the Road | 55.8 | 55.9 | 55.4 |
| Conflict Between Vehicles & Bicycle | 26.2 | 27.9 | 21.6 |
| Conflict Between Vehicles & Pedestrians | 29 | 28.5 | 24.4 |
| Ran Out of Gas or Other Supplies in a Remote Area | 13.4 | 13.1 | 3.4 |
| Lack of Cell Phone Coverage | 69.9 | 67.4 | 56 |
| Needing Emergency Services | 14.2 | 12 | 4.2 |

### *Wildlife Encounter*

Survey responses were analyzed by grouping the responses by both state and generation. Texas reported the least safety concerns for a wildlife encounter.

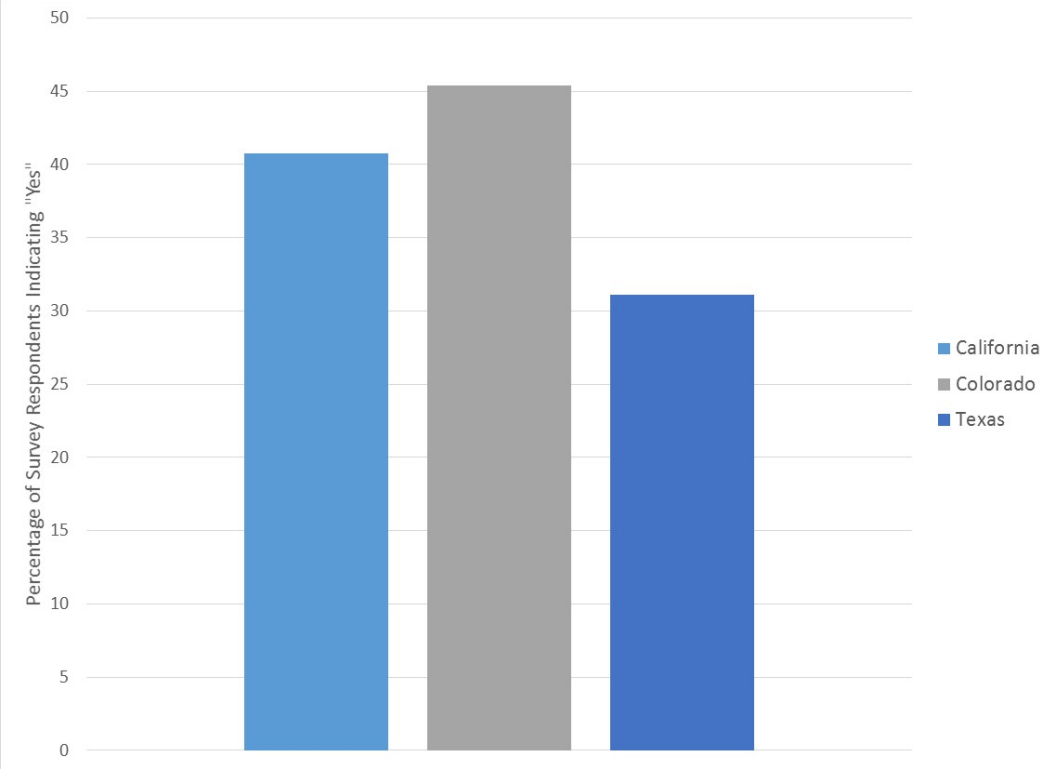



**Figure 92: Safety Concerns – Wildlife Encounter, By State**

Baby Boomers reported the least experiences of a safety concern that involved a wildlife encounter.

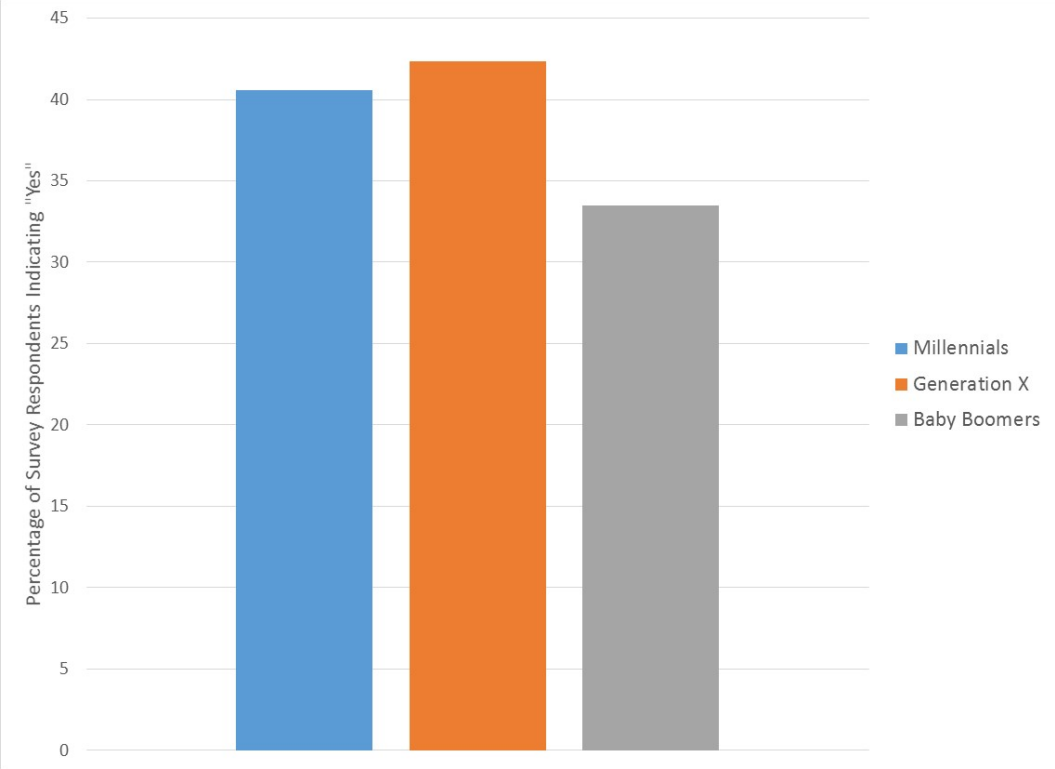



**Figure 93: Safety Concerns – Wildlife Encounter, By Generation**

## *Bad Weather*

By far, Colorado survey respondents reported the highest percentage of safety concerns as a result of bad weather. Colorado's Rocky Mountains are well-known to have afternoon thunderstorms that can build quickly and are potentially dangerous as a result of the accompanying lightning. Furthermore, Colorado is likely to have more snow storms than the other two states included in this analysis. Therefore, it is possible that the responses reflect these weather patterns.

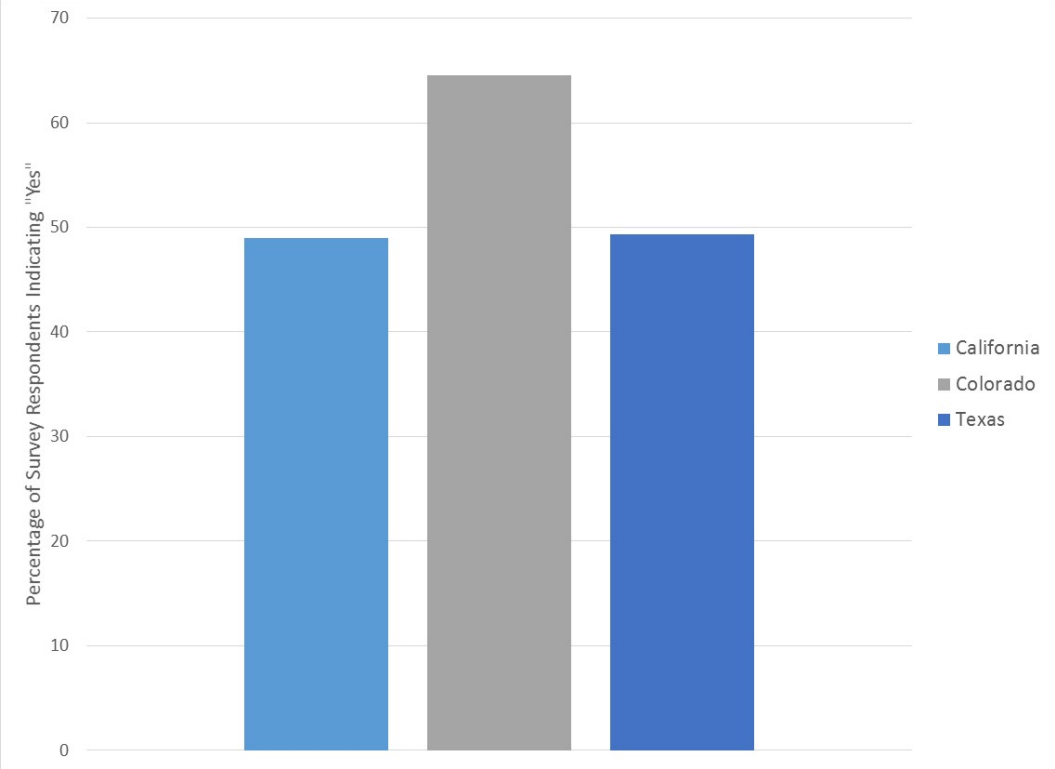



**Figure 94: Safety Concerns – Bad Weather, By State**

Millennials were more likely to report bad weather as a safety concern when compared with the other two generations.

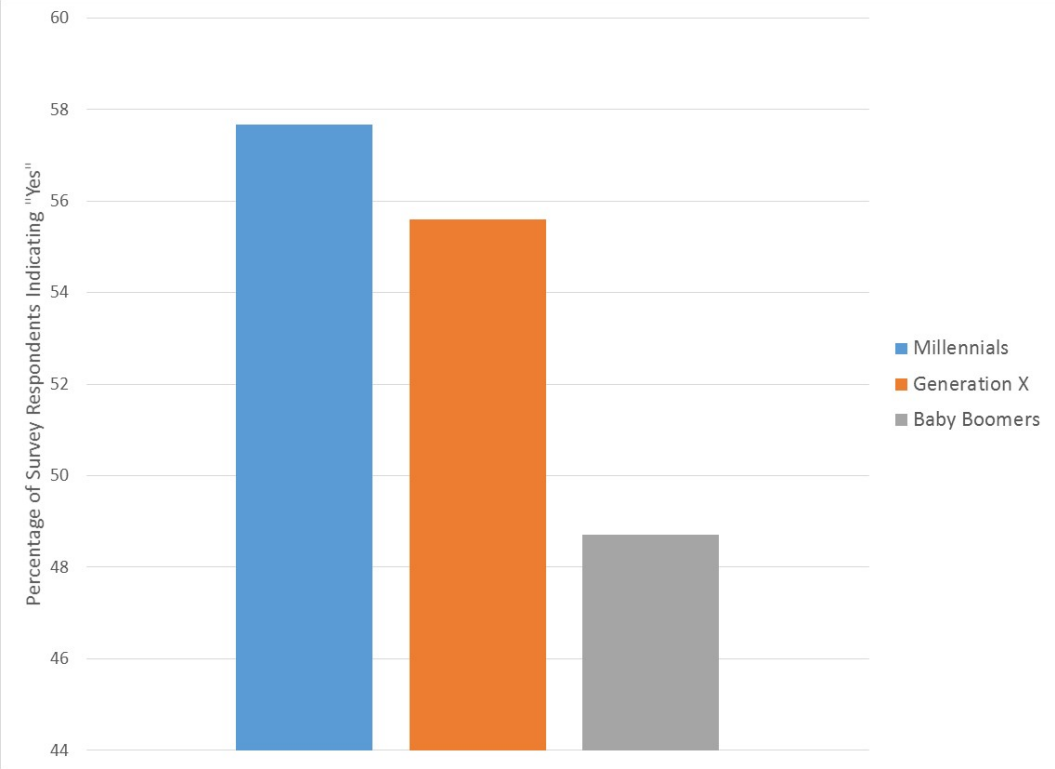



**Figure 95: Safety Concerns – Bad Weather, By Generation**

The author believes that Millennials are more likely to engage in activities on federal lands that would expose them to the elements (e.g. backcountry hiking). In fact, several studies have suggested that Baby Boomers, in contrast, are looking for more "comfortable" experiences. Therefore, the large percentage of Millennials who report that they have safety concerns from bad weather could reflect challenges experienced when in the backcountry. A recommendation for future surveys would be to better separate out an understanding of the impact of bad weather on those exposed to the elements (e.g. hiking, biking or walking) as compared with those in a vehicle.

### *Get Lost*

California respondents followed by Texas survey respondents were most likely to report getting lost as a safety concern, although the percentage is low.

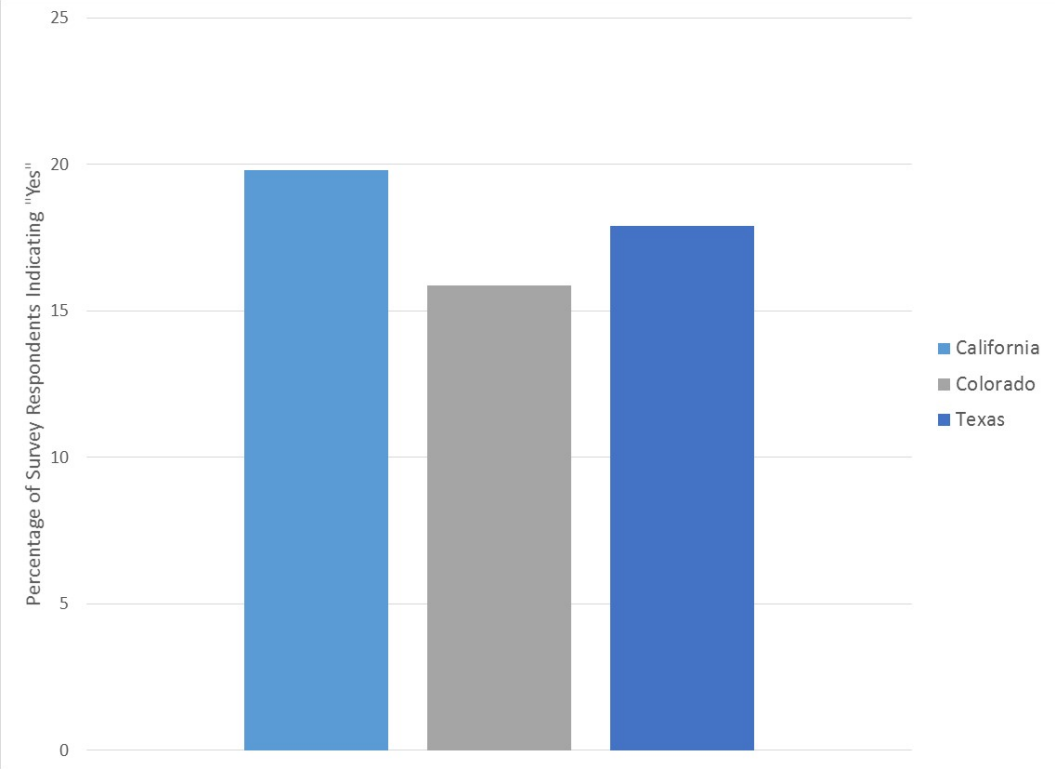



**Figure 96: Safety Concerns – Got Lost, By State**

Millennials reported getting lost as a safety concern far more often than the subsequent generations.

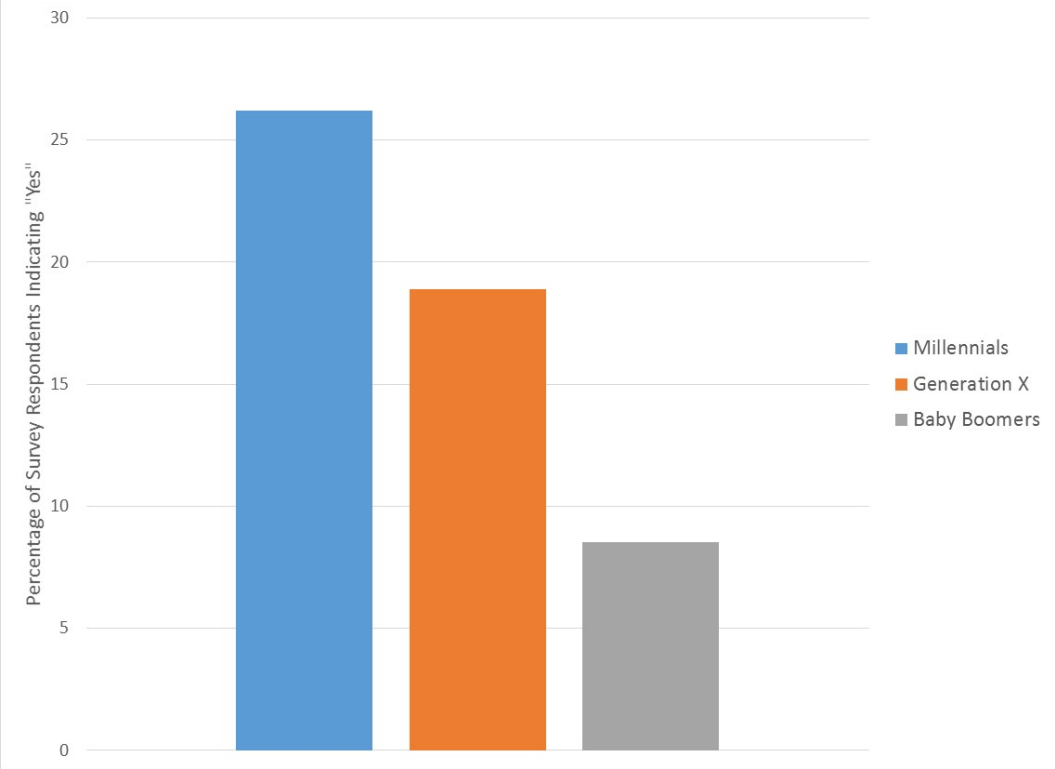



**Figure 97: Safety Concerns – Got Lost, By Generation**

The fact that "getting lost" was identified as a safety concern could reflect the higher consequences associated with getting lost during the activities in which Millennials are more likely to engage (e.g. getting lost in the backcountry vs. getting lost while driving) However, this could also suggest that Baby Boomers are better at navigating in federal lands. Therefore, future research should further investigate the experiences of those who got lost, such as whether they were hiking in the backcountry or were in the front country where the threat of running out of gasoline is less concerning than getting lost. As an example, a death of a hiker in 2016 was associated with getting lost (35).

### *Poor Road Conditions*

Colorado survey respondents reported poor road conditions as a safety concern by a greater percentage than the other states.

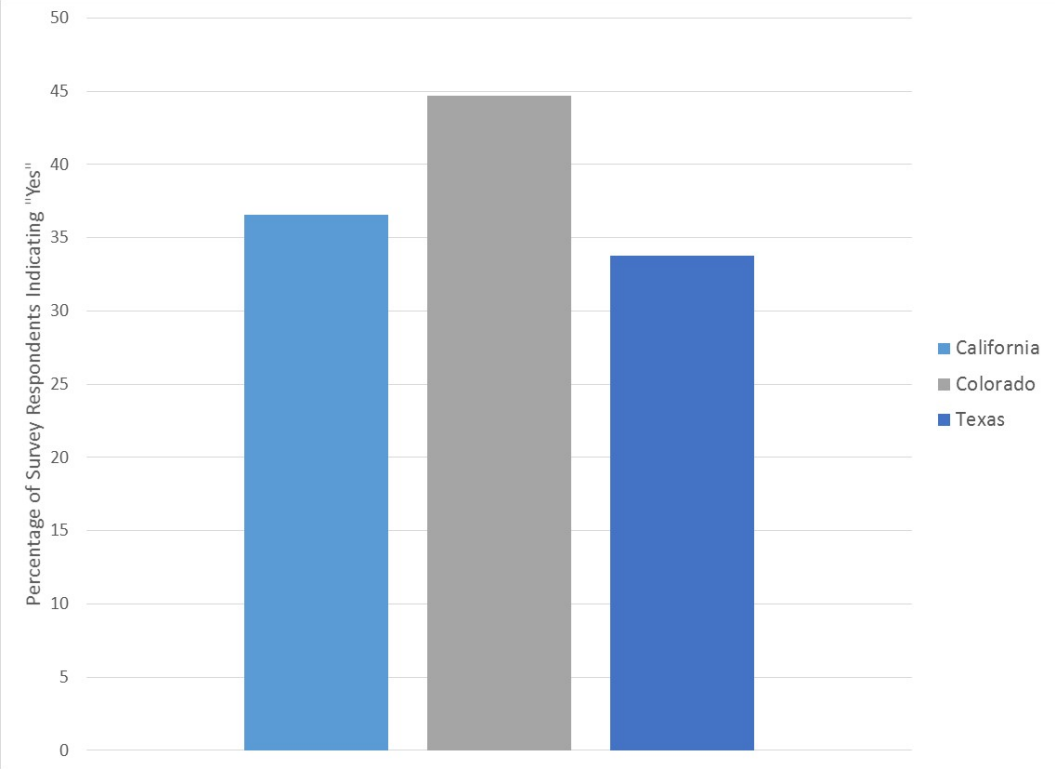



**Figure 98: Safety Concerns – Poor Road Conditions, By State**

This could potentially reflect experiences in the recent past when access roads were closed off to Rocky Mountain National Park and surrounding recreation areas, as a large number of survey respondents in Colorado are from the front country area.

Millennials reported that poor road conditions were a safety concern more often than the subsequent generations.

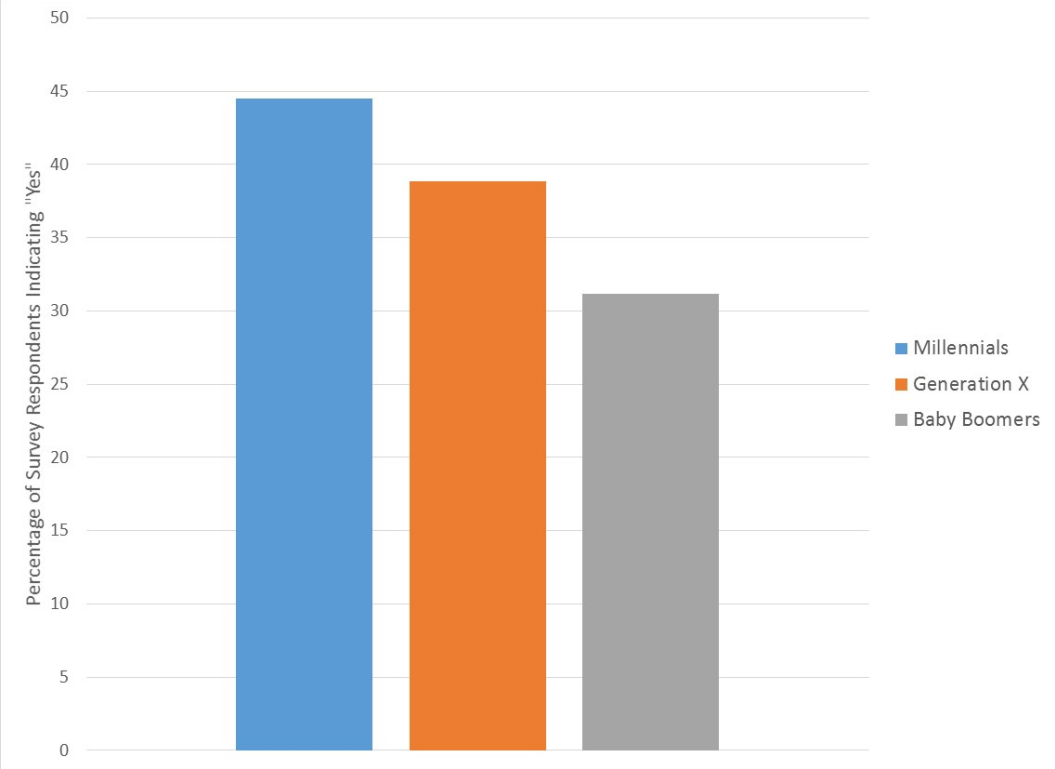



**Figure 99: Safety Concerns – Poor Road Conditions, By Generation**

The author was somewhat surprised regarding this finding, as Baby Boomers tended to report an interest in traveling by vehicle more often than Millennials. Some suggested explanations for this result may be that either Baby Boomers have a higher tolerance for road conditions or the locations where they travel within federal lands tend to have high quality roads.

### *Poor Trail Conditions*

When considering the responses by state, a greater percentage of Colorado survey respondents reported experiencing poor trail conditions than other state survey respondents.

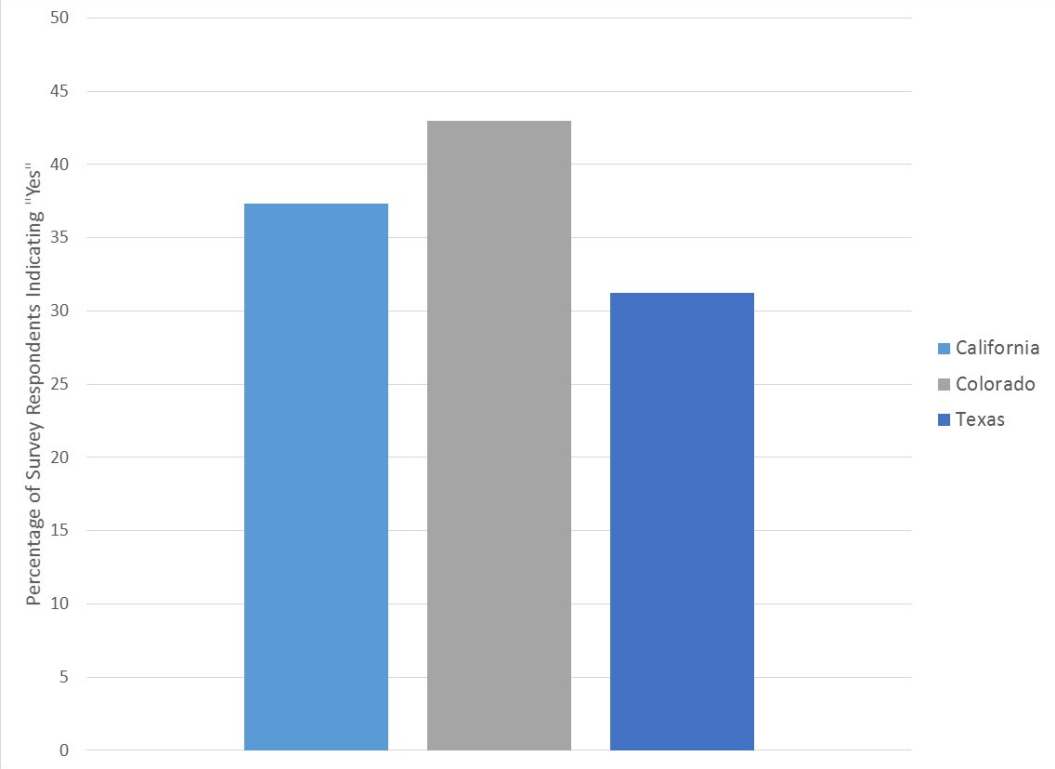



**Figure 100: Safety Concerns – Poor Trail Conditions, By State**

Colorado survey respondents also reported a greater interest in access to hiking/walking trails than survey respondents from other states (see Question 8, Figure 48). This could suggest that Colorado survey respondents are very interested in access to trails, but that they concurrently demand good conditions. It could also suggest that trail conditions are in poorer conditions in this state as compared with other states; however, from one author's experience with hiking in each of these states, this would not appear to be the case.

A higher percentage of Millennial survey respondents reported experiencing poor trail conditions as compared with the other generations, although the difference between Millennials and Generation X was small (about 2%).

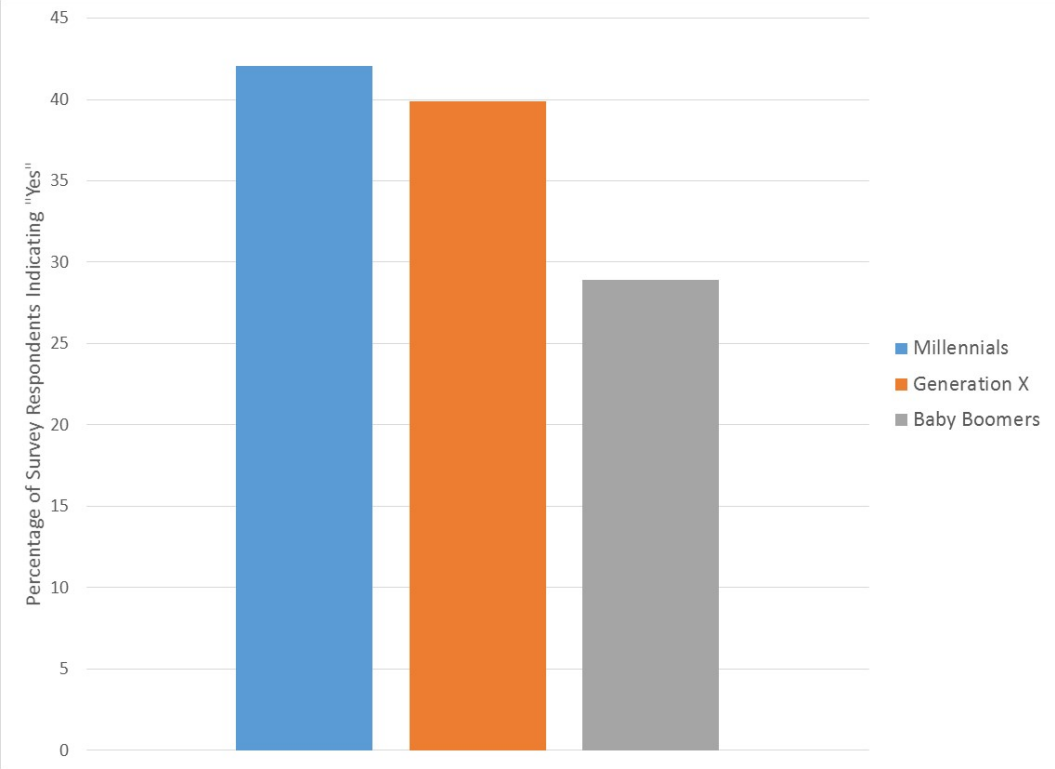



**Figure 101: Safety Concerns – Poor Trail Conditions, By Generation**

Millennials could potentially use trails more often than the other generations, and as a result, might be more critical about the conditions of trails.

The low percentage of Baby Boomers indicating that they did not experience problems with the trails could either reflect a lack of use, a tendency to use trails that are in the front country and therefore often maintained better than backcountry trails, or a higher tolerance for a variety of trail conditions.

### *Vehicles Parked Alongside the Road*

When considered by state, a greater number of Colorado survey respondents reported vehicles parked along the side of the road as a safety concern than respondents from the other two states.

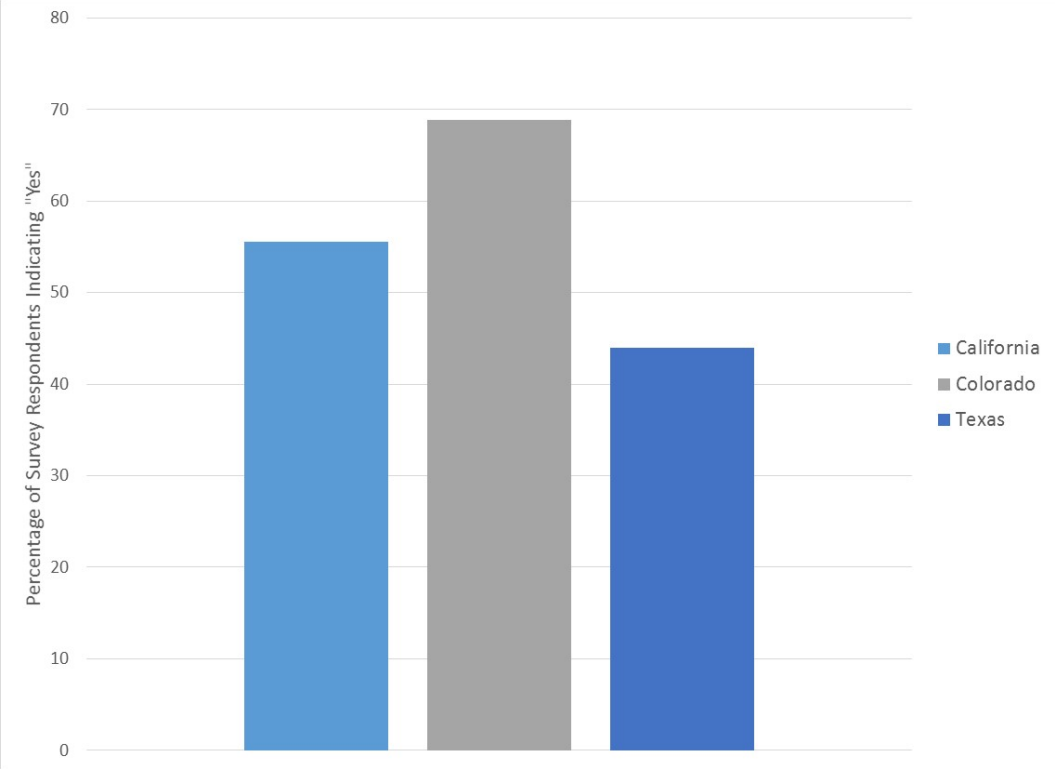



**Figure 102: Safety Concerns – Vehicles Parked on Road, By State**

Generation X had the highest percentage of survey respondents when compared with the other two generations who reported vehicles parked along the side of the road as a safety concern.

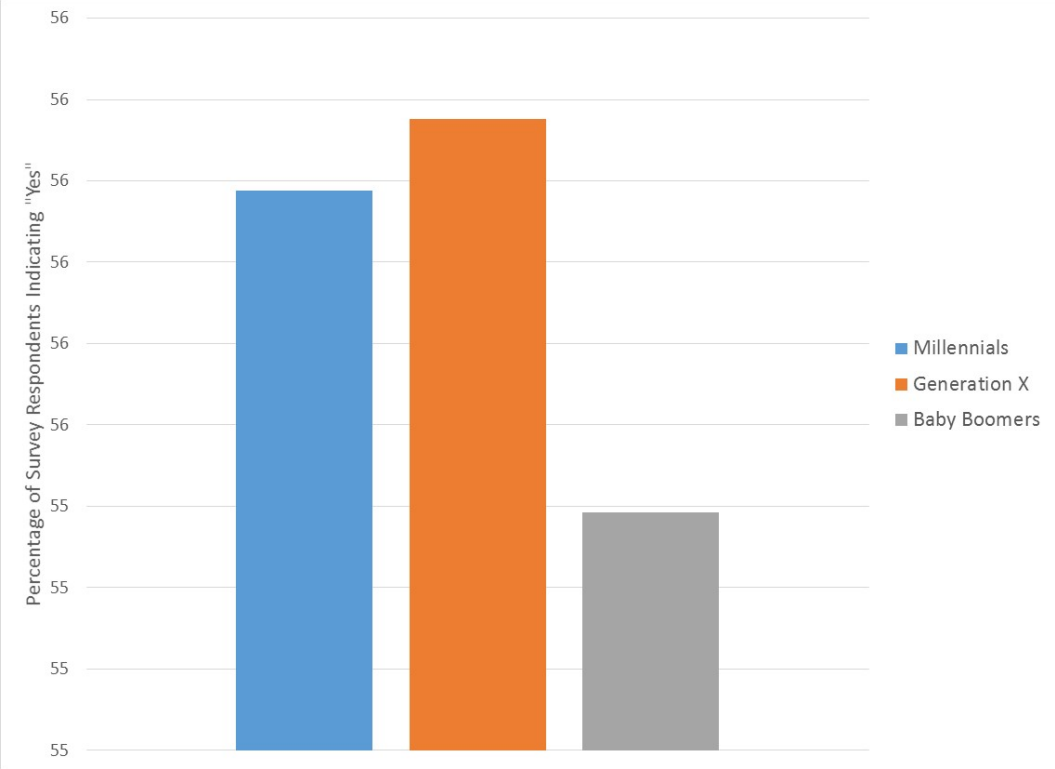



**Figure 103: Safety Concerns – Vehicles Parked on Road, By Generation**

Baby Boomers reported vehicles parked along the side of the road least often as a safety concern. This could, in part, reflect their preference for automobile travel.

### *Conflict Between Vehicles & Bicycles*

Somewhat unexpected, Colorado had the greatest percentage of survey respondents who indicated that they have experienced conflict between vehicles and bicycles.

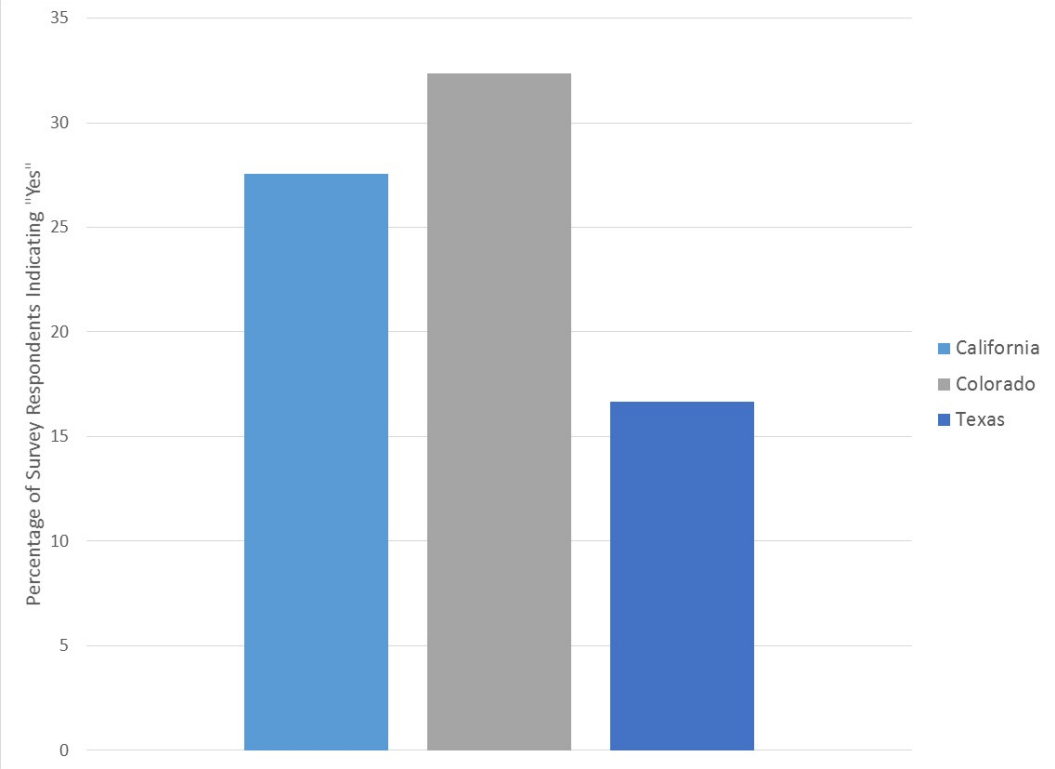



**Figure 104: Safety Concerns – Vehicles/Bicycle Conflict, By State**

It is unclear, however, from the question whether the respondents are indicating this conflict from a vehicular point of view or from the perspective of the bicyclist. It is interesting to note that Colorado is seen as a very bicycle friendly state. It could potentially reflect the desire of Coloradans to have a greater separation between bicycles and vehicles.

Interestingly, when considering the results by generations, Generation X had the greatest percentage of survey respondents who indicated that they had experienced such a conflict.

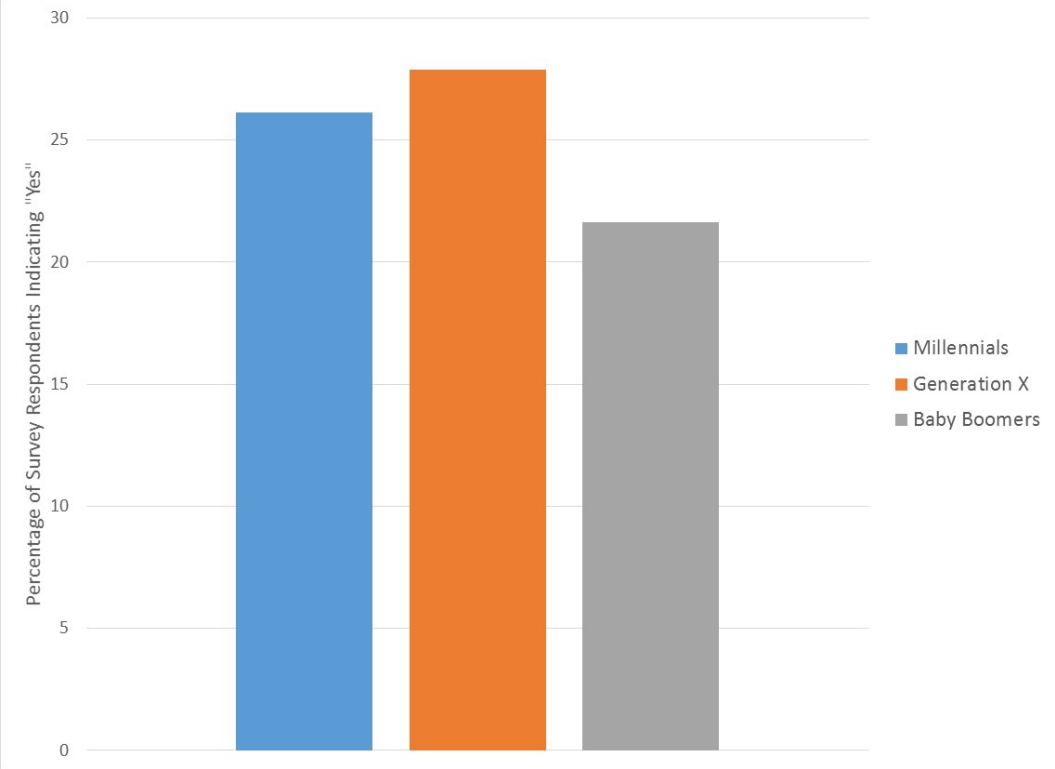



**Figure 105: Safety Concerns – Vehicles/Bicycle Conflict, By Generation**

Again, it is unclear as to which side the survey respondent was on regarding a conflict; however, other research suggests that Generation X may be more enthusiastic about bicycling than even Millennials. Therefore, this could reflect conflicts that Generation X bicycle riders have had with drivers.

### *Conflict Between Vehicles & Pedestrians*

Similar to the reported level of conflict between vehicles and bicycles, Colorado also had the greatest percentage of survey respondents reporting that they had experienced a conflict between vehicles and pedestrians.

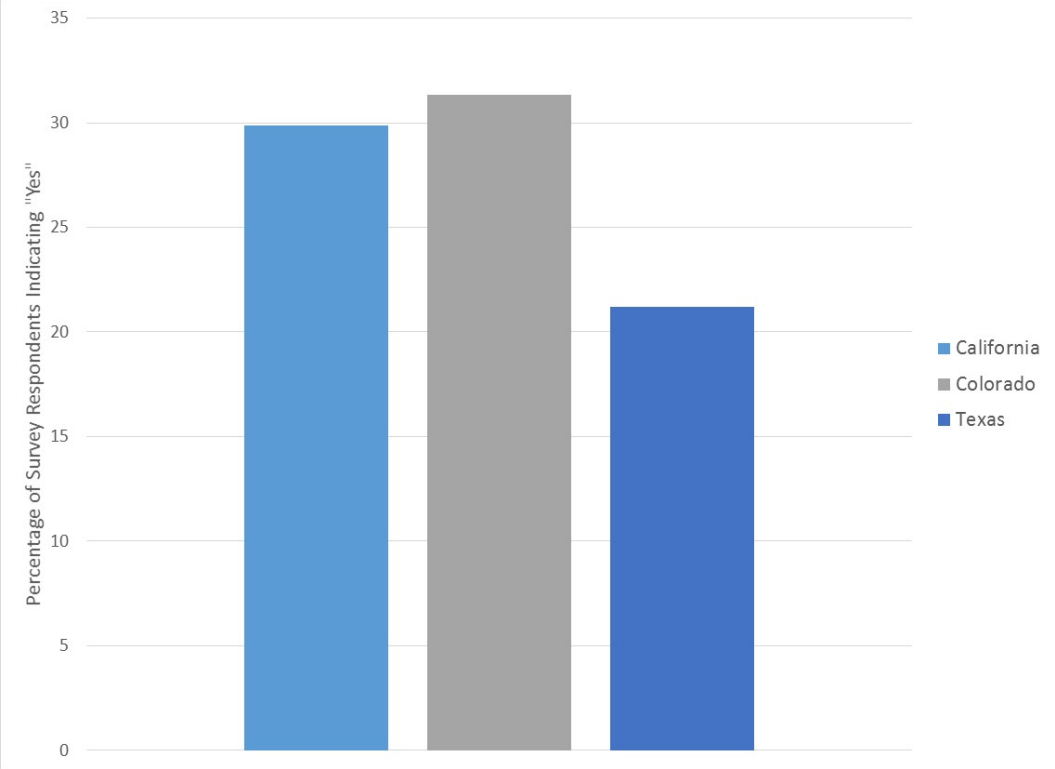



**Figure 106: Safety Concerns – Vehicles/Pedestrian Conflict, By State**

Again, it is unclear whether the survey respondent was the pedestrian or vehicle in the interaction.

Millennials had the greatest number of survey respondents who reported a conflict between vehicles and pedestrians.

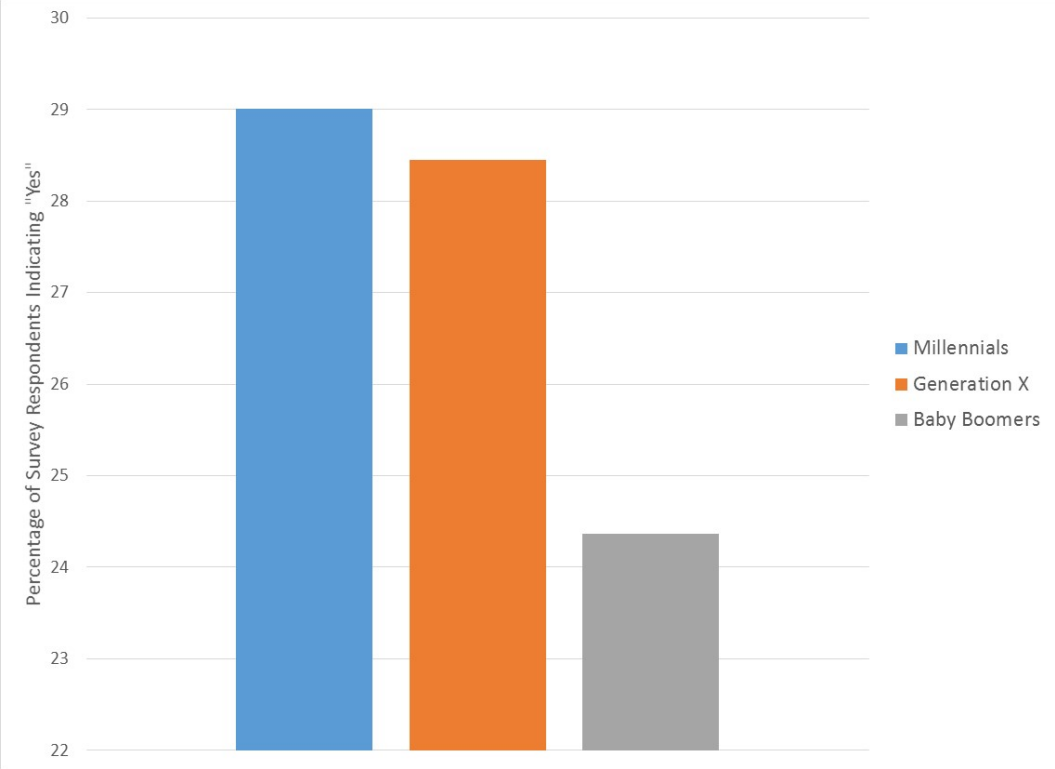



**Figure 107: Safety Concerns – Vehicles/Pedestrian Conflict, By Generation**

From other research that looked at Millennial transportation preferences (36), Millennials more often expressed a preference for walking as compared with bicycling, which can potentially explain why they report a higher percentage of conflicts than Generation X respondents.

### *Ran Out of Gas or Other Supplies in a Remote Area*

California had the greatest percentage of survey respondents who indicated that they had a safety concern as a result of running out of gas or other supplies in a remote area.

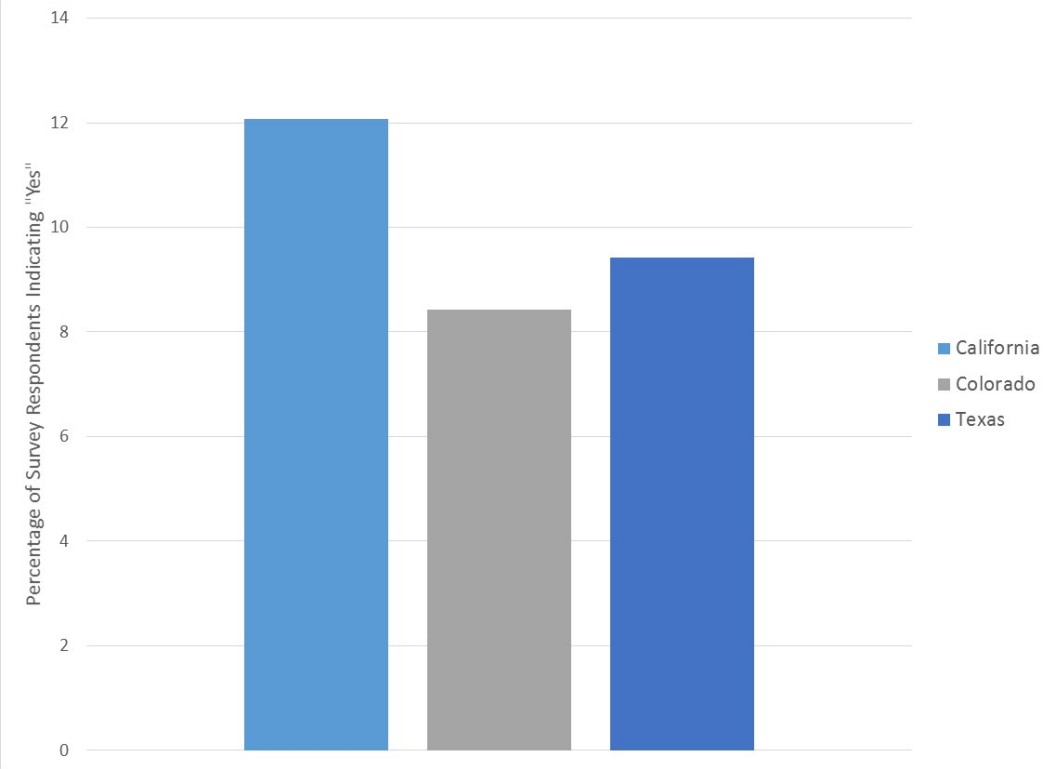



**Figure 108: Safety Concerns – Run Out of Gas/Supplies, By State**

This is particularly interesting considering how an extensive part of the state is defined as a metropolitan statistical area. Texas has the second greatest percentage of survey respondents reporting this as a safety concern. Considering the vast expanses of Texas, for example at parks like Big Bend National Park, this result is not surprising. However, the difference between Texas and Colorado is not as great as the difference between California and Texas.

By far, Millennials and Generation X survey respondents reported running out of gas or other supplies as a safety concern more often than Baby Boomers.

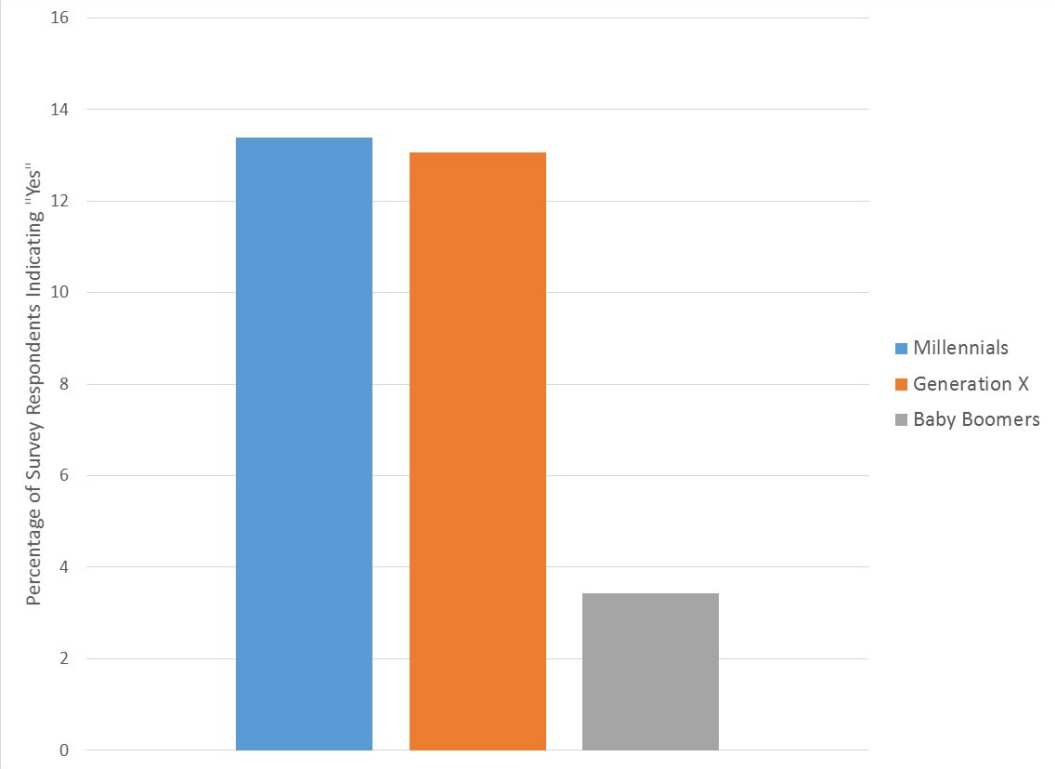



**Figure 109: Safety Concerns – Run Out of Gas/Supplies, By Generation**

There is the potential that this result could either reflect a greater interest in backcountry experiences by Millennials and Generation X, or it could reflect the ability of Baby Boomers to prepare for experiences in federal lands.

### *Lack of Cell Phone Coverage*

Colorado followed by California and Texas reported the lack of cell phone coverage most often as a safety concern.

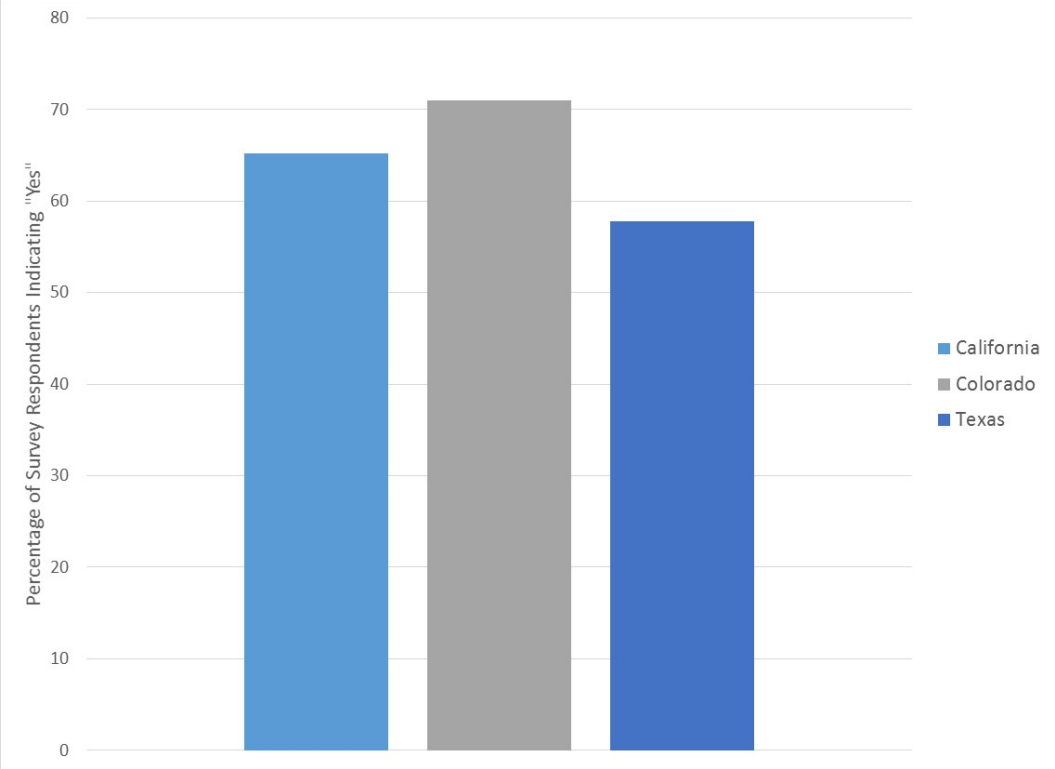



**Figure 110: Safety Concerns – Lack of Cell Phone Coverage, By State**

Colorado is likely one of the most mountainous states of the three, and these results could potentially reflect gaps in cell phone coverage that occur as a result of this topography. Considering however that Texas is more rural than the other two states, the fact that it was reported least often by survey respondents from this state is a bit surprising, as cell phone coverage in rural areas can often be limited. One can find an illustration of potential cell phone coverage on the Federal Communications Commission (FCC) website (37); however, where coverage is identified is not always true in practice.

There is a gap between the percentage of survey respondents who report the lack of cell phone coverage as a safety concern when comparing generations.

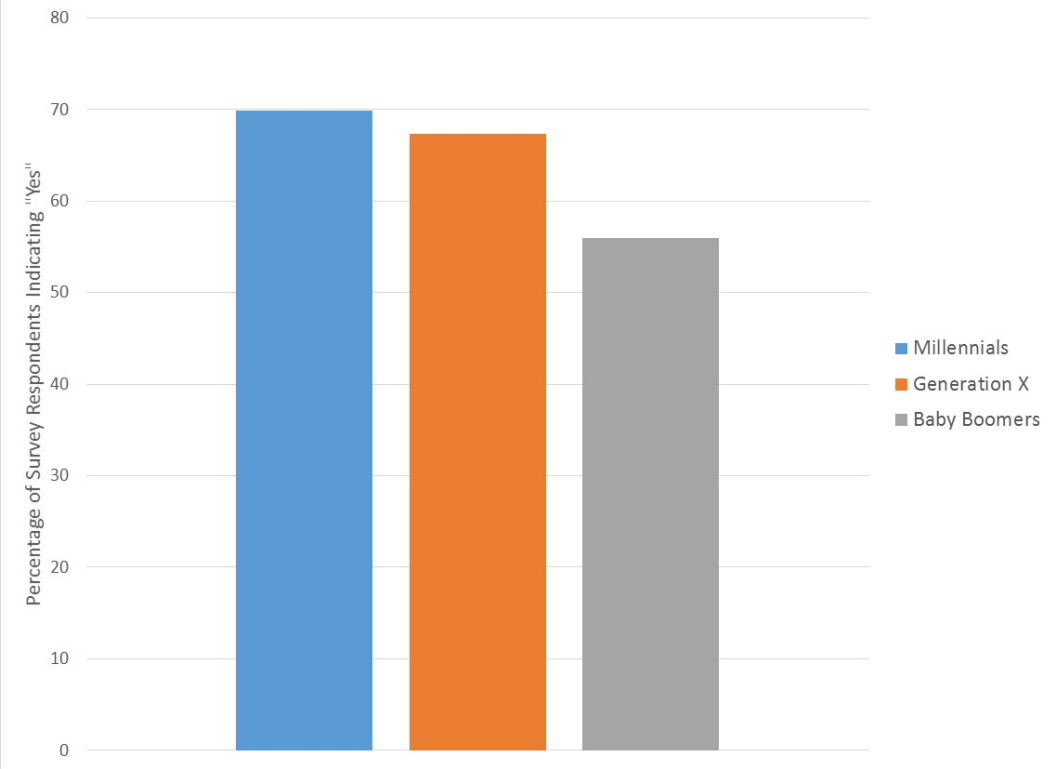



**Figure 111: Safety Concerns – Lack of Cell Phone Coverage, By Generation**

These results also likely reflect the higher dependence of the younger generations on their cell phones as has been demonstrated in other studies when comparing generations.

### *Needing Emergency Services*

California survey respondents had the highest percentage of survey respondents who indicated that they needed emergency services when they were on federal lands.

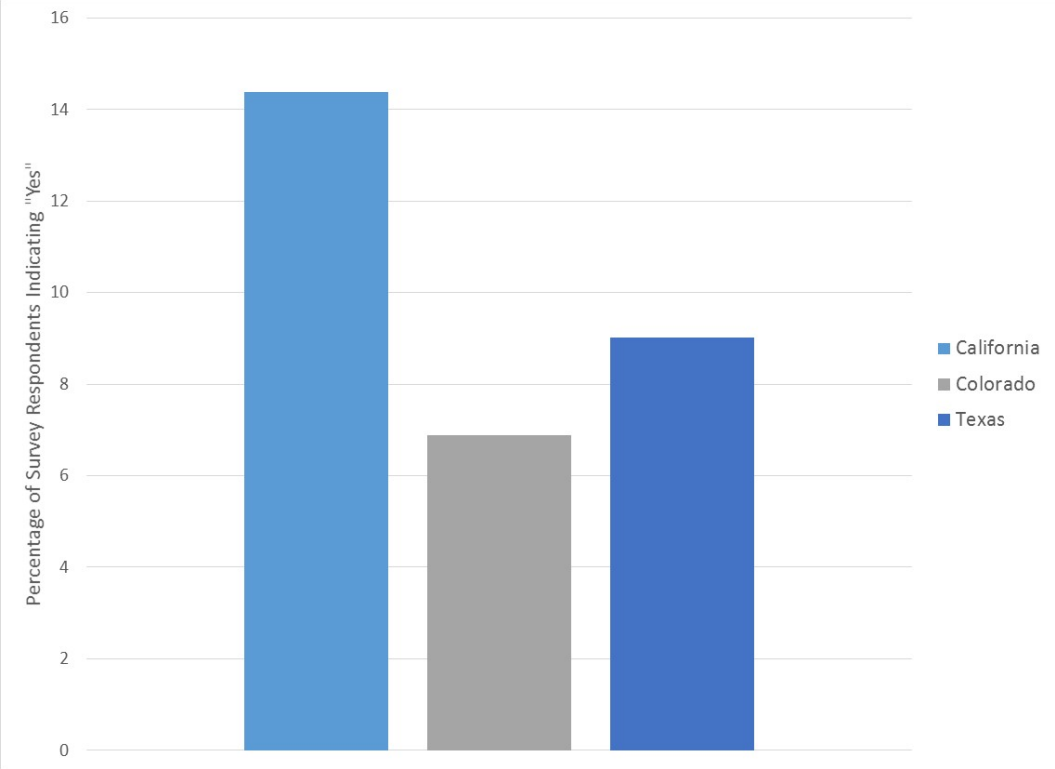



**Figure 112: Safety Concerns – Need Emergency Services, By State**

California is also one of the most metropolitan of all of the states considered for this study. Future research should investigate whether or not a correlation can be made between the urbanized level of a state and safety concerns that require emergency services. In addition, more information should be determined to better understand the events that led up to the situation so that future occurrences can be reduced. It would also be of interest to determine if such experiences resulted in the visitors changing how frequently they visited a federal land. This result could highlight indirectly the importance of efforts like the Urban Wildlife Refuge Program.

The two younger generations reported that they had safety concerns that required emergency services more often than Baby Boomers.

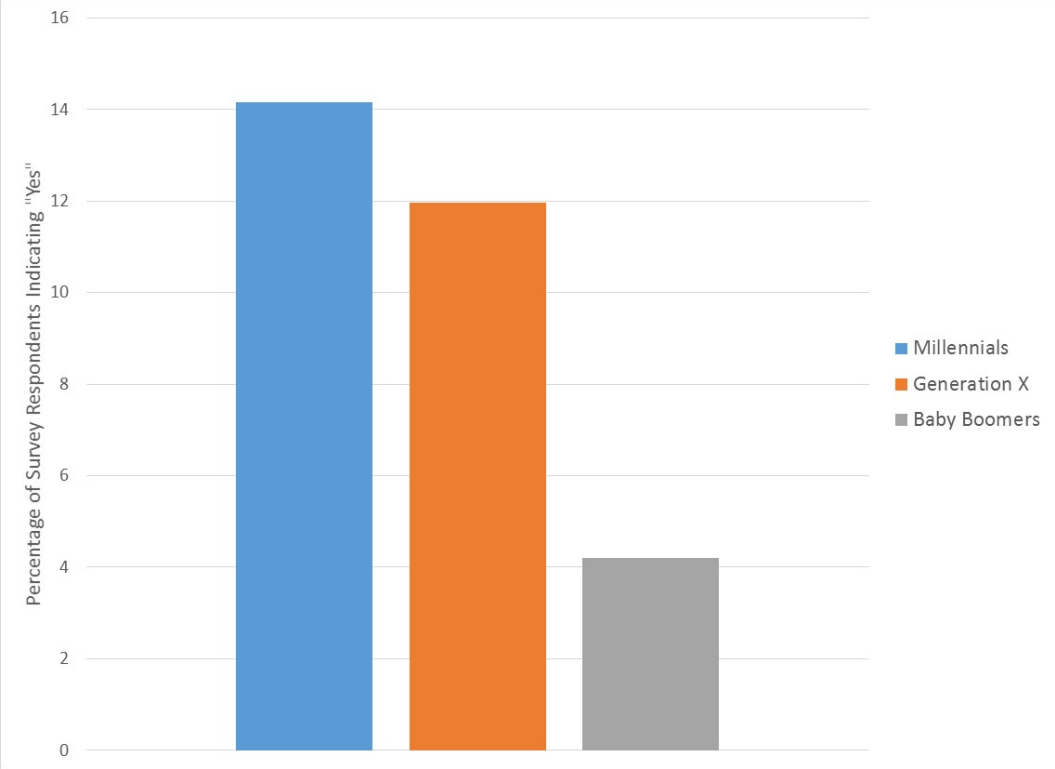



**Figure 113: Safety Concerns – Need Emergency Services, By Generation**

Emergency services are a significant safety concern. There is definitely a need to obtain more information about what event prompted the need for emergency services. In a recent backcountry trip, the author discussed a trip to Mount Rainer National Park with another couple who fell within the Millennial age group. They reported that the woman in the group had suffered fairly significant hypothermia that resulted in them returning to the trailhead the day after they had started their hike. Do these results reflect a lack of preparation by younger generations for experiencing federal lands or differences in the types of activities they pursue?

## 8.11. QUESTION 11 – Interagency Recreation Passes

Question 11 asked survey respondents, "Do you or do members of your household own any of the following Interagency Recreation Passes?" These passes are honored at all National Forest Service, National Park Service, Bureau of Land Management, Bureau of Land Reclamation, and U.S. Fish and Wildlife Service sites. (Please check all that apply.) Survey respondents were presented with the following eight response options:

- Interagency Annual Pass ($80)
- Interagency Annual Military Pass (Free)
- Interagency Senior Pass ($10, Lifetime)
- Interagency Access Pass (Free, Lifetime)
- Interagency Volunteer Pass (Free, One Year)
- Every Kid in a Park
- No one in my household owns a pass
- Not sure

This question proved to be a good "weed-out" question, as it helped to flag survey respondents who provided significant hints that the information that they provided may not be true. (Note: This occurred when they chose every option for this question and several other questions, or when the research team checked with the surveying company to identify if the survey respondent presented concerns with how they responded to other surveys.) Of the remaining survey respondents, thirteen survey respondents did not answer this question whereas three survey respondents choose six of the presented options. It is assumed that these survey respondents may have been confused about what an Interagency Recreation Pass was. In addition, another four hundred survey respondents indicated that they were unsure if someone in their household owned an Interagency Recreation Pass. Therefore, about 10 percent of the sample (416 of 4317) did not seem to know what an Interagency Recreation Pass was. In fact, when asked for general comments about the survey, one survey respondent indicated that, "I live by The Sand Dunes National Park. Our yearly pass cost 30 dollars." It is unclear if this survey respondent has an interest in visiting other federal lands where it would then be more cost effective to buy an Interagency Recreation Pass (Note: This respondent identified as being 55 years of age.). It is also unclear if there is a preference by each unit to promote site-specific passes, as discussed previously, rather than potentially asking people purchasing a pass if they are traveling to other federal lands throughout the year. This could potentially encourage broader recreation by Americans on all federal lands. As was demonstrated by this survey where several respondents volunteered that just taking the survey inspired them to get out into nature, planting the seed of traveling to other federal lands might foster further engagement with our federal lands.

The majority of survey respondents, across all generations, indicated that they did not own an Interagency Recreation Pass (Figure 18).

Of the survey respondents who indicated that they owned some type of Interagency Recreation Pass, across every category except for "Every Kid in a Park," a larger percentage of Millennials reported owning the pass type when compared with Generation X and Baby Boomers.

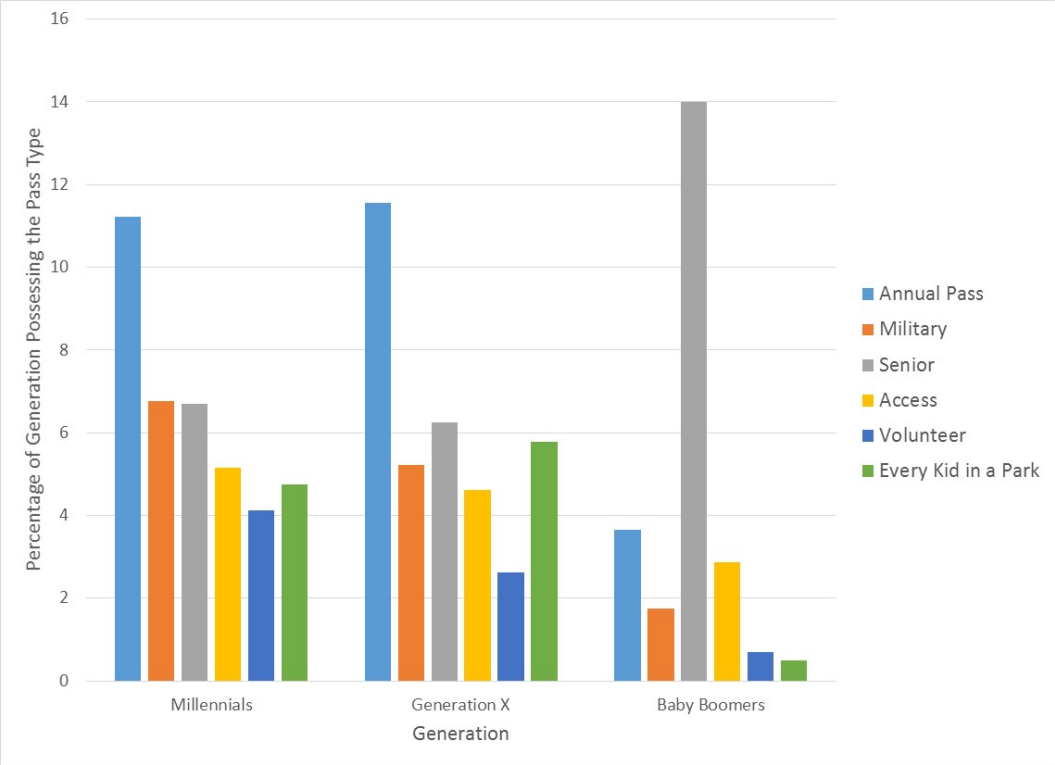



**Figure 114: Percentage of Survey Respondents Choosing Interagency Pass Type by Generation**

When considering the percentage of survey respondents within a state and across generations to determine if there is a difference in reported ownership of an Interagency Recreation Pass, Texan survey respondents most often reported not owning such a pass (Figure 19). Furthermore, Baby Boomers reported not owning a pass, on average, the most (Figure 18).

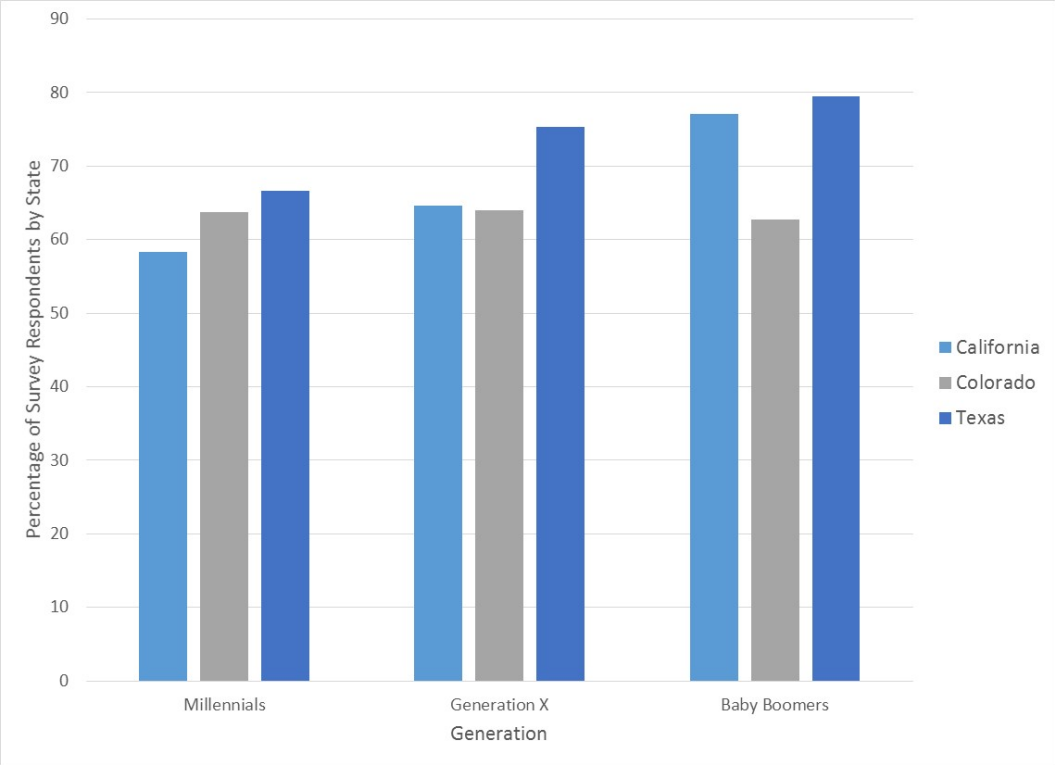



**Figure 115: Percentage of Survey Respondents Not Owning an Interagency Recreation Pass**

When looking at the variety of potential Interagency Recreation Passes reported as being owned by a survey respondent, it would appear that Millennials have the greatest percentage (Figure 114).

**Table 41: Number and Percentages of Passes Owned by Generation and State**

| State | | Interagency Recreation Passes | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Annual | | Military | | Senior | | Access | | Volunteer | | Every Kid in a Park | | No One | | Not Sure | | TOTAL |
| | Generation | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # | % | # |
| California | Millennials | 71 | 14.5 | 35 | 7.1 | 42 | 8.6 | 32 | 6.5 | 32 | 6.5 | 25 | 5.1 | 286 | 58.4 | 69 | 14.1 | 592 |
| | Generation X | 66 | 13.9 | 30 | 6.3 | 34 | 7.2 | 36 | 7.6 | 15 | 3.2 | 36 | 7.6 | 307 | 64.6 | 37 | 7.8 | 561 |
| | Baby Boomers | 13 | 2.8 | 8 | 1.7 | 57 | 12.2 | 16 | 3.4 | 5 | 1.1 | 5 | 1.1 | 361 | 77.1 | 23 | 4.9 | 488 |
| Colorado | Millennials | 54 | 12.2 | 31 | 7.0 | 26 | 5.9 | 19 | 4.3 | 11 | 2.5 | 19 | 4.3 | 283 | 63.7 | 55 | 12.4 | 498 |
| | Generation X | 70 | 14.9 | 25 | 5.3 | 30 | 6.4 | 22 | 4.7 | 11 | 2.3 | 27 | 5.8 | 300 | 64.0 | 35 | 7.5 | 520 |
| | Baby Boomers | 31 | 6.8 | 7 | 1.5 | 95 | 21.0 | 18 | 4.0 | 1 | 0.2 | 1 | 0.2 | 284 | 62.7 | 20 | 4.4 | 457 |
| Texas | Millennials | 36 | 7.2 | 31 | 6.2 | 28 | 5.6 | 23 | 4.6 | 16 | 3.2 | 24 | 4.8 | 333 | 66.6 | 74 | 14.8 | 565 |
| | Generation X | 32 | 6.3 | 21 | 4.1 | 27 | 5.3 | 9 | 1.8 | 12 | 2.3 | 21 | 4.1 | 385 | 75.3 | 52 | 10.2 | 559 |
| | Baby Boomers | 8 | 1.6 | 10 | 2.0 | 48 | 9.5 | 7 | 1.4 | 4 | 0.8 | 1 | 0.2 | 403 | 79.5 | 35 | 6.9 | 516 |
| TOTAL | Millennials | 161 | 11.2 | 97 | 6.8 | 96 | 6.7 | 74 | 5.2 | 59 | 4.1 | 68 | 4.7 | 902 | 62.9 | 198 | 13.8 | 1655 |
| | Generation X | 168 | 11.5 | 76 | 5.2 | 91 | 6.3 | 67 | 4.6 | 38 | 2.6 | 84 | 5.8 | 992 | 68.2 | 124 | 8.5 | 1640 |
| | Baby Boomers | 52 | 3.6 | 25 | 1.8 | 200 | 14.0 | 41 | 2.9 | 10 | 0.7 | 7 | 0.5 | 1048 | 73.4 | 78 | 5.5 | 1461 |
| TOTAL | | 381 | | 198 | | 387 | | 182 | | 107 | | 159 | | 2942 | | 400 | | 4756 |

**Table 42: Number of Responses Selected, Type of Interagency Recreation Pass**

| State | Generation | Number of Responses Selected | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| California | Millennials | 2 | 424 | 35 | 19 | 9 | 1 | 0 |
| | Generation X | 0 | 423 | 28 | 17 | 5 | 1 | 1 |
| | Baby Boomers | 2 | 452 | 10 | 2 | 1 | 0 | 1 |
| Colorado | Millennials | 3 | 402 | 27 | 7 | 4 | 1 | 0 |
| | Generation X | 0 | 437 | 16 | 13 | 3 | 0 | 0 |
| | Baby Boomers | 1 | 447 | 5 | 0 | 0 | 0 | 0 |
| Texas | Millennials | 2 | 451 | 34 | 8 | 4 | 0 | 1 |
| | Generation X | 2 | 475 | 22 | 9 | 2 | 1 | 0 |
| | Baby Boomers | 1 | 500 | 3 | 2 | 1 | 0 | 0 |
| TOTAL | Millennials | 7 | 1277 | 96 | 34 | 17 | 2 | 1 |
| | Generation X | 2 | 1335 | 66 | 39 | 10 | 2 | 1 |
| | Baby Boomers | 4 | 1399 | 18 | 4 | 2 | 0 | 1 |
| TOTAL | | 13 | 4011 | 180 | 77 | 29 | 4 | 3 |

## 8.12. QUESTION 12 – Level of Agreement

Question 12 asked survey respondents, "Please tell us how much you agree or disagree with each of the following statements." Survey respondents were presented with the options of Strongly Agree, Agree, Neutral, Disagree, or Strongly Disagree for the following eight statements:

- I feel that I have a variety of transportation options that allow me to access (travel to) federal lands.
- The distance from my house to a Federal land influences how I travel (e.g. by car, bus, train).
- The availability of hiking/walking trails on a Federal land affects my interest in visiting it.
- The availability of biking trails within a Federal land affects my interest in visiting it.
- The allowance of bicycling on roadways within a Federal land affects my interest in visiting it.
- It is important for me to stay connected to the internet/phone.
- Cost influences how I travel (e.g. by automobile, bus, or train).
- I consider climate change when making transportation choices.

The first two statements, "I feel that I have a variety of transportation options that allow me to access (travel to) federal lands," and "The distance from my house to a Federal land influences how I travel (e.g. by car, bus, train)," were discussed in the body of the report, under Significant Survey Findings.

### *Hiking/Walking Impact to Visiting*

The number of survey respondents who indicated their level of agreement with the statement, "*The availability of hiking/walking trails on a Federal land affects my interest in visiting it*," can be found in Table 45 later in this section.

There appears to be a difference between responses from Texas and those from California and Colorado (Figure 116).

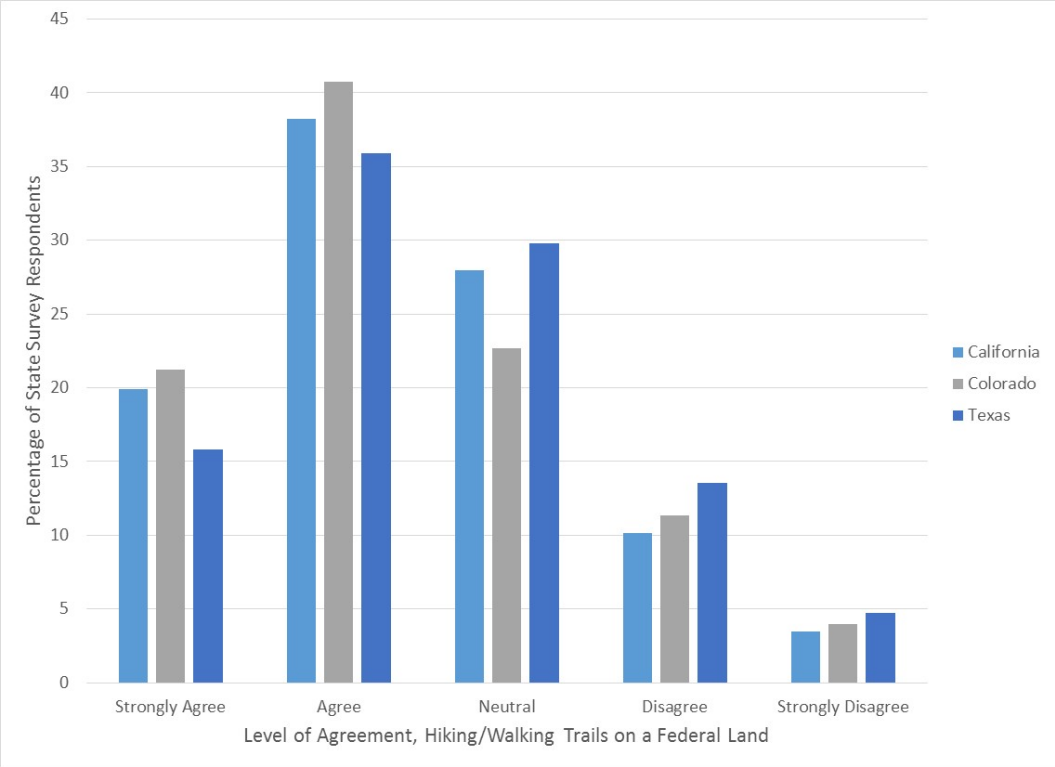



**Figure 116: Level of Agreement, Hiking/Walking Trails Influence on Visiting, Percentage of Survey Respondents, by State**

Texas survey respondents showed a significant difference between their reported interest in hiking/walking trails as seen in the "Strongly Agree" and "Agree" categories. A similar result was seen when asking whether the presence of an offsite parking lot to connect with walking/hiking trails on a Refuge would be of interest (see Question 8, Figure 48). In addition, as was discussed in Section 4.1.1, the number of survey respondents for each state by generation is balanced. Therefore, the result shown here represents something other than a generational difference. This could suggest that Texans have an interest in recreating in federal lands for reasons other than hiking/walking, like hunting or fishing.

When considering generations, Baby Boomers reported significantly less interest in the influence of hiking/biking trails on Federal lands as an attractor (Figure 117).

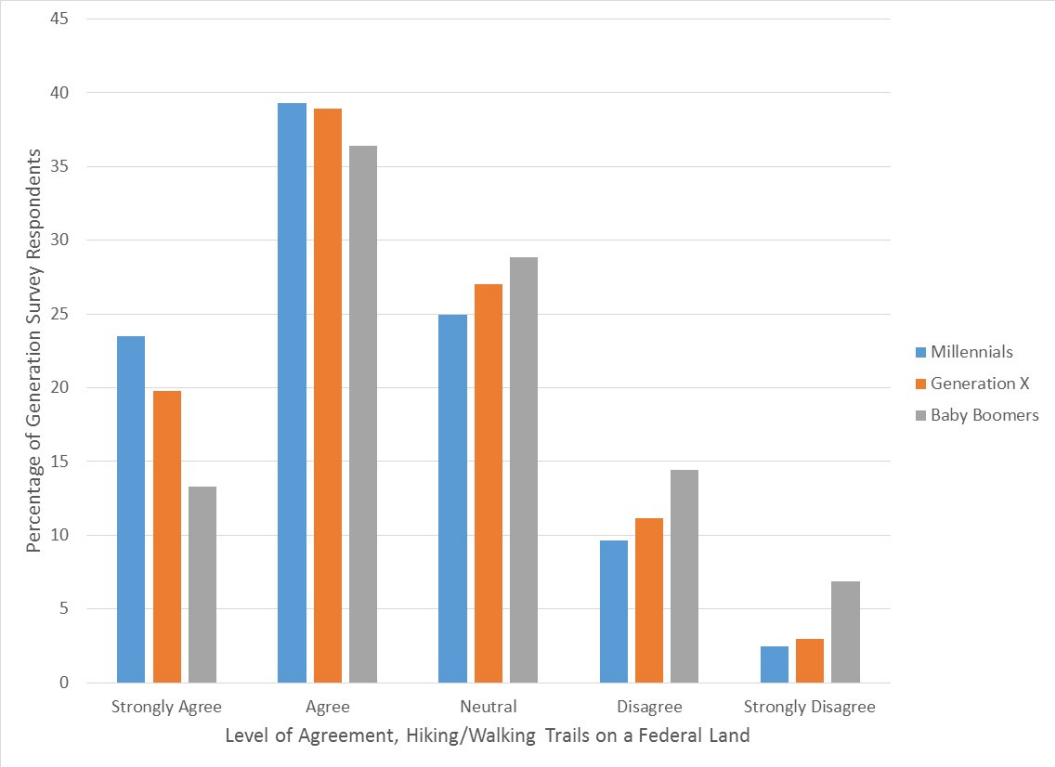



**Figure 117: Level of Agreement, Hiking/Walking Trails Influence on Visiting, Percentage of Survey Respondents, by Generation**

In contrast, the interest by Millennials is notable. These results are also similar to that from Question 8 (Figure 49). Because the results are consistent, they suggest that hiking/walking trails on federal lands holds significant value by the Millennials. Federal lands that want to attract more Millennials should consider efforts to add hiking and walking trails, and promote trail availability to this demographic group.

## *Biking Trails on Federal Lands*

The number of survey respondents who indicated their level of agreement with the statement, "*The availability of biking trails within a Federal land affects my interest in visiting it,*" can be found in Table 46.

The subtle difference between this statement and the one that follows is that this one pertains to trails whereas the next statement specifically identifies roadways.

Colorado survey respondents expressed less of an interest in biking trails when compared with those from California and Texas (Figure 118).

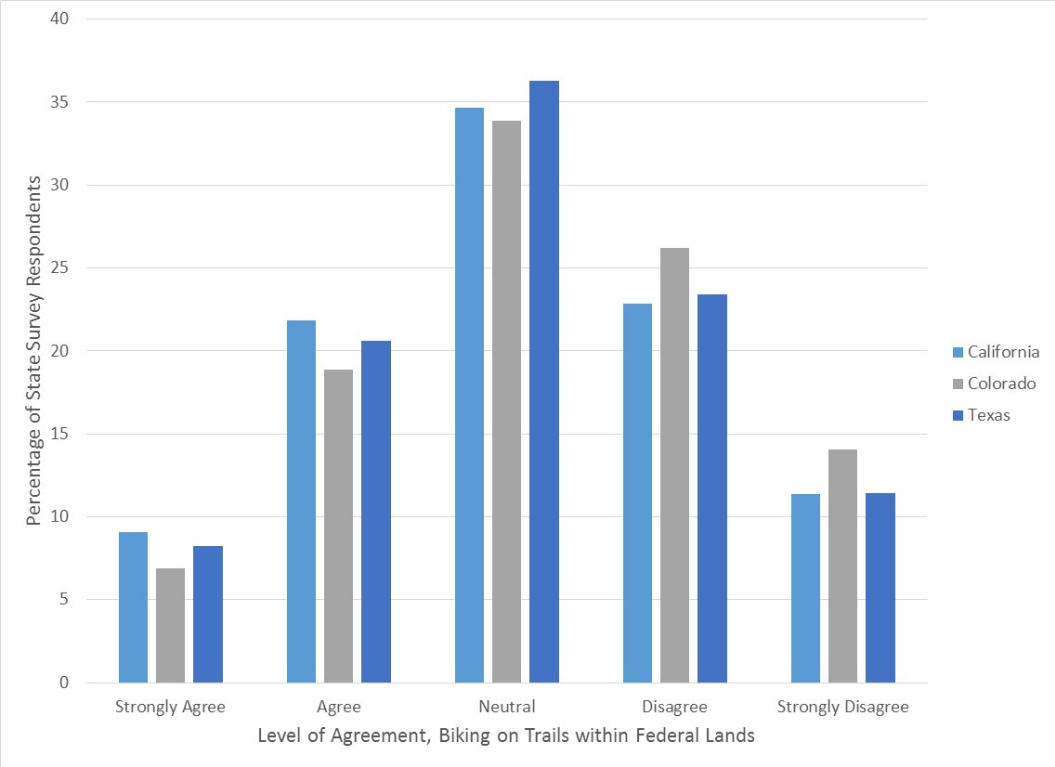



**Figure 118: Level of Agreement, Biking Trails within a Federal Land, Percentage of Survey Respondents, by State**

From a state perspective, it is interesting that Colorado, commonly associated with mountain bicycling, differs from California and Texas regarding this statement. Do biking trails within a federal land not seem to have as much of an influence because there are so many of them throughout the state? Or are survey respondents less excited about being in the vicinity of bicyclists on trails, as there may be conflicts between a mountain bicyclist and a walker/hiker? This may also reflect some of the earlier findings (see Question 10, Figure 104), which showed that Coloradoans showed the greatest concern with the conflict between vehicles and bicycles.

There was a clear difference between the responses when considering generations, with Baby Boomers reporting little interest in visiting a Federal land that offers bicycle trails (Figure 119). These results are also consistent with those related to the question specifically asking about bicycling provisions on Refuges (Question 8, Figure 43).

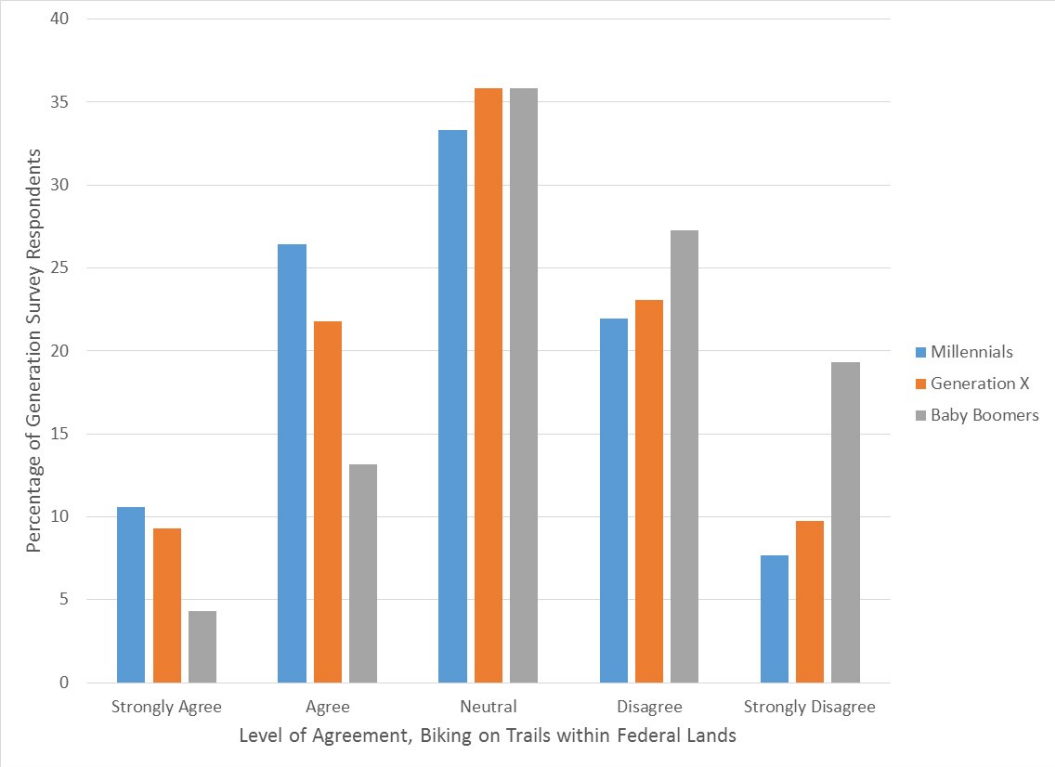



**Figure 119: Level of Agreement, Biking Trails within a Federal Land, Percentage of Survey Respondents, by Generation**

The consistency between Baby Boomer answers regarding biking trails and bike sharing suggest that these types of bicycling options are not of interest to this generation.

## *Biking on Federal Lands Roadways*

The number of survey respondents who indicated their level of agreement with the statement, "*The allowance of bicycling on roadways within a Federal land affects my interest in visiting it,*" can be found in Table 47.

Looking at the results from a state perspective, there are hints that California survey respondents show a bit more interest in such a provision when compared with survey respondents in other states (Figure 120). However, as a whole, the results are fairly consistent.

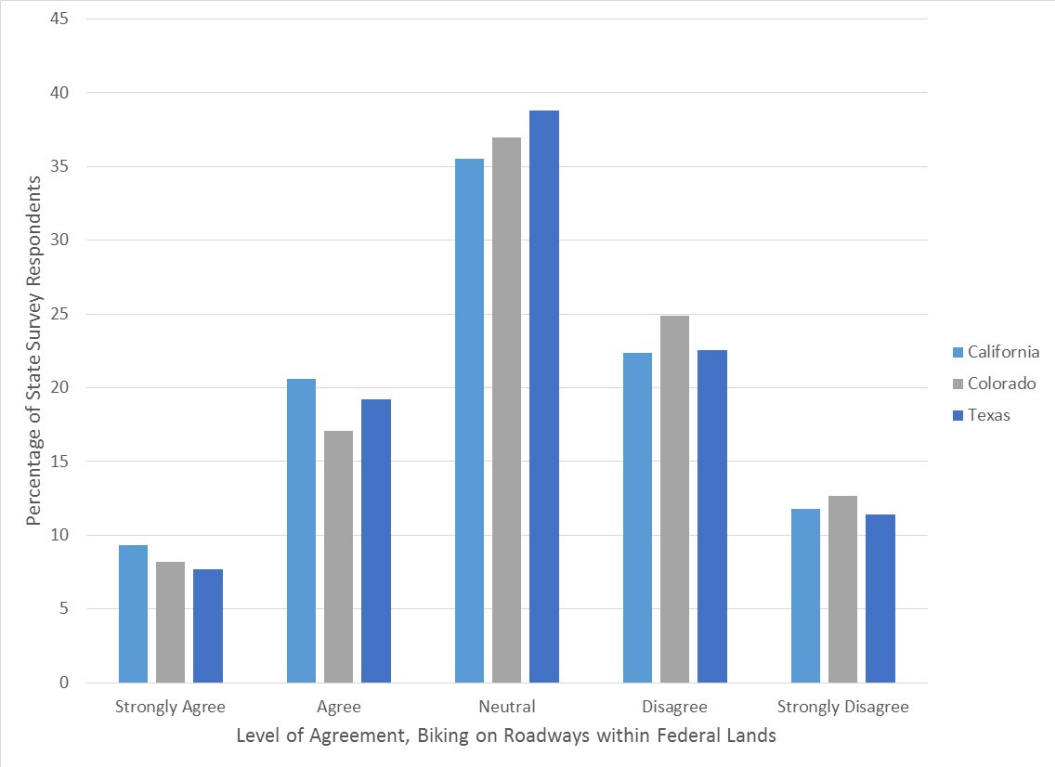



**Figure 120: Level of Agreement, Biking on Federal Land Roadways, Percentage of Survey Respondents, by State**

Yet, when grouping the affirmative categories together and the opposing categories together, it is interesting that the differences between California and Colorado survey respondents become more pronounced (Figure 121).

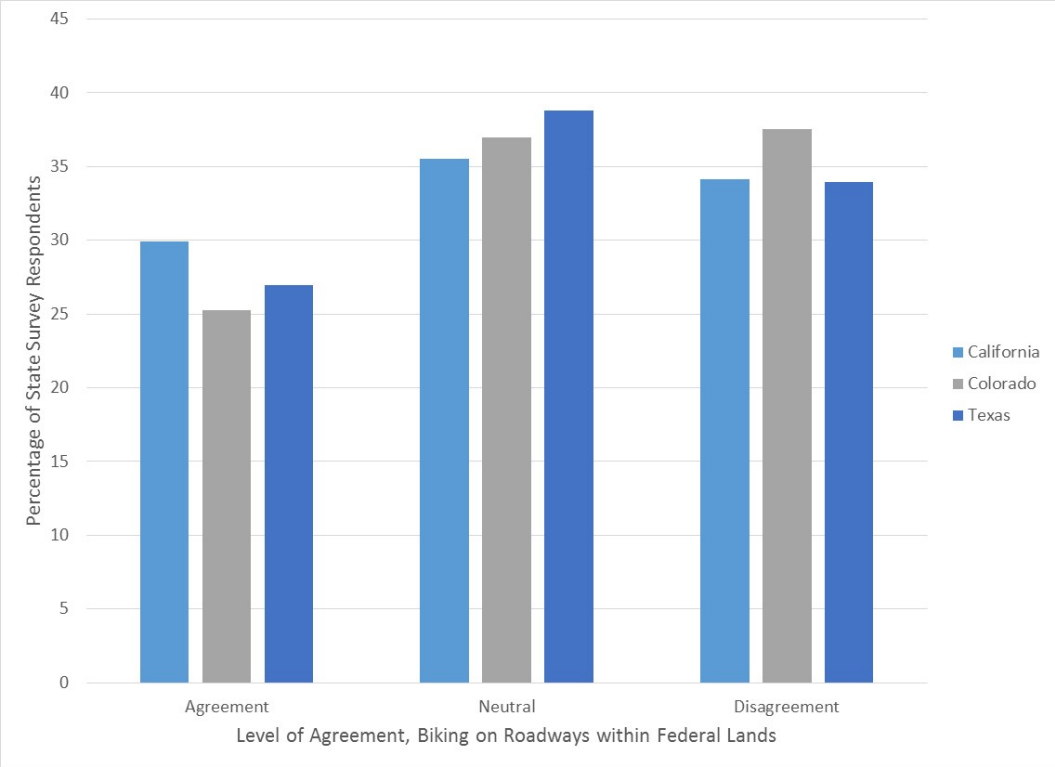



**Figure 121: Level of Agreement, Biking on Federal Land Roadways, Percentage of Survey Respondents, by State, Grouped**

California is well-known in bicycling communities for the incorporation of bicycle facilities within the roadway network as compared with separating bicycling facilities from motorized traffic. Vehicular cycling, which is an ideology that asserts a bicyclist's right to ride in the road, originated from John Forester. John Forester is a past president of the California Association of Bicycling Organizations and of the League of American Bicyclists (previously the League of American Wheelmen) (38). In contrast, Colorado is well-known for its mountain bicycling, which occurs off-road. Therefore, these results potentially reflect some of these state tendencies.

When considering generations, again Baby Boomers show little interest in bicycling as an offering on Federal lands (Figure 122). From a bicycling perspective, however, it could be that bicycling is an intimidating form of transportation. Bicycling has only in recent years experienced a renaissance, and there is the possibility that many Baby Boomers may not know how to bicycle. (Note: statistics were not found indicating one way or another.) A program in Portland, one of the leading bicycling cities in the United States, is offering a Senior Cyclist Program (39). There also may be many Baby Boomers who are concerned with the level of comfort associated with bicycling. However, there are now more bicycle styles available like the recumbent bicycle, or there are different techniques that can be learned such as the Dutch style posture, as alternatives to the typical mountain bicycle found in the United States (38). Furthermore, electric bicycles could also assist this group with having more mobility with less effort.

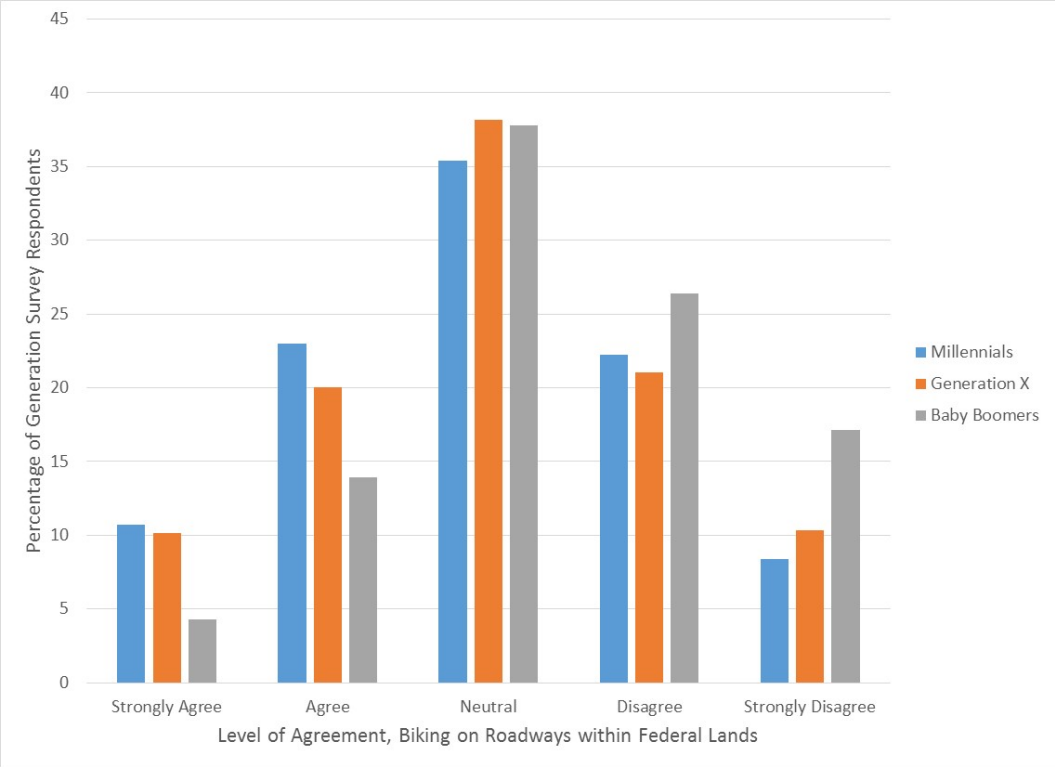



**Figure 122: Level of Agreement, Biking on Federal Land Roadways, Percentage of Survey Respondents, by Generation**

Overall, when asked about bicycling provisions on federal lands, Baby Boomers do not seem to be in favor of this mode of transportation.

### *Connected to Phone/Internet*

The number of survey respondents who indicated their level of agreement with the statement, "*It is important for me to stay connected to the internet/phone*," can be found in Table 48.

The results, which show that staying connected is more important for California and Texas, are a bit surprising (Figure 123).

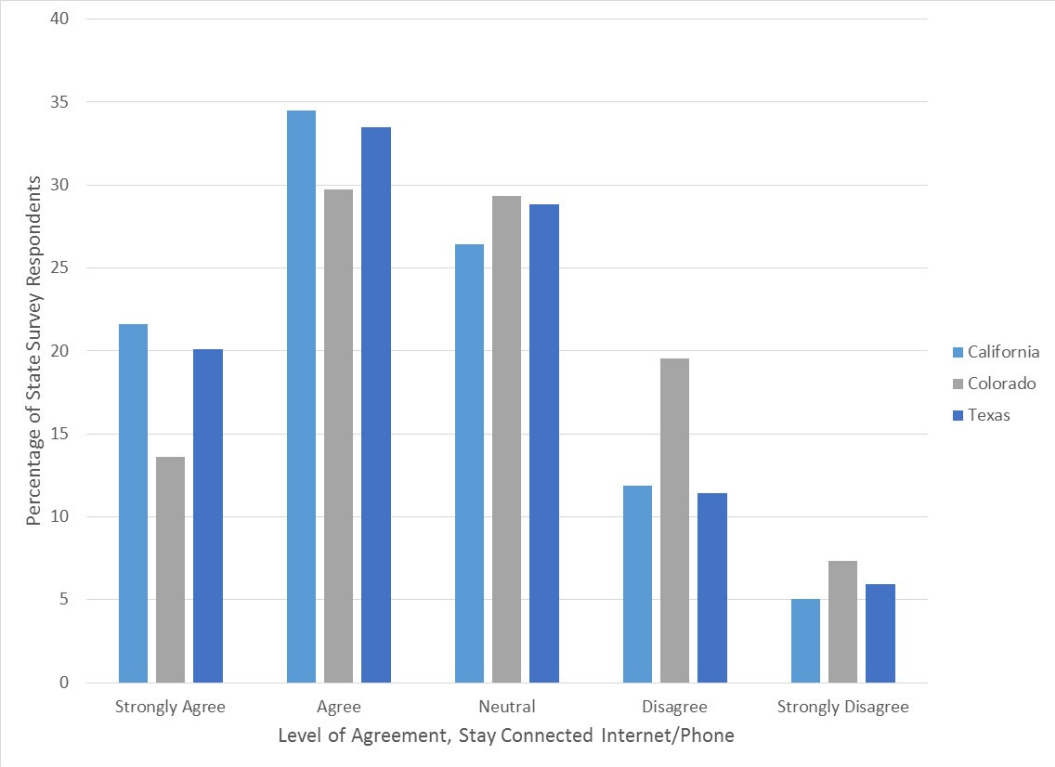



**Figure 123: Level of Agreement, Staying Connected, Percentage of Survey Respondents, by State**

The researchers had suspected that Colorado would have placed more value on being connected than Texas particularly considering that Colorado drew more survey respondents from metropolitan statistical areas.

As expected, however, are the results pertaining to generations, which show that the two younger generations expressed more of an interest in staying connected as compared with Baby Boomers (Figure 124).

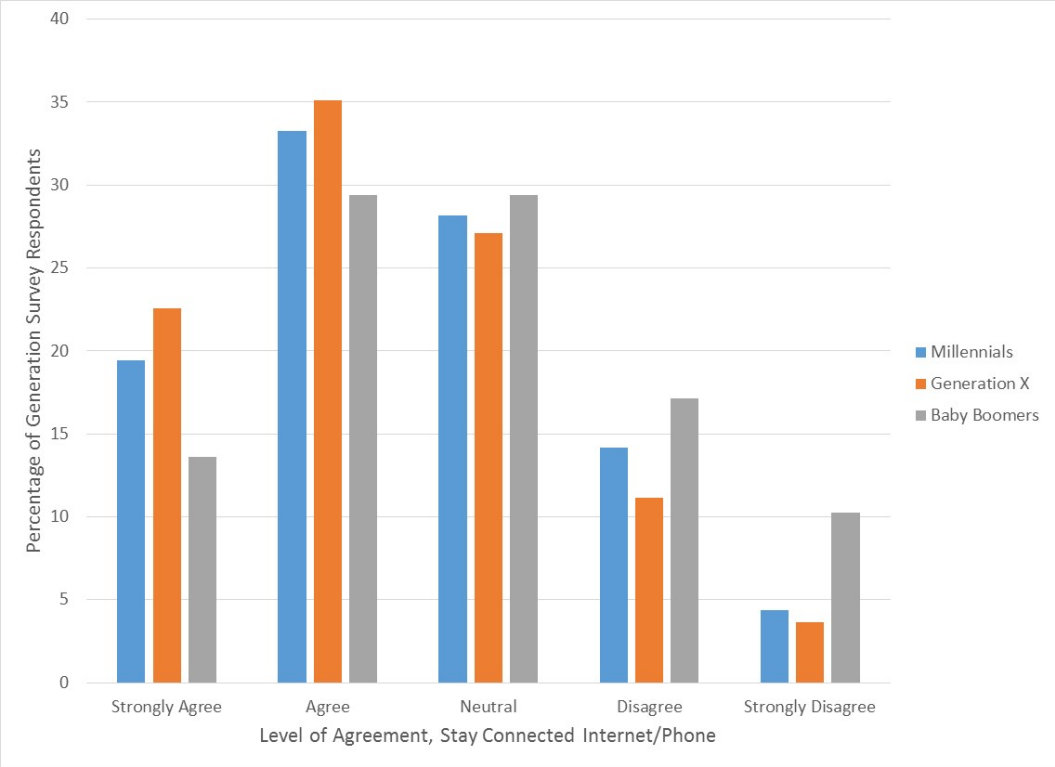



**Figure 124: Level of Agreement, Staying Connected, Percentage of Survey Respondents, by Generation**

This was consistent with results in the *Mobility Mindset of Millennials in Small Urban and Rural Areas: Technical Memorandum, Survey Findings – Lifestyle* (40).

## *Cost & Travel*

The number of survey respondents who indicated their level of agreement with the statement, "*Cost influences how I travel (e.g., by automobile, bus, or train),*" can be found in Table 49.

When looking at it from a state perspective, the results generally appear consistent across states (Figure 125).

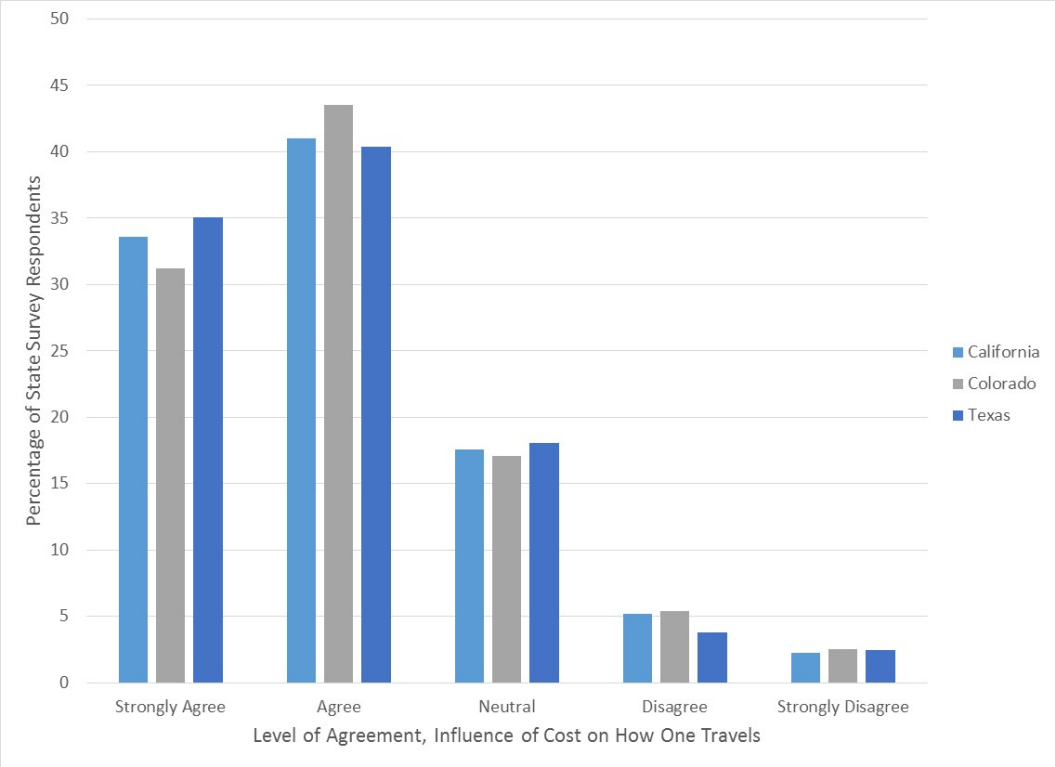



**Figure 125: Level of Agreement, Influence of Cost on Travel, Percentage of Survey Respondents, by State**

The consistency among states is more apparent when the results are grouped by the affirmative and opposing categories (Figure 126).

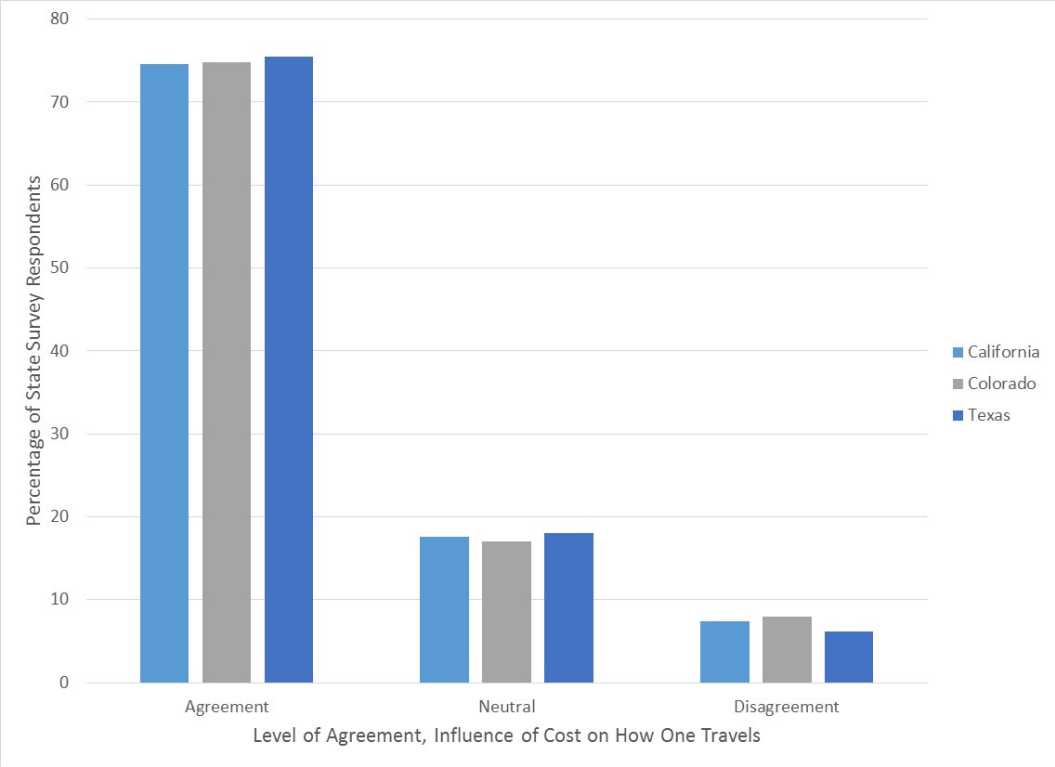



**Figure 126: Level of Agreement, Influence of Cost on Travel, Percentage of Survey Respondents, by State, Combined**

When looking at generations, as seen in the literature and the responses to other studies, cost has more of an influence on the travel mode among the younger generations (40), with the influence decreasing with each successive generation (Figure 127).

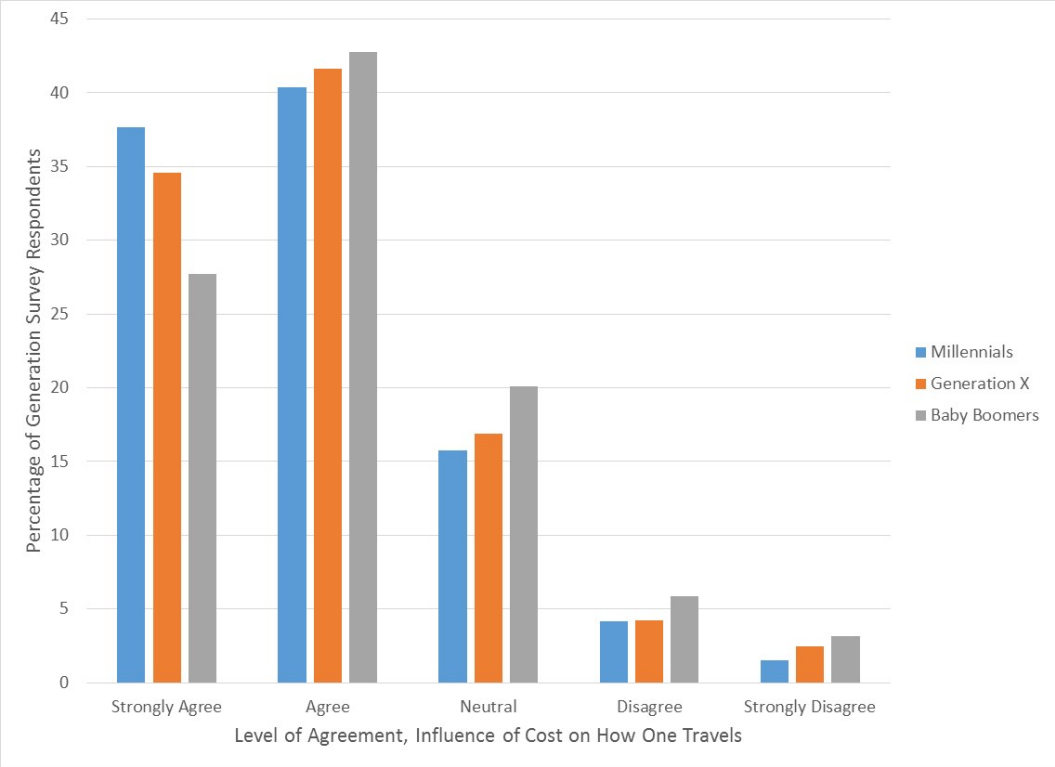



**Figure 127: Level of Agreement, Influence of Cost on Travel, Percentage of Survey Respondents, by Generation**

This means that travel options to or within federal lands that have a cost, even if it is small, may be less appealing to these younger generations who are more sensitive to cost.

## *Climate Change*

The number of survey respondents who indicated their level of agreement with the statement, "*I consider climate change when making transportation choices*," can be found in Table 50.

California survey respondents reported most often strongly agreeing or agreeing with the influence of climate change on their transportation choices.

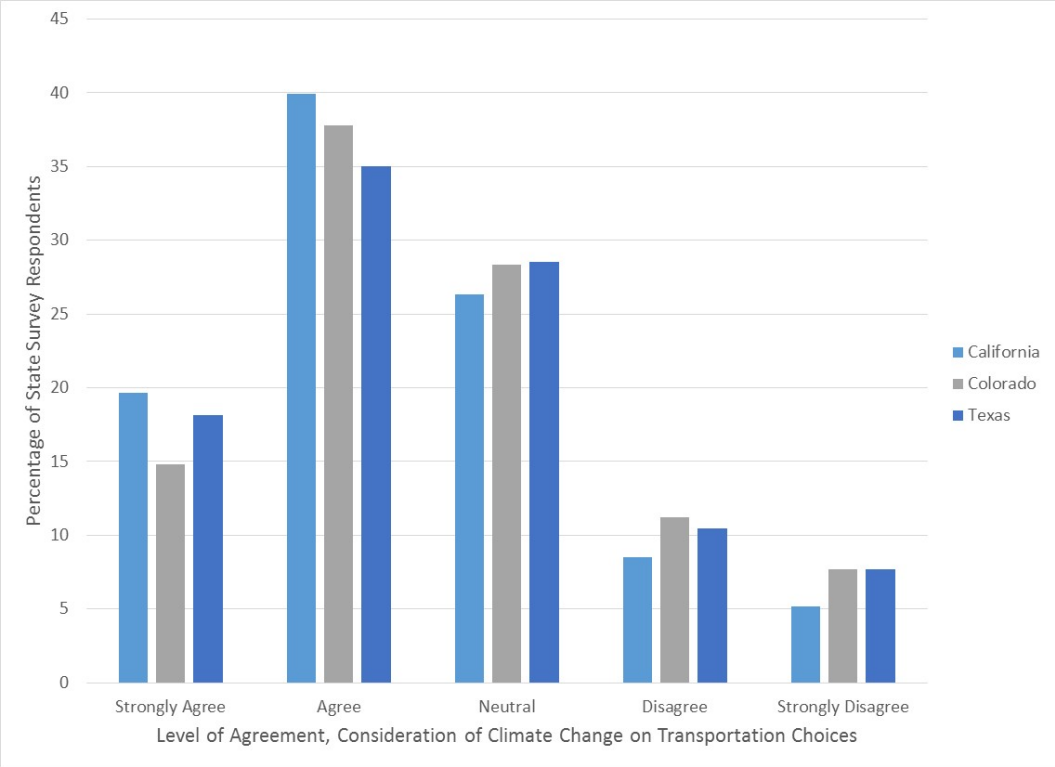



**Figure 128: Level of Agreement, Climate Change & Transportation Choices, Percentage of Survey Respondents, by State**

Interestingly enough, compared with the rest of the United States, California has some of the most progressive climate change perspectives, and this perception appears to be evident in the data.

When considering the results by generation, Baby Boomers seem to be influenced by climate change the least when considering their transportation options.

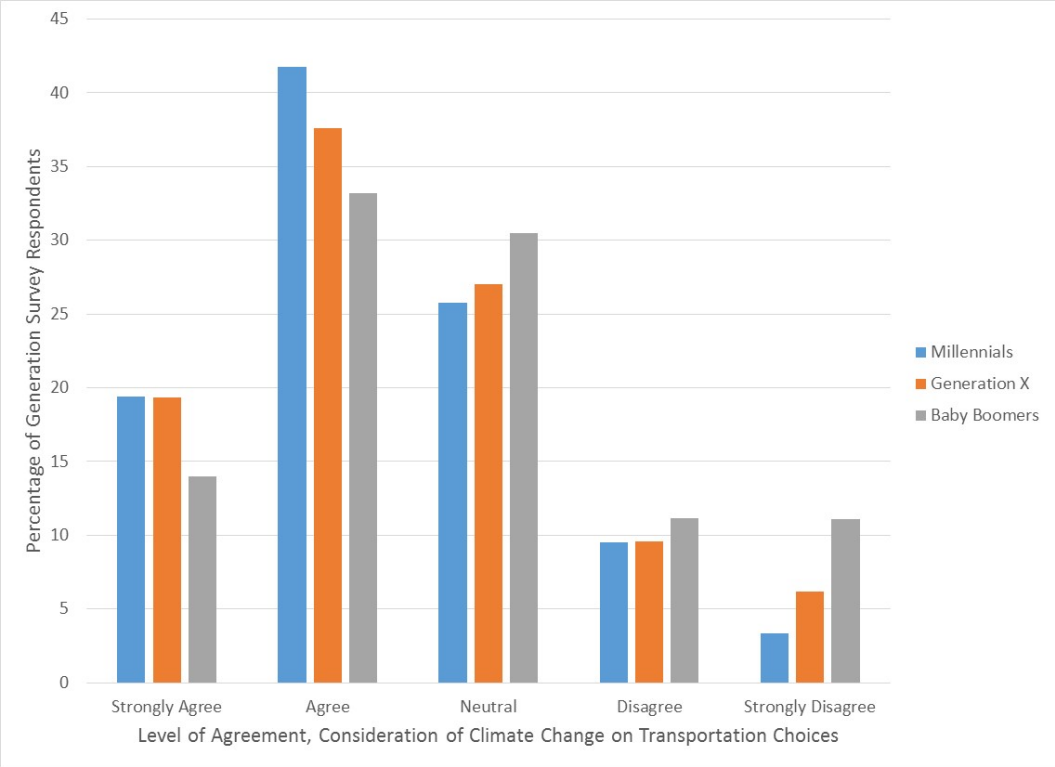



**Figure 129: Level of Agreement, Climate Change & Transportation Choices, Percentage of Survey Respondents, by Generation**

While a larger number of the Baby Boomer generation selected "Strongly Disagree" for this statement, it is interesting that there is also a larger number of Baby Boomers who are neutral in their level of agreement when compared with the younger generations. The researchers hypothesize that the difference within this category or even within the "Strongly Disagree" category could hint at some of the debate still associated with one's belief in climate change. For example, one of the authors has had a Baby Boomer assert that Earth is entering the next Ice Age. While this is an individual data point, it highlights the divergent viewpoints that still exist. These results, however, suggest that directing information about transportation ties to or within Federal lands to the younger generations might be more successful than directing them to the Baby Boomer generation.

**Table 43: Level of Agreement, Access to Federal Lands**

| State | Generation | Access Federal Lands | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 111 | 154 | 148 | 61 | 15 | 1 | 490 |
| | Generation X | 107 | 165 | 137 | 51 | 12 | 3 | 475 |
| | Baby Boomers | 58 | 159 | 172 | 60 | 19 | 0 | 468 |
| Colorado | Millennials | 84 | 150 | 142 | 58 | 10 | 0 | 444 |
| | Generation X | 81 | 170 | 125 | 76 | 17 | 0 | 469 |
| | Baby Boomers | 42 | 166 | 159 | 67 | 19 | 0 | 453 |
| Texas | Millennials | 94 | 175 | 152 | 55 | 22 | 2 | 500 |
| | Generation X | 76 | 157 | 183 | 71 | 23 | 1 | 511 |
| | Baby Boomers | 54 | 165 | 187 | 71 | 29 | 1 | 507 |
| Total | Millennials | 289 | 479 | 442 | 174 | 47 | 3 | 1434 |
| | Generation X | 264 | 492 | 445 | 198 | 52 | 4 | 1455 |
| | Baby Boomers | 154 | 490 | 518 | 198 | 67 | 1 | 1428 |
| TOTAL | | 707 | 1461 | 1405 | 570 | 166 | 8 | 4317 |

**Table 44: Level of Agreement, Distance Influences Travel Choice**

| State | Generation | Distance to Federal Lands | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 132 | 236 | 81 | 26 | 13 | 2 | 490 |
| | Generation X | 109 | 209 | 104 | 35 | 17 | 1 | 475 |
| | Baby Boomers | 98 | 208 | 101 | 41 | 20 | 0 | 468 |
| Colorado | Millennials | 113 | 210 | 70 | 46 | 5 | 0 | 444 |
| | Generation X | 102 | 212 | 101 | 41 | 11 | 2 | 469 |
| | Baby Boomers | 70 | 233 | 81 | 50 | 19 | 0 | 453 |
| Texas | Millennials | 115 | 194 | 126 | 44 | 21 | 0 | 500 |
| | Generation X | 102 | 220 | 127 | 44 | 16 | 2 | 511 |
| | Baby Boomers | 117 | 206 | 118 | 44 | 22 | 0 | 507 |
| Total | Millennials | 360 | 640 | 277 | 116 | 39 | 2 | 1434 |
| | Generation X | 313 | 641 | 332 | 120 | 44 | 5 | 1455 |
| | Baby Boomers | 285 | 647 | 300 | 135 | 61 | 0 | 1428 |
| TOTAL | | 958 | 1928 | 909 | 371 | 144 | 7 | 4317 |

**Table 45: Level of Agreement, Hiking/Walking Trails on Federal Lands**

| State | Generation | Hiking/Walking Trails on Federal Lands | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 123 | 190 | 126 | 39 | 11 | 1 | 490 |
| | Generation X | 95 | 194 | 126 | 42 | 16 | 2 | 475 |
| | Baby Boomers | 67 | 164 | 149 | 64 | 23 | 1 | 468 |
| Colorado | Millennials | 118 | 188 | 85 | 42 | 11 | 0 | 444 |
| | Generation X | 108 | 179 | 114 | 56 | 12 | 0 | 469 |
| | Baby Boomers | 64 | 190 | 111 | 57 | 31 | 0 | 453 |
| Texas | Millennials | 96 | 186 | 147 | 57 | 13 | 1 | 500 |
| | Generation X | 85 | 193 | 153 | 64 | 15 | 1 | 511 |
| | Baby Boomers | 59 | 166 | 152 | 85 | 44 | 1 | 507 |
| Total | Millennials | 337 | 564 | 358 | 138 | 35 | 2 | 1434 |
| | Generation X | 288 | 566 | 393 | 162 | 43 | 3 | 1455 |
| | Baby Boomers | 190 | 520 | 412 | 206 | 98 | 2 | 1428 |
| TOTAL | | 815 | 1650 | 1163 | 506 | 176 | 7 | 4317 |

**Table 46: Level of Agreement, Biking on Trails within Federal Lands**

| State | Generation | Biking on Trails within Federal Lands | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 60 | 129 | 163 | 103 | 35 | 0 | 490 |
| | Generation X | 54 | 117 | 157 | 94 | 51 | 2 | 475 |
| | Baby Boomers | 16 | 67 | 177 | 130 | 77 | 1 | 468 |
| Colorado | Millennials | 33 | 108 | 148 | 116 | 39 | 0 | 444 |
| | Generation X | 42 | 91 | 175 | 105 | 55 | 1 | 469 |
| | Baby Boomers | 19 | 59 | 140 | 137 | 98 | 0 | 453 |
| Texas | Millennials | 59 | 142 | 167 | 96 | 36 | 0 | 500 |
| | Generation X | 39 | 109 | 189 | 137 | 36 | 1 | 511 |
| | Baby Boomers | 27 | 62 | 195 | 122 | 101 | 0 | 507 |
| Total | Millennials | 152 | 379 | 478 | 315 | 110 | 0 | 1434 |
| | Generation X | 135 | 317 | 521 | 336 | 142 | 4 | 1455 |
| | Baby Boomers | 62 | 188 | 512 | 389 | 276 | 1 | 1428 |
| TOTAL | | 349 | 884 | 1511 | 1040 | 528 | 5 | 4317 |

**Table 47: Level of Agreement, Biking on Roadways within Federal Lands**

| State | Generation | Biking on Roadways within Federal Lands | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 62 | 120 | 162 | 105 | 39 | 2 | 490 |
| | Generation X | 58 | 101 | 175 | 86 | 53 | 2 | 475 |
| | Baby Boomers | 14 | 74 | 172 | 129 | 77 | 2 | 468 |
| Colorado | Millennials | 42 | 78 | 168 | 118 | 38 | 0 | 444 |
| | Generation X | 45 | 97 | 173 | 95 | 58 | 1 | 469 |
| | Baby Boomers | 25 | 58 | 164 | 127 | 77 | 2 | 453 |
| Texas | Millennials | 50 | 132 | 178 | 96 | 43 | 1 | 500 |
| | Generation X | 45 | 93 | 207 | 125 | 39 | 2 | 511 |
| | Baby Boomers | 22 | 67 | 204 | 121 | 91 | 2 | 507 |
| Total | Millennials | 154 | 330 | 508 | 319 | 120 | 3 | 1434 |
| | Generation X | 148 | 291 | 555 | 306 | 150 | 5 | 1455 |
| | Baby Boomers | 61 | 199 | 540 | 377 | 245 | 6 | 1428 |
| TOTAL | | 363 | 820 | 1603 | 1002 | 515 | 14 | 4317 |

**Table 48: Level of Agreement, Staying Connected to the Internet/Phone**

| State | Generation | Stay Connected Internet/Phone | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 121 | 172 | 113 | 63 | 17 | 4 | 490 |
| | Generation X | 123 | 179 | 119 | 41 | 10 | 3 | 475 |
| | Baby Boomers | 66 | 143 | 147 | 66 | 45 | 1 | 468 |
| Colorado | Millennials | 69 | 134 | 126 | 89 | 24 | 2 | 444 |
| | Generation X | 75 | 154 | 142 | 77 | 18 | 3 | 469 |
| | Baby Boomers | 42 | 118 | 133 | 101 | 58 | 1 | 453 |
| Texas | Millennials | 89 | 171 | 165 | 51 | 22 | 2 | 500 |
| | Generation X | 130 | 178 | 133 | 44 | 25 | 1 | 511 |
| | Baby Boomers | 86 | 159 | 140 | 78 | 43 | 1 | 507 |
| Total | Millennials | 279 | 477 | 404 | 203 | 63 | 8 | 1434 |
| | Generation X | 328 | 511 | 394 | 162 | 53 | 7 | 1455 |
| | Baby Boomers | 194 | 420 | 420 | 245 | 146 | 3 | 1428 |
| TOTAL | | 801 | 1408 | 1218 | 610 | 262 | 18 | 4317 |

**Table 49: Level of Agreement, Influence of Cost on Travel**

| State | Generation | Influence of Cost on Travel | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 187 | 192 | 81 | 21 | 8 | 1 | 490 |
| | Generation X | 170 | 185 | 82 | 22 | 14 | 2 | 475 |
| | Baby Boomers | 124 | 211 | 89 | 31 | 10 | 3 | 468 |
| Colorado | Millennials | 172 | 198 | 55 | 15 | 3 | 1 | 444 |
| | Generation X | 147 | 211 | 75 | 24 | 11 | 1 | 469 |
| | Baby Boomers | 107 | 186 | 103 | 35 | 20 | 2 | 453 |
| Texas | Millennials | 181 | 189 | 90 | 24 | 11 | 5 | 500 |
| | Generation X | 186 | 210 | 89 | 15 | 11 | 0 | 511 |
| | Baby Boomers | 165 | 214 | 95 | 18 | 15 | 0 | 507 |
| Total | Millennials | 540 | 579 | 226 | 60 | 22 | 7 | 1434 |
| | Generation X | 503 | 606 | 246 | 61 | 36 | 3 | 1455 |
| | Baby Boomers | 396 | 611 | 287 | 84 | 45 | 5 | 1428 |
| TOTAL | | 1439 | 1796 | 759 | 205 | 103 | 15 | 4317 |

**Table 50: Level of Agreement, Influence of Climate Change on Transportation Choices**

| State | Generation | Climate Change Concern as Tied to Transportation Choices | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | No Response | Total |
| California | Millennials | 101 | 220 | 118 | 36 | 13 | 2 | 490 |
| | Generation X | 116 | 181 | 123 | 37 | 16 | 2 | 475 |
| | Baby Boomers | 65 | 171 | 136 | 49 | 45 | 2 | 468 |
| Colorado | Millennials | 80 | 184 | 115 | 45 | 19 | 1 | 444 |
| | Generation X | 69 | 184 | 126 | 55 | 33 | 2 | 469 |
| | Baby Boomers | 53 | 148 | 146 | 53 | 53 | 0 | 453 |
| Texas | Millennials | 97 | 195 | 136 | 55 | 16 | 1 | 500 |
| | Generation X | 96 | 182 | 144 | 47 | 41 | 1 | 511 |
| | Baby Boomers | 82 | 155 | 153 | 57 | 60 | 0 | 507 |
| Total | Millennials | 278 | 599 | 369 | 136 | 48 | 4 | 1434 |
| | Generation X | 281 | 547 | 393 | 139 | 90 | 5 | 1455 |
| | Baby Boomers | 200 | 474 | 435 | 159 | 158 | 2 | 1428 |
| TOTAL | | 759 | 1620 | 1197 | 434 | 296 | 11 | 4317 |

## 8.13. QUESTION 13 – Physical Limitations

Question 13 asked survey respondents, "Are there any individuals in your household who can only walk limited distances because of their age (including children too young to walk far) or a physical condition? Survey respondents were given the choices of "Yes" or "No."

Every survey respondent provided a response to this question. Almost half (48%) of all survey respondents indicated that they could walk limited distances. Texan respondents reported the highest percentage followed by Colorado and then California (50.9%, 47.7%, and 45.4%). The Millennial generation had the fewest survey respondents reporting that they were limited followed by each successive generation (46.6%, 47.1%, 50.5%).

**Table 51: Number of Survey Respondents Indicated Walking Limited Distances**

| State | Generation | Walk Limited Distances | | | |
|---|---|---|---|---|---|
| | | Yes | No | TOTAL | % Indicating Yes |
| California | Millennials | 206 | 284 | 490 | 45.4 |
| | Generation X | 232 | 243 | 475 | |
| | Baby Boomers | 213 | 255 | 468 | |
| Colorado | Millennials | 209 | 235 | 444 | 47.7 |
| | Generation X | 213 | 256 | 469 | |
| | Baby Boomers | 229 | 224 | 453 | |
| Texas | Millennials | 253 | 247 | 500 | 50.9 |
| | Generation X | 241 | 270 | 511 | |
| | Baby Boomers | 279 | 228 | 507 | |
| TOTAL | Millennials | 668 | 766 | 1434 | 46.6 |
| | Generation X | 686 | 769 | 1455 | 47.1 |
| | Baby Boomers | 721 | 707 | 1428 | 50.5 |
| TOTAL | | 2075 | 2242 | 4317 | 48.1 |

## 8.14. QUESTION 14 – Type of Physical Limitations

Question 14 asked survey respondents, "Which of the following limit the distance that one or more members of your household can walk? (Please check all that apply.)" Survey respondents were presented with the following eight answer options:

- Pain/discomfort
- Use a wheelchair
- Use a walker or cane
- Use a stroller
- Have a breathing/respiratory condition
- Have small children
- Prefer not to walk
- Other (please specify)

If a survey respondent chose "No" for Question 13, the survey respondent skipped this question.

**Table 52: Number of Survey Respondents, Limited by Pain/Discomfort**

| State | Generation | Distance Limited by Pain/Discomfort | | |
|---|---|---|---|---|
| | | Applies to Household | Does Not Apply | Subtotal |
| California | Millennials | 88 | 402 | 490 |
| | Generation X | 103 | 372 | 475 |
| | Baby Boomers | 145 | 323 | 468 |
| Colorado | Millennials | 73 | 371 | 444 |
| | Generation X | 120 | 349 | 469 |
| | Baby Boomers | 172 | 281 | 453 |
| Texas | Millennials | 93 | 407 | 500 |
| | Generation X | 121 | 390 | 511 |
| | Baby Boomers | 199 | 308 | 507 |
| Subtotal | Millennials | 254 | 1180 | 1434 |
| | Generation X | 344 | 1111 | 1455 |
| | Baby Boomers | 516 | 912 | 1428 |
| TOTAL | | 1114 | 3203 | 4317 |

**Table 53: Number of Survey Respondents, Limited by a Wheelchair**

| State | Generation | Distance Limited by a Wheelchair | | |
|---|---|---|---|---|
| | | Applies to Household | Does Not Apply | Subtotal |
| California | Millennials | 22 | 468 | 490 |
| | Generation X | 34 | 441 | 475 |
| | Baby Boomers | 27 | 441 | 468 |
| Colorado | Millennials | 11 | 433 | 444 |
| | Generation X | 16 | 453 | 469 |
| | Baby Boomers | 15 | 438 | 453 |
| Texas | Millennials | 14 | 486 | 500 |
| | Generation X | 28 | 483 | 511 |
| | Baby Boomers | 23 | 484 | 507 |
| Subtotal | Millennials | 47 | 1387 | 1434 |
| | Generation X | 78 | 1377 | 1455 |
| | Baby Boomers | 65 | 1363 | 1428 |
| TOTAL | | 190 | 4127 | 4317 |

**Table 54: Number of Survey Respondents, Uses a Walker or Cane**

| State | Generation | Walker or Cane | | |
|---|---|---|---|---|
| | | Applies to Household | Does Not Apply | Subtotal |
| California | Millennials | 37 | 453 | 490 |
| | Generation X | 57 | 418 | 475 |
| | Baby Boomers | 75 | 393 | 468 |
| Colorado | Millennials | 18 | 426 | 444 |
| | Generation X | 39 | 430 | 469 |
| | Baby Boomers | 63 | 390 | 453 |
| Texas | Millennials | 36 | 464 | 500 |
| | Generation X | 53 | 458 | 511 |
| | Baby Boomers | 77 | 430 | 507 |
| Subtotal | Millennials | 91 | 1343 | 1434 |
| | Generation X | 149 | 1306 | 1455 |
| | Baby Boomers | 215 | 1213 | 1428 |
| TOTAL | | 455 | 3862 | 4317 |

**Table 55: Number of Survey Respondents, Uses a Stroller**

| State | Generation | Use a stroller | | |
|---|---|---|---|---|
| | | Applies to Household | Does Not Apply | Subtotal |
| California | Millennials | 65 | 425 | 490 |
| | Generation X | 59 | 416 | 475 |
| | Baby Boomers | 2 | 466 | 468 |
| Colorado | Millennials | 74 | 370 | 444 |
| | Generation X | 42 | 427 | 469 |
| | Baby Boomers | 7 | 446 | 453 |
| Texas | Millennials | 91 | 409 | 500 |
| | Generation X | 41 | 470 | 511 |
| | Baby Boomers | 5 | 502 | 507 |
| Subtotal | Millennials | 230 | 1204 | 1434 |
| | Generation X | 142 | 1313 | 1455 |
| | Baby Boomers | 14 | 1414 | 1428 |
| TOTAL | | 386 | 3931 | 4317 |

**Table 56: Number of Survey Respondents, Has a Breathing/Respiratory Condition**

| State | Generation | Have a breathing/respiratory condition | | |
|---|---|---|---|---|
| | | Applies to Household | Does Not Apply | Subtotal |
| California | Millennials | 37 | 453 | 490 |
| | Generation X | 47 | 428 | 475 |
| | Baby Boomers | 50 | 418 | 468 |
| Colorado | Millennials | 41 | 403 | 444 |
| | Generation X | 41 | 428 | 469 |
| | Baby Boomers | 75 | 378 | 453 |
| Texas | Millennials | 51 | 449 | 500 |
| | Generation X | 36 | 475 | 511 |
| | Baby Boomers | 79 | 428 | 507 |
| Subtotal | Millennials | 129 | 1305 | 1434 |
| | Generation X | 124 | 1331 | 1455 |
| | Baby Boomers | 204 | 1224 | 1428 |
| TOTAL | | 457 | 3860 | 4317 |

**Table 57: Number of Survey Respondents, Have Small Children**

| State | Generation | Have small children | | |
|---|---|---|---|---|
| | | Applies to Household | Does Not Apply | Subtotal |
| California | Millennials | 107 | 383 | 490 |
| | Generation X | 94 | 381 | 475 |
| | Baby Boomers | 15 | 453 | 468 |
| Colorado | Millennials | 136 | 308 | 444 |
| | Generation X | 88 | 381 | 469 |
| | Baby Boomers | 13 | 440 | 453 |
| Texas | Millennials | 151 | 349 | 500 |
| | Generation X | 104 | 407 | 511 |
| | Baby Boomers | 11 | 496 | 507 |
| Subtotal | Millennials | 394 | 1040 | 1434 |
| | Generation X | 286 | 1169 | 1455 |
| | Baby Boomers | 39 | 1389 | 1428 |
| TOTAL | | 719 | 3598 | 4317 |

**Table 58: Number of Survey Respondents, Prefer Not to Walk**

| State | Generation | Prefer Not to Walk | | |
|---|---|---|---|---|
| | | Applies to Household | Does Not Apply | Subtotal |
| California | Millennials | 13 | 477 | 490 |
| | Generation X | 16 | 459 | 475 |
| | Baby Boomers | 20 | 448 | 468 |
| Colorado | Millennials | 5 | 439 | 444 |
| | Generation X | 11 | 458 | 469 |
| | Baby Boomers | 18 | 435 | 453 |
| Texas | Millennials | 13 | 487 | 500 |
| | Generation X | 16 | 495 | 511 |
| | Baby Boomers | 30 | 477 | 507 |
| Subtotal | Millennials | 31 | 1403 | 1434 |
| | Generation X | 43 | 1412 | 1455 |
| | Baby Boomers | 68 | 1360 | 1428 |
| TOTAL | | 142 | 4175 | 4317 |

## 8.15. QUESTION 15 – Gender

Question 15 asked survey respondents, "What is your gender?" Three potential responses were presented:

- Male
- Female
- Other (please specify).

Only one survey respondent chose other and identified as "transgender." Eighteen survey respondents did not respond to the question. The survey respondents were somewhat biased towards female, representing 69% of the total sample. Table 59 shows the breakdown by generation and state.

**Table 59: Number of Male & Female Survey Respondents, by State and Generation**

| State | Generations | Gender | | | | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Other | No Response | Total | % Male |
| California | Millennials | 148 | 339 | 1 | 2 | 490 | 30.2 |
| | Generation X | 178 | 296 | 0 | 1 | 475 | 37.5 |
| | Baby Boomers | 166 | 300 | 0 | 2 | 468 | 35.5 |
| Colorado | Millennials | 117 | 325 | 0 | 2 | 444 | 26.4 |
| | Generation X | 162 | 307 | 0 | 0 | 469 | 34.5 |
| | Baby Boomers | 167 | 285 | 0 | 1 | 453 | 36.9 |
| Texas | Millennials | 114 | 381 | 0 | 5 | 500 | 22.8 |
| | Generation X | 118 | 392 | 0 | 1 | 511 | 23.1 |
| | Baby Boomers | 147 | 356 | 0 | 4 | 507 | 29.0 |
| Total | Millennials | 379 | 1045 | 1 | 9 | 1434 | 26.4 |
| | Generation X | 458 | 995 | 0 | 2 | 1455 | 31.5 |
| | Baby Boomers | 480 | 941 | 0 | 7 | 1428 | 33.6 |
| TOTAL | | 1317 | 2981 | 1 | 18 | 4317 | 30.5 |

Table 59 shows that male Millennials have the lowest representation, representing only 26.4% of the Millennial survey respondents. In addition, the majority of the survey respondents from Texas are women.

## 8.16. QUESTION 16 – Employment Status

Question 16 asked survey respondents, "Which of the following categories applies to you? (Please check all that apply.)" The following nine options were presented:

1) Employed, Full-Time
2) Employed, Part-Time
3) Unable to work due to a disability
4) Retired
5) Homemaker
6) Stay-at-home parent
7) Unemployed
8) Self-Employed
9) Student

Survey respondents were allowed to choose more than one category (e.g. they may be a student that works part-time). The majority of survey respondents, at just over ninety percent, chose only one category as shown in Table 60 later in this section. A little over eight percent chose two categories. 1.3%, 0.2%, 0.1%, chose three, four, and give categories to describe themselves. Only two individuals, which was less than 0.046% did not respond to the question.

Table 61 shows the percentage of survey respondents by state and generation that selected each category. This means that, for example, 43.7% of Millennials in California reported being employed full-time. Similarly, 46.2% of all Millennials reported being employed full-time.

Figure 130 then shows a comparison for each category of the percentage of each generation that selected it.

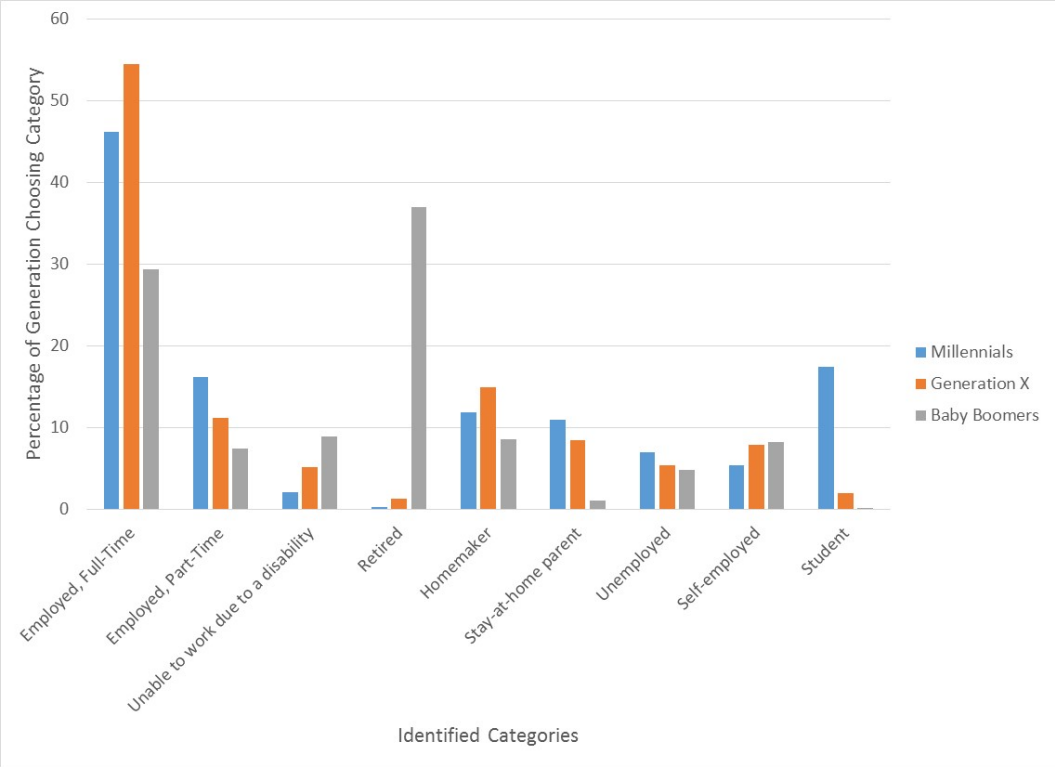



**Figure 130: Percentage of Survey Respondents Choosing Each Employment Category, by Generation**

For example, a greater percentage of Millennial and Generation X survey respondents reported being employed full-time when compared with Baby Boomers. Millennials had the highest percentage of part-time employed survey respondents. Millennials also had the highest percentage, by a significant margin, of students. Millennials also reported a slightly higher percentage of unemployment when compared with the other generational cohorts. Baby Boomers, as expected, reported the highest percentage of retirees. Similarly, we would anticipate that they have the lowest percentage of stay-at-home parents, and the data supports that expectation.

Figure 131 shows the percentage of survey respondents that chose each category by state.

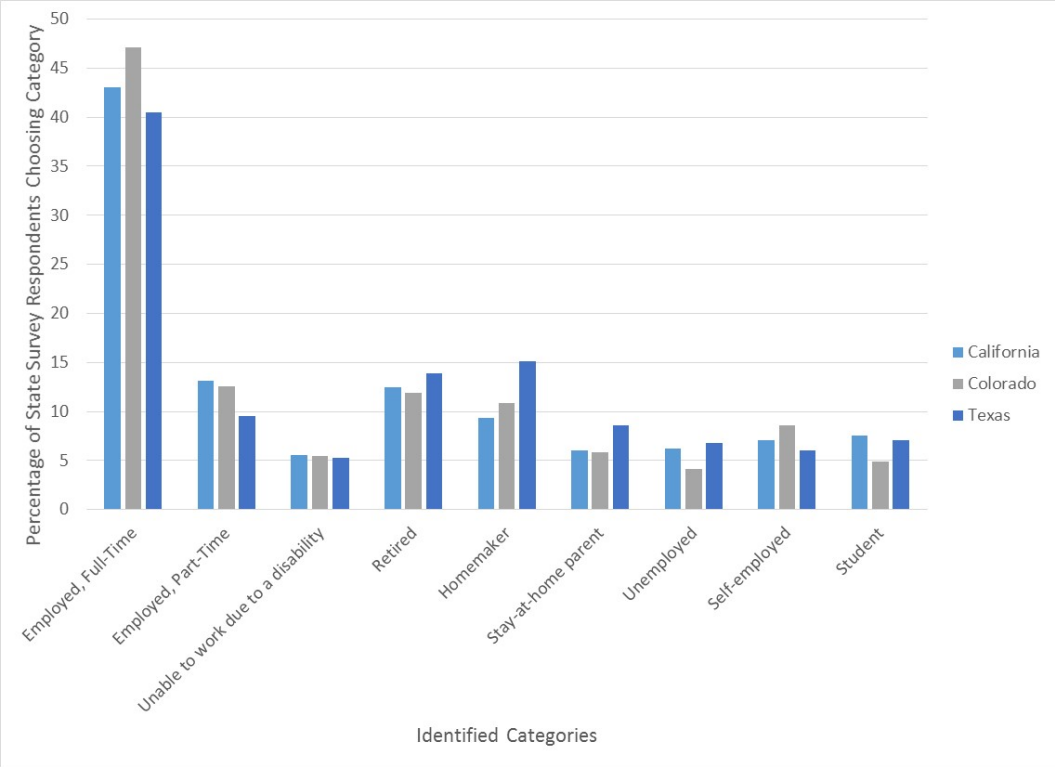



**Figure 131: Percentage of Survey Respondents Choosing Each Employment Category, by State**

Texas survey respondents reported the lowest percentage of both employed, full-time and employed, part-time. However, the state also had larger percentages of retirees, homemakers, and stay-at-home parents. As noted in the discussion for Question 4, where many of the Community Types identified by survey respondents were more rural in nature, these results also suggest more traditional values, as suggested by the higher percentage of survey respondents who indicated that they are homemakers and stay-at-home parents in Texas.

Another interesting result shown in Figure 131 is that in addition to having the highest percentage of survey respondents employed full-time, Colorado also has the largest percentage of survey respondents who reported being self-employed.

These diverging lifestyle differences among the states and generations may help to explain interest by survey respondents in their transportation access to Refuges.

**Table 60: Number of Survey Responses By Employment Category**

| State | Generation | Number of Categories | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | No Repsonse | Subtotal |
| California | Millennials | 421 | 64 | 5 | 0 | 0 | 0 | 490 |
| | Generation X | 435 | 32 | 6 | 0 | 2 | 0 | 475 |
| | Baby Boomers | 448 | 17 | 2 | 1 | 0 | 0 | 468 |
| Colorado | Millennials | 380 | 57 | 6 | 1 | 0 | 0 | 444 |
| | Generation X | 426 | 29 | 8 | 4 | 2 | 0 | 469 |
| | Baby Boomers | 430 | 18 | 4 | 1 | 0 | 0 | 453 |
| Texas | Millennials | 407 | 80 | 12 | 1 | 0 | 0 | 500 |
| | Generation X | 463 | 37 | 10 | 0 | 0 | 1 | 511 |
| | Baby Boomers | 480 | 21 | 5 | 0 | 0 | 1 | 507 |
| Subtotal | Millennials | 1208 | 201 | 23 | 2 | 0 | 0 | 1434 |
| | Generation X | 1324 | 98 | 24 | 4 | 4 | 1 | 1455 |
| | Baby Boomers | 1358 | 56 | 11 | 2 | 0 | 1 | 1428 |
| TOTAL | | 3890 | 355 | 58 | 8 | 4 | 2 | 4317 |
| PERCENTAGE | | 90.1 | 8.2 | 1.3 | 0.2 | 0.1 | 0.0 | 100.0 |

**Table 61: Percentage of Survey Respondents Choosing Employment Category**

| State | Generation | Percentage Choosing Category | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Employed, Full-Time | Employed, Part-Time | Unable to work due to a disability | Retired | Homemaker | Stay-at-home parent | Unemployed | Self-employed | Student |
| California | Millennials | 43.7 | 19.8 | 2.4 | 0.2 | 8.0 | 8.0 | 8.2 | 4.9 | 20.0 |
| | Generation X | 55.2 | 11.6 | 4.2 | 0.6 | 13.1 | 8.8 | 6.1 | 9.3 | 2.1 |
| | Baby Boomers | 30.1 | 7.7 | 10.0 | 37.4 | 7.1 | 1.3 | 4.3 | 7.3 | 0.0 |
| Colorado | Millennials | 55.4 | 13.7 | 1.6 | 0.2 | 10.4 | 11.0 | 4.3 | 6.8 | 12.8 |
| | Generation X | 54.4 | 15.1 | 6.0 | 1.3 | 14.5 | 6.0 | 3.8 | 8.5 | 2.1 |
| | Baby Boomers | 31.6 | 8.6 | 8.8 | 34.4 | 7.5 | 0.7 | 4.4 | 10.4 | 0.0 |
| Texas | Millennials | 40.4 | 15.0 | 2.4 | 0.4 | 17.0 | 13.8 | 8.4 | 4.8 | 19.2 |
| | Generation X | 54.0 | 7.4 | 5.5 | 2.2 | 17.2 | 10.6 | 6.3 | 6.1 | 1.8 |
| | Baby Boomers | 26.8 | 6.3 | 7.9 | 39.1 | 11.0 | 1.4 | 5.7 | 7.3 | 0.4 |
| Percenteage | Millennials | 46.2 | 16.2 | 2.2 | 0.3 | 11.9 | 10.9 | 7.0 | 5.4 | 17.5 |
| | Generation X | 54.5 | 11.3 | 5.2 | 1.4 | 15.0 | 8.5 | 5.4 | 7.9 | 2.0 |
| | Baby Boomers | 29.4 | 7.5 | 8.9 | 37.0 | 8.6 | 1.1 | 4.8 | 8.3 | 0.1 |
| Percentage | | 43.4 | 11.7 | 5.4 | 12.8 | 11.8 | 6.9 | 5.8 | 7.2 | 6.5 |

## 8.17. QUESTION 17 – Household Size

Question 17 asked survey respondents, "Including yourself, how many people currently live in your household?"

The biggest difference between survey respondents when considering household size is related to the two-person households (Figure 132). Colorado has a significantly larger percentage of two-person households when compared with California and Texas.

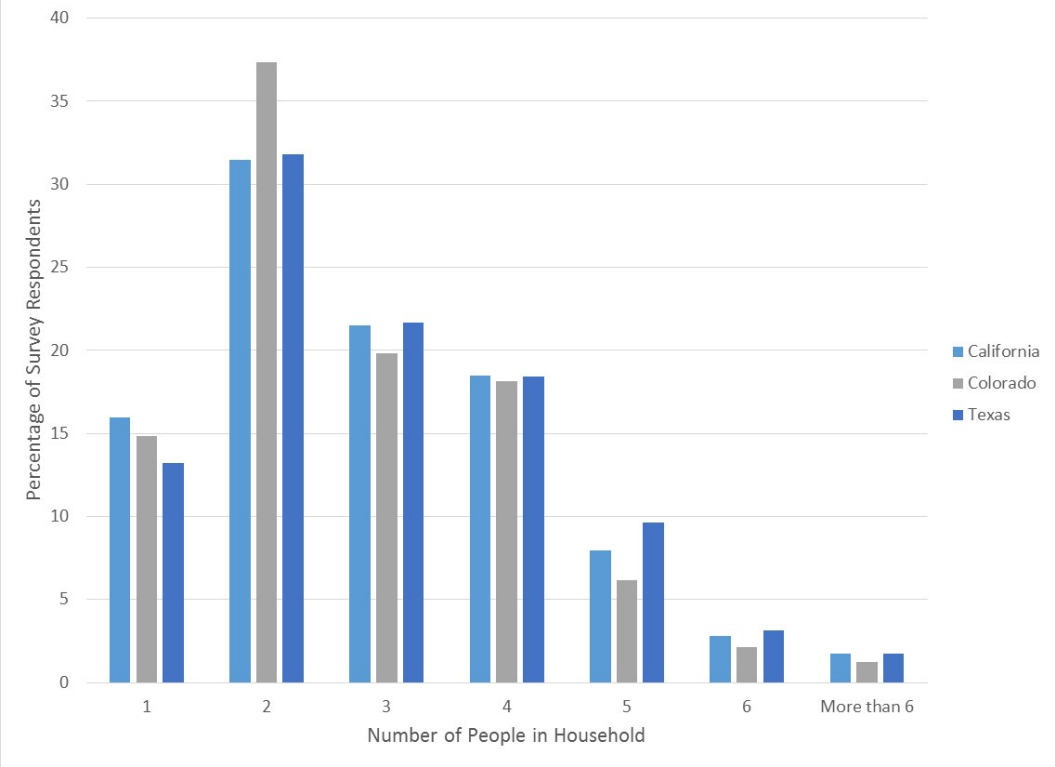



**Figure 132: Number of People in Household, by State**

When considering household sizes by generation, there is a significant difference between Baby Boomers and the younger generations (Figure 133).

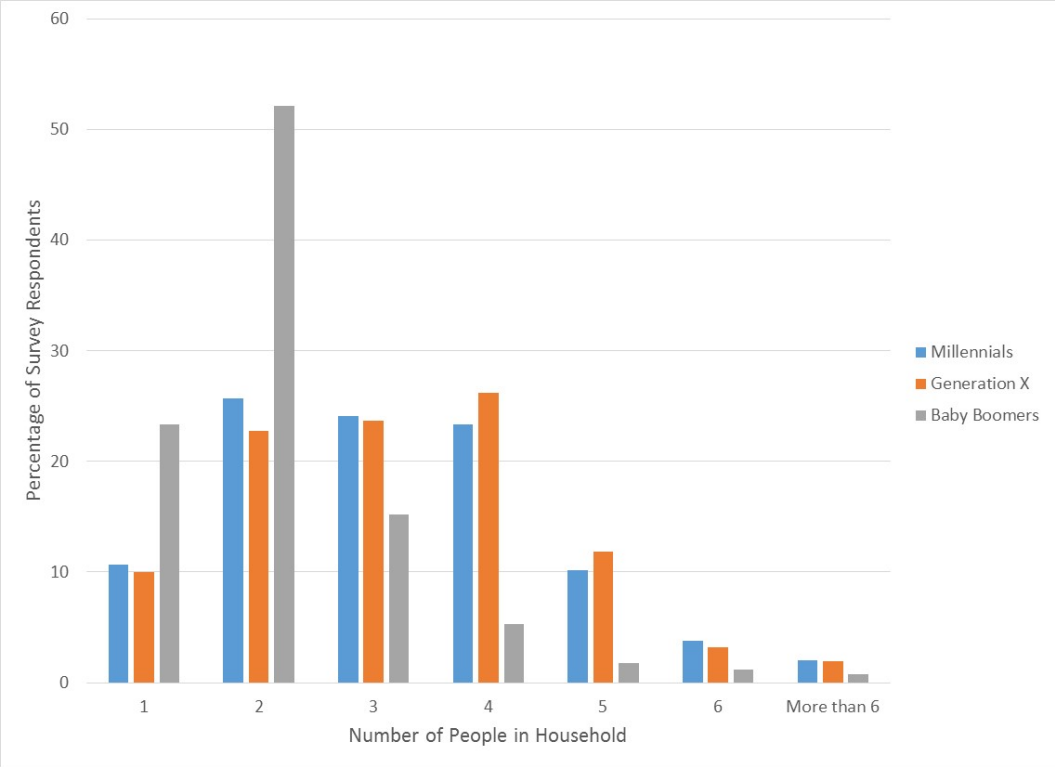



**Figure 133: Number of People in Household, by Generation**

These differences are potentially explained by a combination of the number of children in the household and the living situations of generations. These suggestions of why the differences are apparent will be revisited within Question 18 (Children) and Question 21 (Living Situation).

Colorado also reported the largest percentage, by almost a five percent difference, of two-person households. Survey respondents from Colorado also reported lower percentages as compared with the other states for household sizes greater than 2. Baby Boomers, by far, reported significantly different percentages of one and two-person households, with the latter difference close to fifteen percent. In contrast, Millennials and Generation X survey respondents showed more consistent distributions of their households across the categories, with the majority of households represented by 2, 3 and 4 person households.

## 8.18. QUESTION 18 – Children

Question 18 asked survey respondents, "How many children under the age of 18 live in your household?"

As expected, the majority of Baby Boomer respondents indicated that there were not children 18 and younger in their household (Figure 134). As discussed in the results of the previous question (Question 17, Household Size), this helps to explain some of the significant differences when comparing Baby Boomers with Generation X and Millennials.

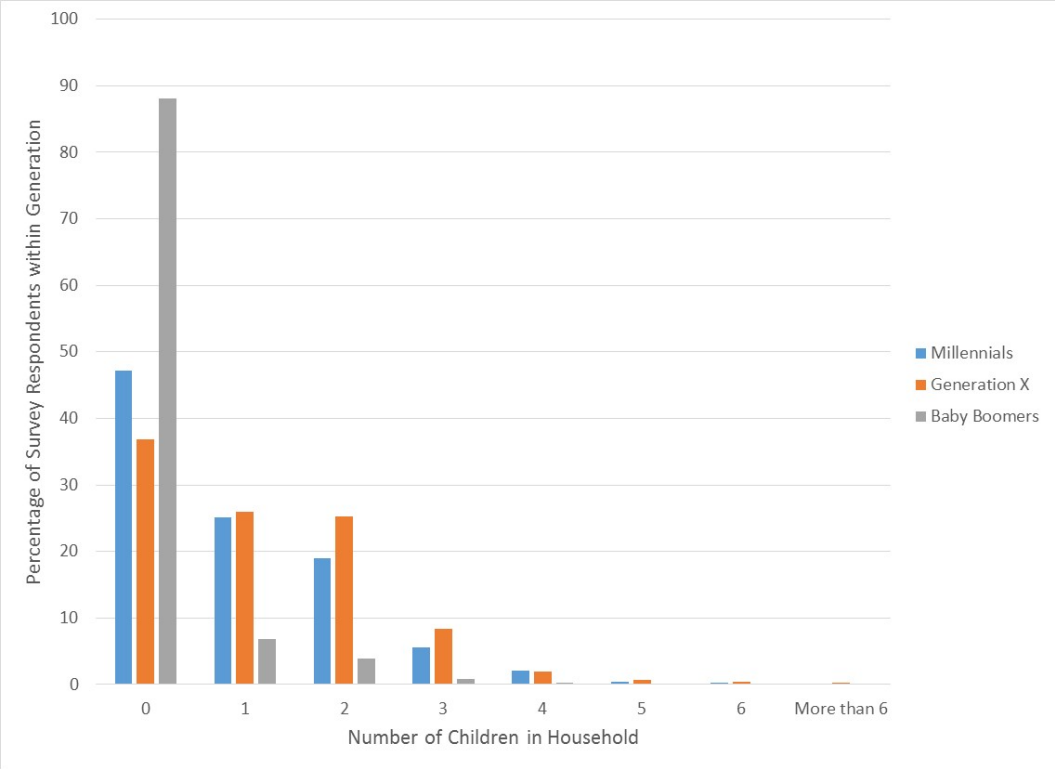



**Figure 134: Number of Children in Household by Percentage of Survey Respondents within Each Generation**

There was also a greater percentage of Millennial survey respondents as compared with Generation X survey respondents who indicated that they did not have children.

There were not any clear differences across states in the number of children under the age of 18 living in the household (Figure 135).

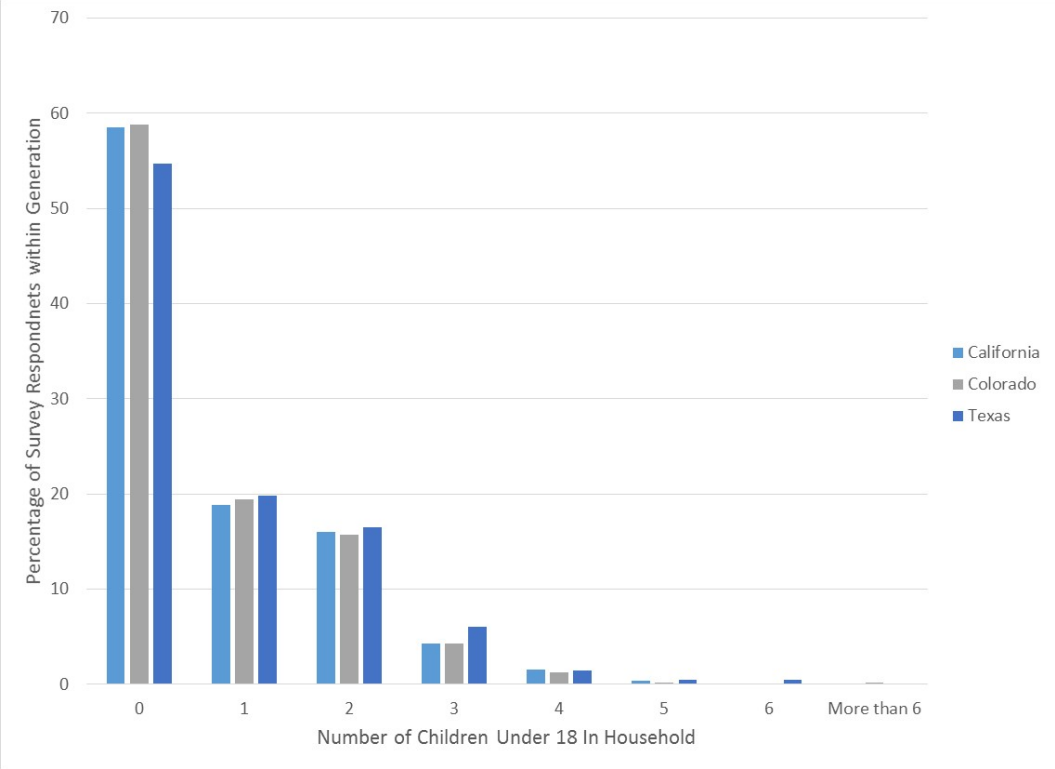



**Figure 135: Number of Children in Household by Percentage of Survey Respondents within Each State**

Therefore, this would not help to explain why in the household size question (Question 17) there are significantly more two-person households when compared with the other states. It is possible that the living situation of survey respondents may help to explain the larger percentage of two person households for survey respondents in Colorado when compared with survey respondents in California and Texas (Question 21).

## 8.19. QUESTION 19 – Residence

Question 19 asked survey respondents, "How long have you lived at your current residence?" The following four options were presented:

- 1 year or less
- More than 1 year but less than 5 years
- More than 5 years but less than 10 years
- More than 10 years

When looking at the results by state, it would appear that California survey respondents have lived at their residences the longest (Figure 136).

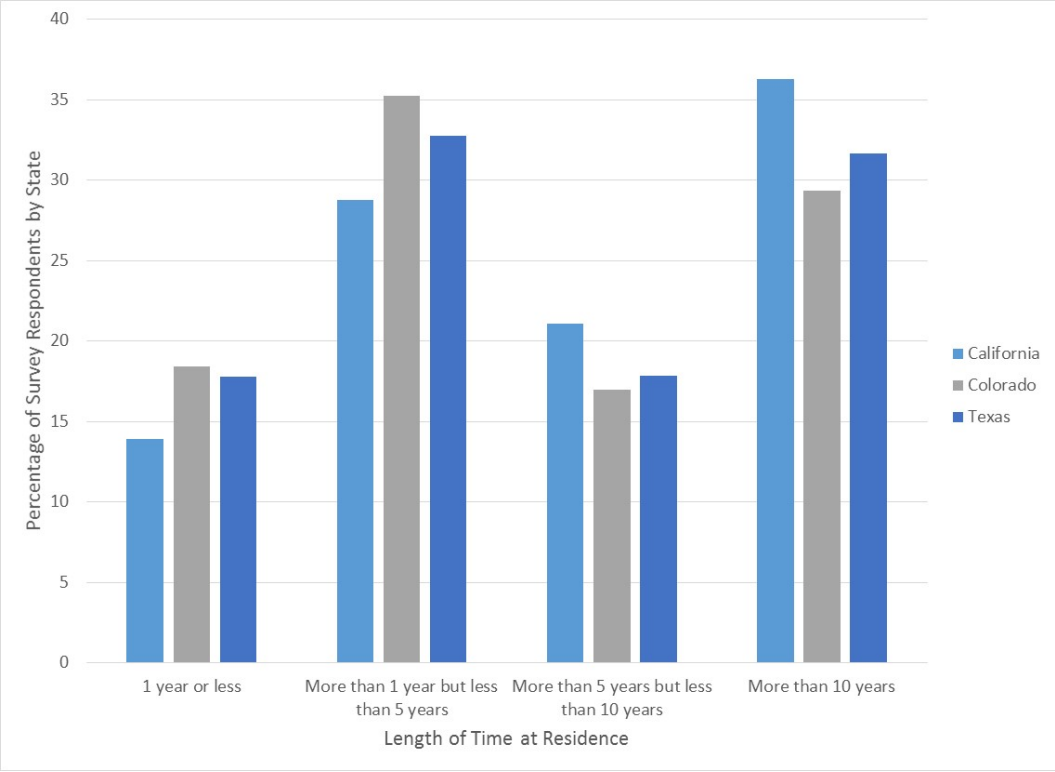



**Figure 136: Length of Time Living at Current Residence, by State**

This result could, in part, reflect the high cost of living in California. In 2016, California was ranked as the fourth more expensive state to live in within the United States, with average home prices in some places reported at just under one million dollars (41). Considering the cost of commission for realtors, financing and the like, it may not be desirable or feasible to relocate as frequently. Neither one of the other two states that were included in the study rank within the top ten most expensive states to live.

As expected, and likely largely reflective of the survey respondents' stage in their life, Millennials reported living at their current residence for shorter periods of time with Baby

Boomers reporting living at their current residence for longer periods of time and Generation X somewhere in between (Figure 137).

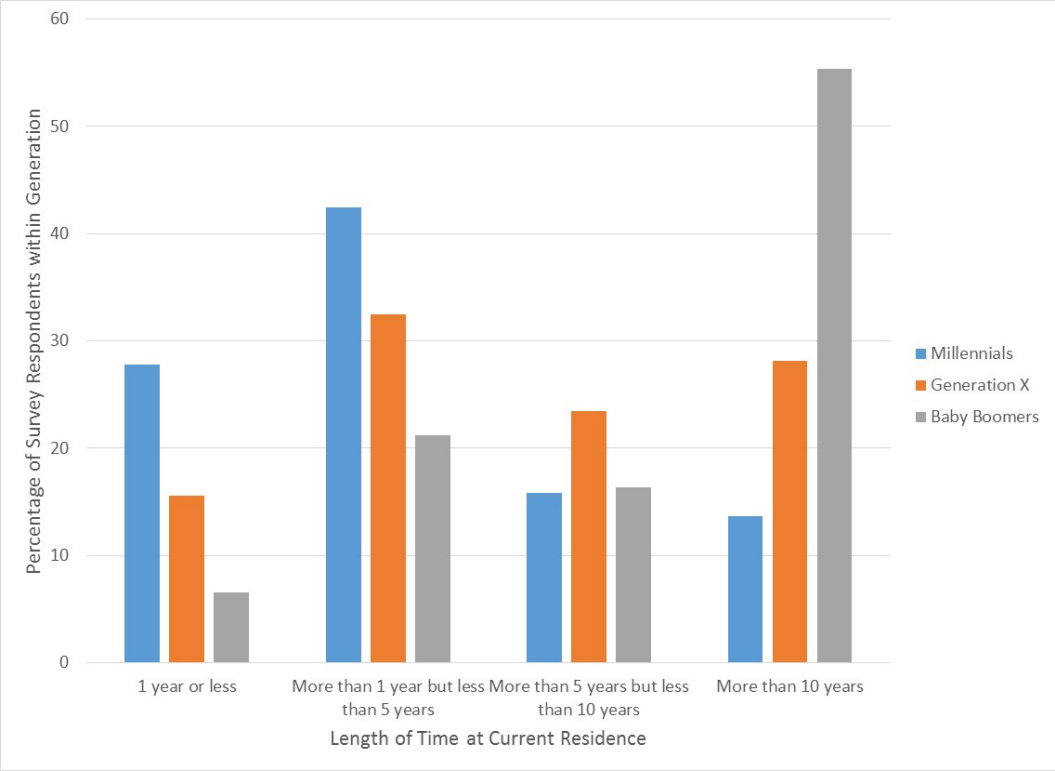



**Figure 137: Length of Time Living at Current Residence, by Generation**

## 8.20. QUESTION 20 – Operable Vehicle

Question 20 asked survey respondents, “How many operable vehicle(s) are available for use by your household?”

When considering the survey responses by state, California survey respondents reported a slightly greater percentage of zero-vehicle households (Figure 138), with Texas reporting the fewest.

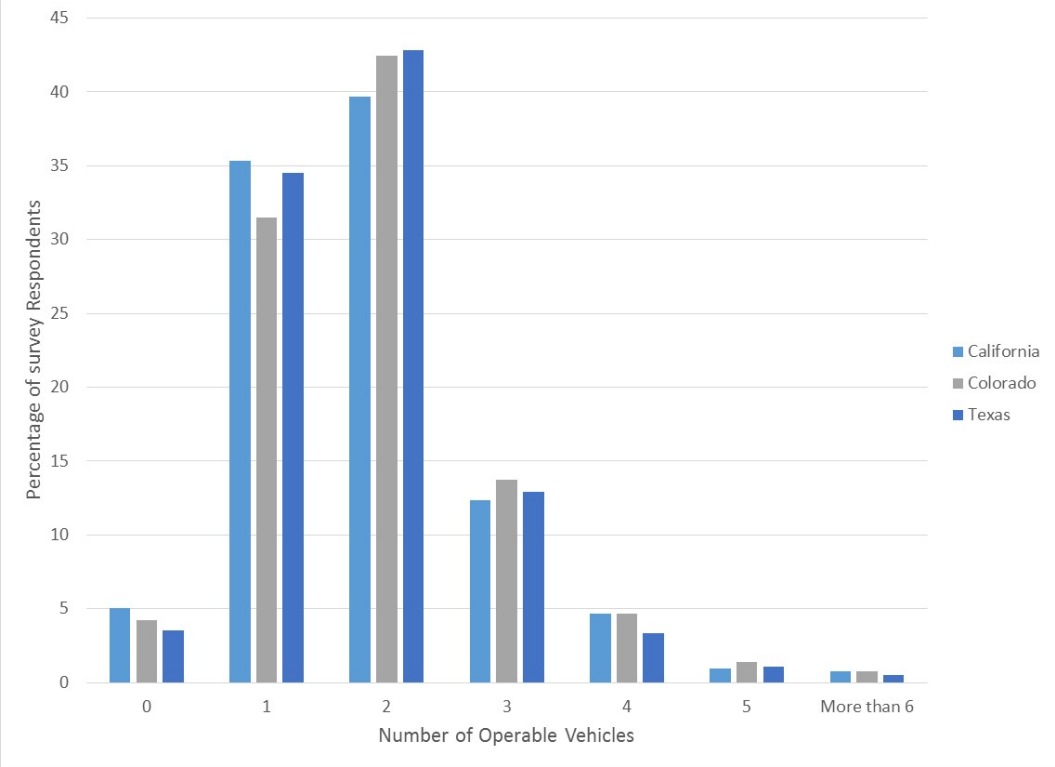



**Figure 138: Number of Operable Vehicles in Household, by State**

While California is known for its traffic jams, there also appears to be more of an interest in using public transportation in California as compared with Texas (see Question 5, Figure 12), which seems to be indirectly reflected in the slightly greater percentage of zero car households reported in California. The slight increase could also be a reflection of the higher cost of living associated with California, which was also discussed in Question 19.

Furthermore, the results seem to suggest that Colorado survey respondents tended to have households that have a greater number of vehicles when compared with the other two states (see the slightly larger percentages of 3 and 5 vehicles households in Figure 138). This could, in part, explain the reduced interest by survey respondents from Colorado in non-personal vehicle options to travel around a Refuge, shown in the results of Figure 26, Figure 28, and Figure 30 when compared with an option that implied personal vehicle access (Figure 31) in Question 8.

When considering the results by generation, Millennials do not seem to show more of an interest in zero-vehicle households than other generations (Figure 139).

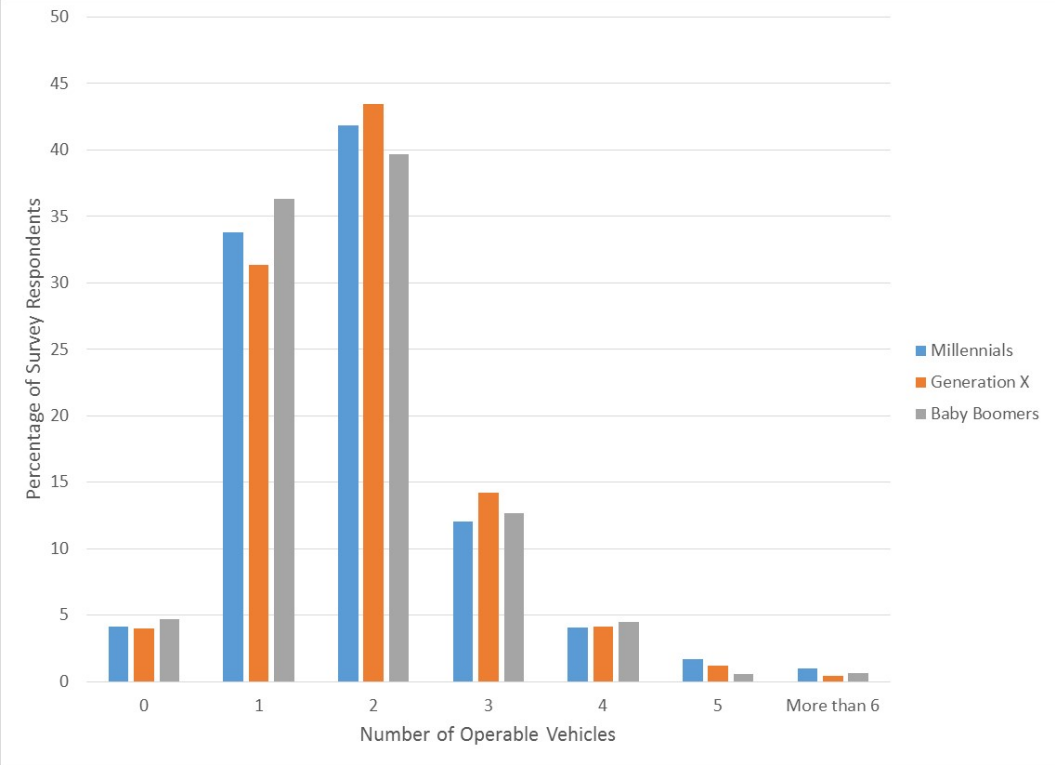



**Figure 139: Number of Operable Vehicles in Household, by Generation**

These results, therefore, do not suggest that Millennials are engaging in car-free lifestyles, as sometimes purported by popular media. However, again, it could also possibly reflect the difficulty with living and working in most places throughout the United States without a private vehicle – our transportation systems are designed primarily for travel by vehicle.

## 8.21. QUESTION 21 – Living Situation

Question 21 asked survey respondents, "Which of the following best describes your current living situation?" The following five responses were presented:

- Married and living with my spouse
- Living with a significant other or partner
- Living with parents or other family members
- Living with roommates or friends
- Living alone

Table 62 in Appendix C presents the total count of survey respondents for each living situation by state and generation. Figure 140 shows that California has approximately 5% less of survey respondents reporting that they are "Married and living with my spouse." California also has the largest percentage of respondents who indicated that they are "Living with roommates or friends." California and Texas reported the largest percentage of survey respondents "Living with parents or other family members." As a whole, California, which also has the largest designated metropolitan statistical areas (MSA), seems to have the largest percentage of survey respondents who are living in a multi-family situation.

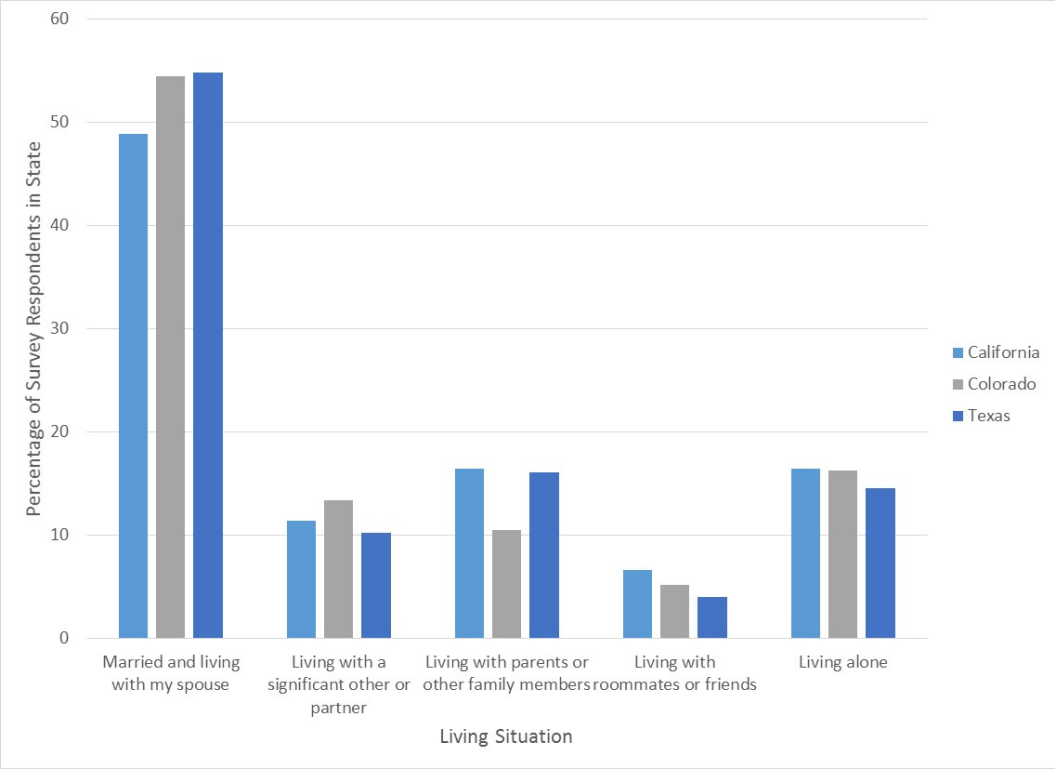



**Figure 140: Living Situation, By State**

As discussed earlier, the number of children in a household did not seem to explain why Colorado had a greater percentage of two person households as compared with the other states. However, Figure 140 provides some possible explanation for the difference – Colorado survey

respondents report “Living with parents or other family members” almost four percent less often when compared with California and Texas.

Figure 141 shows the percentage of survey respondents reporting the various living situations by generation.

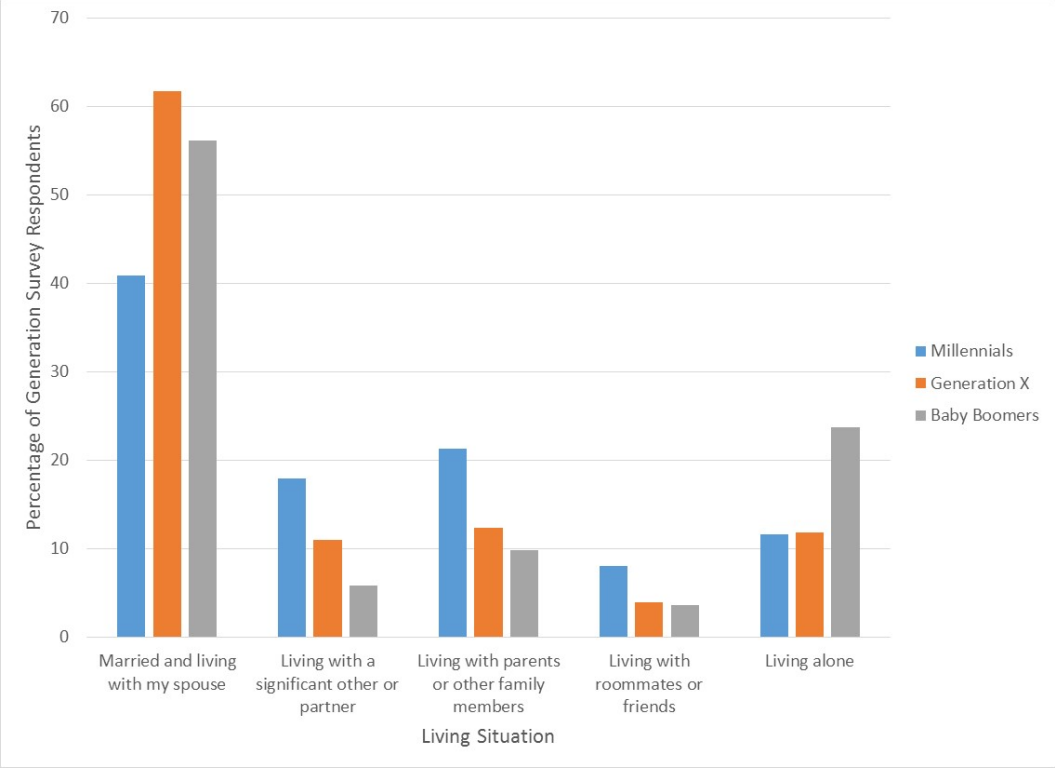



**Figure 141: Living Situation, By Generation**

As discussed when analyzing the results of Question 17 (Household Size), this appears to help explain the remaining variation between the Baby Boomer generation and the Millennial and Generation X generations, as the majority of Baby Boomers reported “Married and living with my spouse” or “Living alone,” with few reporting “Living with roommates or friends” and “Living with parents or other family members.” These latter two categories are those commonly associated with larger household sizes.

The results, which are largely from MSAs, show that by far, Millennial survey respondents reported least frequently “Married and living with my spouse.” Furthermore, they had the largest percentage of survey respondents indicating that they are “Living with a significant other or partner,” “Living with parents or other family members,” “and “Living with roommates.” As compared with another study that drew data largely from non-MSAs where Millennial survey respondents reported more similar living situations as compared with non-Millennials, this study shows more differences. This suggests that Millennials in more urban areas are more representative of the less traditional living situations.

**Table 62: Living Situation, by State and Generation**

| State | Generation | Living Situation | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Married and living with my spouse | Living with a significant other or partner | Living with parents or other family members | Living with roommates or friends | Living alone | No Response | Subtotal |
| California | Millennials | 173 | 87 | 120 | 47 | 62 | 1 | 490 |
| | Generation X | 285 | 48 | 68 | 21 | 50 | 3 | 475 |
| | Baby Boomers | 242 | 28 | 48 | 26 | 123 | 1 | 468 |
| Colorado | Millennials | 194 | 97 | 65 | 37 | 50 | 1 | 444 |
| | Generation X | 289 | 54 | 43 | 18 | 64 | 1 | 469 |
| | Baby Boomers | 261 | 31 | 35 | 16 | 108 | 2 | 453 |
| Texas | Millennials | 219 | 74 | 120 | 32 | 55 | 0 | 500 |
| | Generation X | 311 | 56 | 66 | 18 | 56 | 4 | 511 |
| | Baby Boomers | 302 | 25 | 58 | 10 | 109 | 3 | 507 |
| Subtotal | Millennials | 586 | 258 | 305 | 116 | 167 | 2 | 1434 |
| | Generation X | 885 | 158 | 177 | 57 | 170 | 8 | 1455 |
| | Baby Boomers | 805 | 84 | 141 | 52 | 340 | 6 | 1428 |
| TOTAL | | 2276 | 500 | 623 | 225 | 677 | 16 | 4317 |

## 8.22. QUESTION 22 – Household Income

Question 22 asked survey respondents, "What was your total household income before taxes in 2015?" The following six categories were provided:

- Less than $25,000
- $25,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $149,999
- $150,000 or more

When comparing generations, Millennials were over-represented in the lower household income categories (Figure 142). Generation X respondents were more broadly spread across the categories.

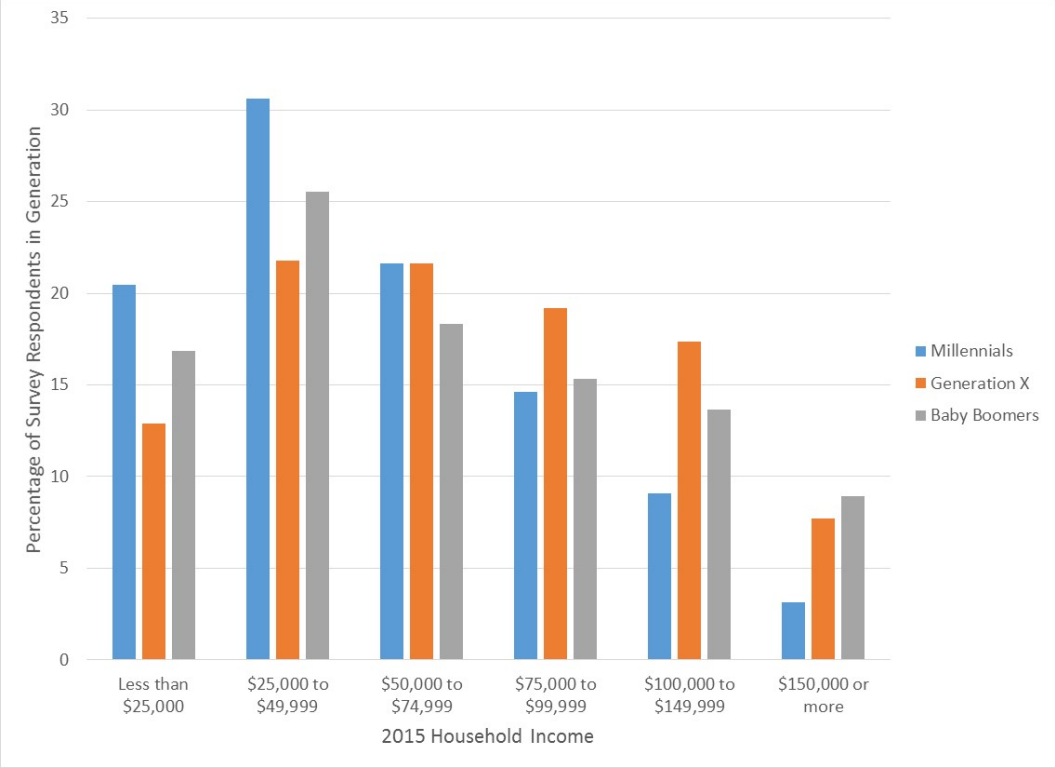



**Figure 142: 2015 Household Income, by Generation**

California and Texas had a higher representation of lower income earners as compared with Colorado (Figure 143).

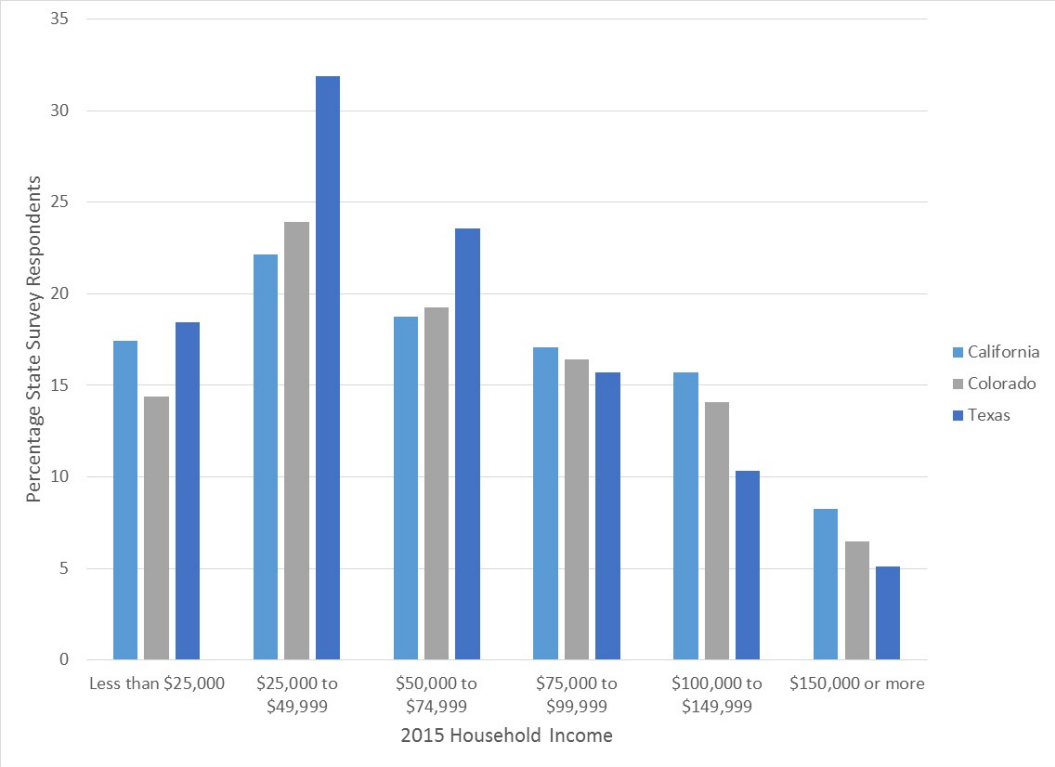



**Figure 143: 2015 Household Income, by State**

Texas also had a significantly higher representation of those reporting incomes in the $25,000 to $49,999 and $50,000 to $74,999 as compared with the $100,000 to $149,999 and $150,000 or more when compared with the other two states.

Because of the higher representation of the lower income category associated with the Millennials, the author wanted to consider whether there was any pattern to the location of respondents who fell into this income category. The following figures show the zip code locations of where Millennial survey respondents earning less than $25,000 live by state (Note: the map for Texas is presented and discussed in the Significant Survey Results section.).

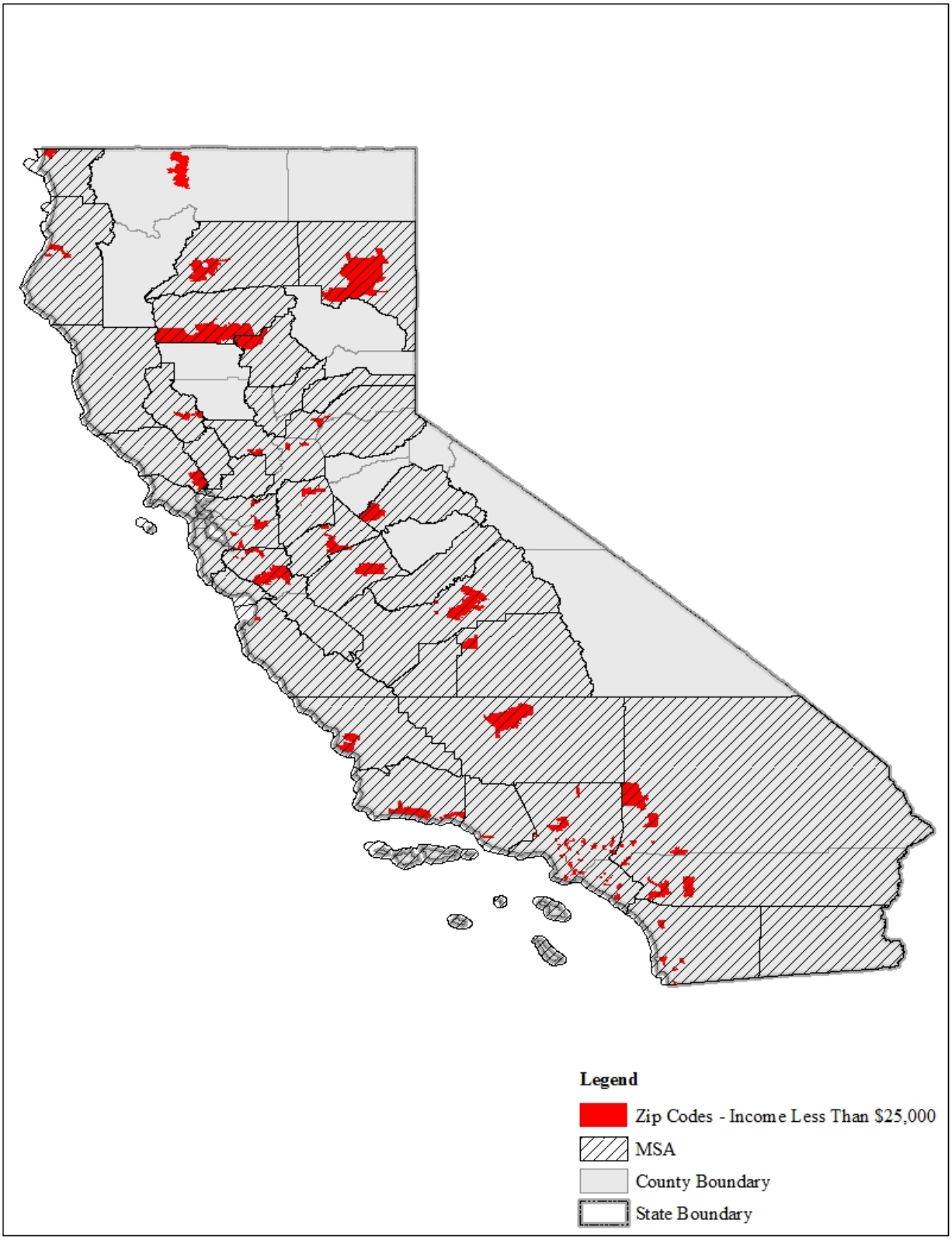



**Figure 144: California Millennials Earning Less Than $25,000**

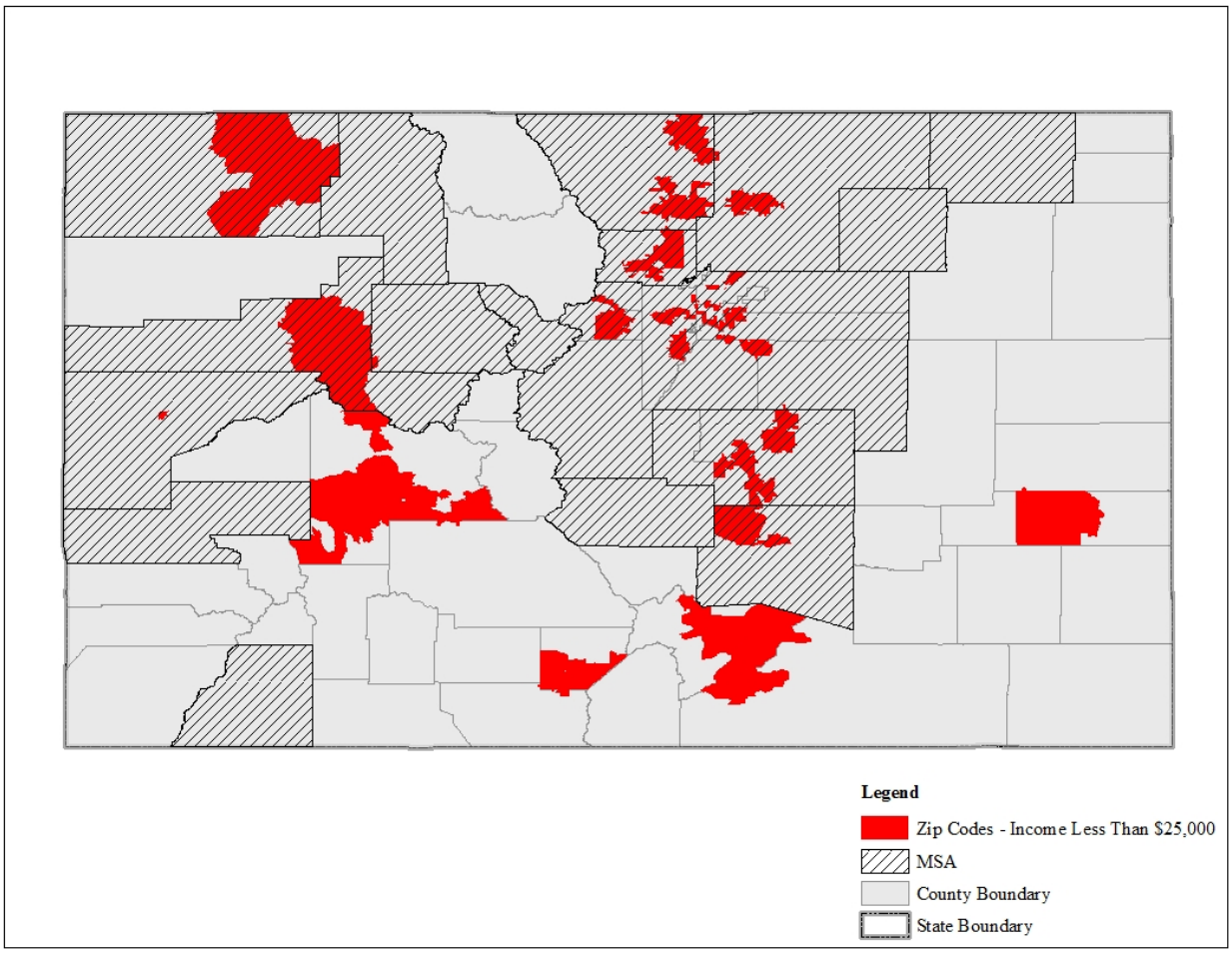



**Figure 145: Colorado Millennials Earning Less Than $25,000**

In general, no obvious patterns appear. The majority of Millennials seem to be living in areas that are designated as metropolitan statistical areas (MSAs).

The researchers wanted to better understand if the survey respondents captured in the sample showed an interest in home public transportation use as compared with income. First, the researchers looked at the reported levels of public transportation use for each income bracket.

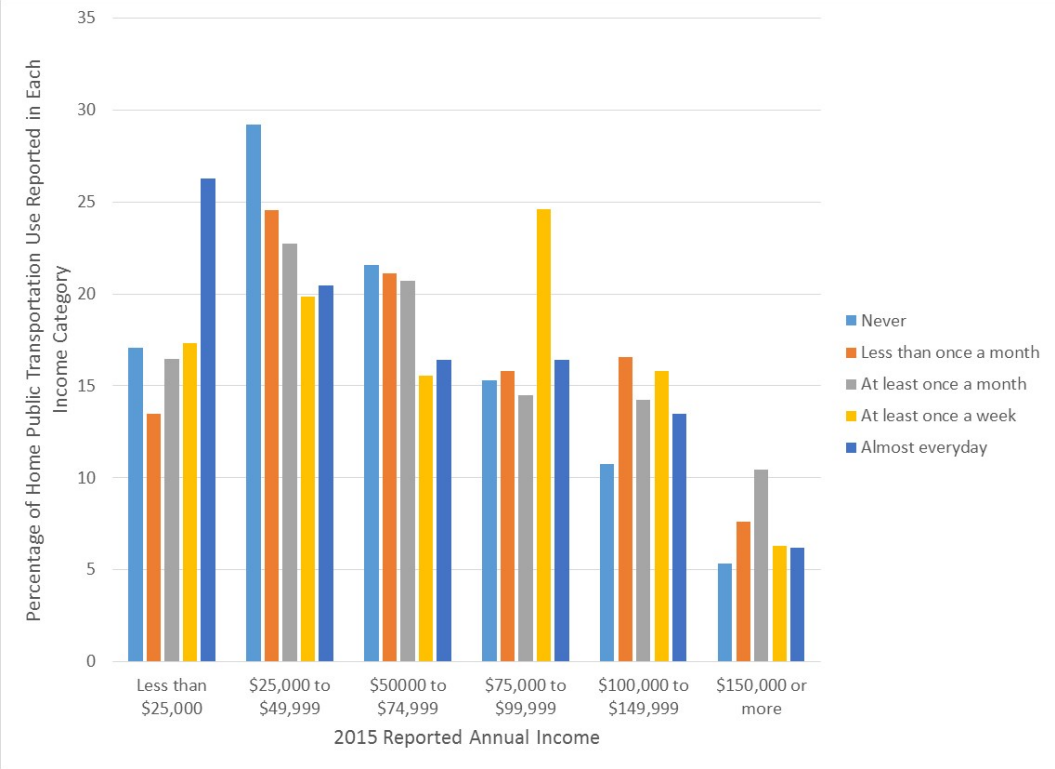



**Figure 146: Level of Public Transportation Use at Home For Each Income Bracket**

Figure 146 shows a few interesting outcomes. First, those in the lowest income bracket (Less than $25,000) had the largest percentage of survey respondents reporting using public transportation every day. This clearly shows that a large percentage of lower income earners rely heavily on public transportation. In addition, in the next income bracket up ($25,000 to $49,999), a larger percentage of these income earners reported never using public transportation at home. It is interesting to note the difference between just the slight step-up, and hints that it would be worthwhile to look further at income across these brackets and public transportation use to understand where the change occurs (which cannot be done with this data set since income levels were bracketed). Finally, the other interesting point is that those in the $75,000 to $99,999 income bracket indicated that they used public transportation at least once a week. There is a potential benefit in better understanding this income bracket and their wants and needs from a public transportation perspective (i.e. do they want WIFI; how frequently do they demand service) to try to better market public transportation to this group.

Then the researchers grouped the data so that they could look at each level of public transportation use by comparing the income brackets.

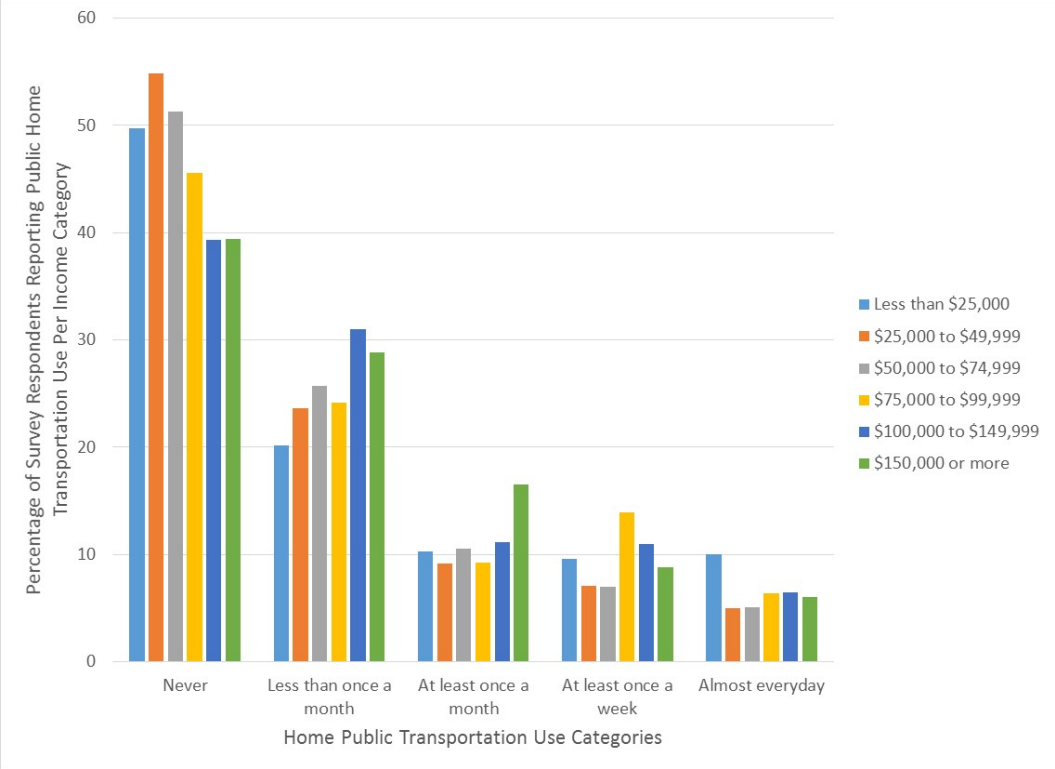



**Figure 147: Level of Public Transportation Use at Home For Each Level of Use of Public Transportation at Home**

The interesting results from looking at the data from this perspective would suggest that the highest income earners are more frequent public transportation users. However, this could hint at the limited sample size of this income bracket (less than 300) (Table 63).

**Table 63: Household Income in 2015**

| State | Generation | Household Income in 2015 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Less than $25,000 | $25,000 to $49,999 | $50,000 to $74,999 | $75,000 to $99,999 | $100,000 to $149,999 | $150,000 or more | No Response | Total |
| California | Millennials | 115 | 133 | 98 | 67 | 53 | 23 | 1 | 490 |
| | Generation X | 53 | 81 | 96 | 94 | 97 | 51 | 3 | 475 |
| | Baby Boomers | 82 | 103 | 75 | 84 | 75 | 44 | 5 | 468 |
| Colorado | Millennials | 75 | 135 | 97 | 85 | 39 | 11 | 2 | 444 |
| | Generation X | 55 | 99 | 103 | 76 | 90 | 40 | 6 | 469 |
| | Baby Boomers | 76 | 109 | 76 | 74 | 73 | 42 | 3 | 453 |
| Texas | Millennials | 103 | 171 | 115 | 58 | 38 | 11 | 4 | 500 |
| | Generation X | 77 | 132 | 111 | 105 | 62 | 20 | 4 | 511 |
| | Baby Boomers | 84 | 154 | 112 | 62 | 48 | 42 | 5 | 507 |
| Total | Millennials | 293 | 439 | 310 | 210 | 130 | 45 | 7 | 1434 |
| | Generation X | 185 | 312 | 310 | 275 | 249 | 111 | 13 | 1455 |
| | Baby Boomers | 242 | 366 | 263 | 220 | 196 | 128 | 13 | 1428 |
| TOTAL | | 720 | 1117 | 883 | 705 | 575 | 284 | 33 | 4317 |

The data does show that high income earners will periodically use public transportation. Another interesting result of Figure 147 is that the frequent use of public transportation at home by low income earners (less than $25,000) is again apparent.

## 8.23. QUESTION 23 – Level of Education

Question 23 asked survey respondents, "Please indicate the highest level of education that you have completed. (Please select only one.)" The following seven options were presented:

1) Less than High School
2) High School Graduation/GED
3) Vocational or Technical School Certificate
4) Associate's Degree
5) Some College
6) Bachelor's Degree
7) Graduate degree or professional degree (MA, MS, PhD, JD, MBA, etc.)

When looking at the results by state, Texas survey respondents have the largest differences in education level when compared with California and Colorado (Figure 148).

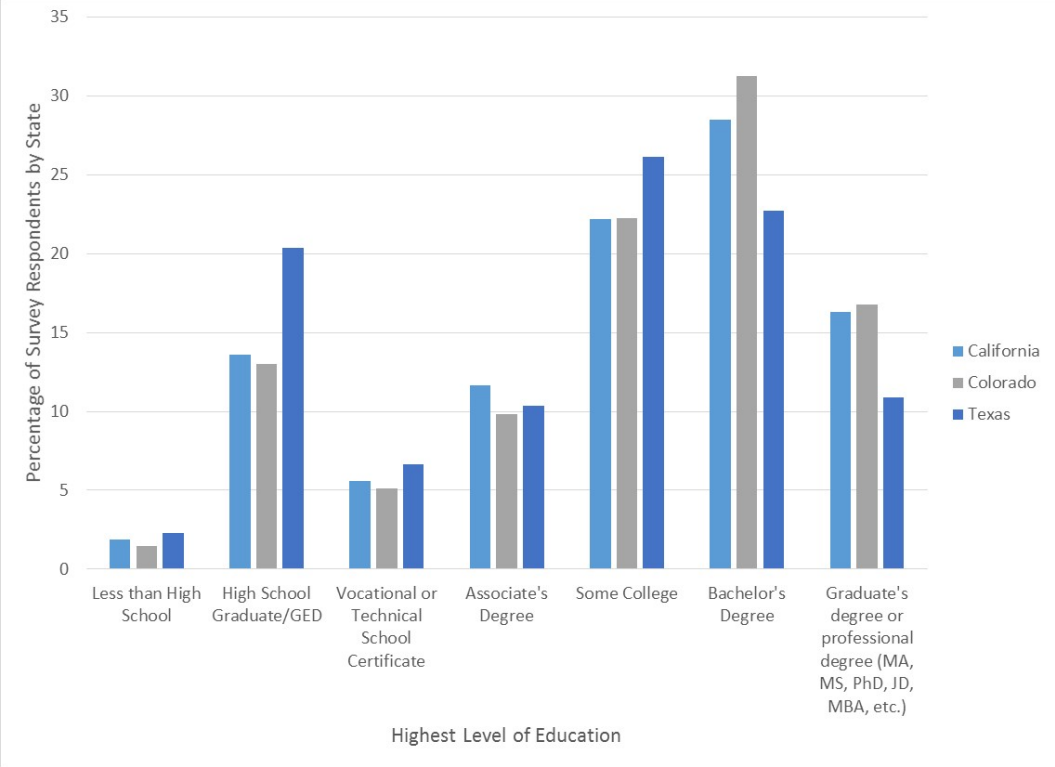



**Figure 148: Highest Educational Attainment, By State**

Texas survey respondents have almost five percent fewer survey respondents reporting that they have a graduate's degree or professional degree when compared with the other two states. In addition, Texas has more than five percent fewer respondents reporting that they have a bachelor's degree than both California and Colorado. In contrast, about four percent more of Texas survey respondents reported having some college. The majority of this difference is accounted for in the high school category.

## 8.24. QUESTION 24 – Hispanic/Latino

Question 24 asked survey respondents, "Are you of Hispanic or Latino origin or descent?" Two answers were provided:

- Yes, Hispanic or Latino
- No, not Hispanic or Latino

While not explicitly provided with the option, as directed in the introduction, survey respondents could choose to skip the question, and were subsequently recorded as "No Response." Approximately 16% of all survey respondents reported being Hispanic/Latino(a) (Table 64). As expected, in every state, the Millennial generation reported the largest percentages of Hispanic/Latino(a) representation (28% in California, 17% in Colorado, and 28% in Texas), and the Baby Boomer generation reported the smallest representation.

**Table 64: Hispanic/Latino(a) vs. Non-Hispanic/Latino(a) Representation by State and Generation**

| State | Generations | Hispanic/Latino(a) | Not Hispanic/Latino(a) | No Response | TOTAL | Percentage |
|---|---|---|---|---|---|---|
| California | Millennials | 138 | 352 | 0 | 490 | 28 |
| | Generation X | 80 | 392 | 3 | 475 | 17 |
| | Baby Boomers | 37 | 429 | 2 | 468 | 8 |
| Colorado | Millennials | 74 | 365 | 5 | 444 | 17 |
| | Generation X | 48 | 416 | 5 | 469 | 10 |
| | Baby Boomers | 27 | 423 | 3 | 453 | 6 |
| Texas | Millennials | 140 | 358 | 2 | 500 | 28 |
| | Generation X | 100 | 410 | 1 | 511 | 20 |
| | Baby Boomers | 38 | 467 | 2 | 507 | 7 |
| Total | Millennials | 352 | 1075 | 7 | 1434 | 25 |
| | Generation X | 228 | 1218 | 9 | 1455 | 16 |
| | Baby Boomers | 102 | 1319 | 7 | 1428 | 7 |
| TOTAL | | 682 | 3612 | 23 | 4317 | 16 |

Compared to the findings from the 2010 U.S. Census (42), the representation of Hispanic/Latino respondents in our sample is about a third of the national representation. For California, while the overall percentage is less, the Millennial proportion is in line with the U.S. Census findings (28% vs. 27.8%). For Colorado, our sample is significantly less than that found in the U.S. Census, even for Millennials (17% vs. 41.2%). For Texas, the average and the percentage for Millennials is also significantly less than that found from the U.S. Census (28% vs. 41.8%). Therefore, there is less information than desired from Hispanic/Latinos in Colorado and Texas.

## 8.25. QUESTION 25 - Race

Question 25 asked survey respondents, "With which racial group(s) do you most closely identify? (Please select one or more.)" Five answer options were presented:

- American Indian/or Alaska Native
- Asian
- Black or/African American
- Native Hawaiian or other Pacific Islander
- White

Across the entire sample, 3.2%, 6.8%, 7.2%, 0.7%, and 84.9% identified as American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian or other Pacific Islander, and White, respectively. The U.S. Census Bureau reports that nationally, 0.9%, 5.6%, 13.3%, 0.2%, and 77.1% of the population is American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian or other Pacific Islander, and White, respectively (43). Therefore, when looking at our sample in comparison to the national average, the data oversampled on American Indian/Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and White. Black/African American was undersampled. However, this research also only drew from three states (California, Colorado, and Texas). Therefore, in the subsequent sections which discuss the breakdowns by state and generation, the sections will also discuss how the break-downs compare to the state percentages.

While survey respondents were allowed to identify more than one racial group, 95.6% of the sample identified only one racial group. This would leave 4.4% of the sample as identifying two or more races compared with 2.6% reported nationally (43).

### *American Indian/Alaska Native*

The U.S. Census Bureau reported that 1.7%, 1.6%, and 0.7% of California, Colorado, and Texas, respectively were American Indian/Alaska Native (43). The sample collected for this research found that 3.9%, 2.9%, and 2.8% of California, Colorado and Texas, respectively were American Indian/Alaska Native. Therefore, the sample for this study typically doubled that found within each state average, with Texas having a significantly larger representation (almost four times).

By generation, 3.8%, 3.2%, and 2.5% of Millennials, Generation X, and Baby Boomers identified as American Indian/Alaska Native in the collected sample.

### *Asian*

The U.S. Census Bureau reported that 14.7%, 3.2%, and 4.7% of California, Colorado, and Texas, respectively, were Asian (43). The sample collected for this research found that 13.1%, 3.5%, and 3.8% of California, Colorado and Texas, respectively were Asian. California and Texas had a lower percentage in the sample for this study as compared with that found in the states' populations. The sample for Colorado, however, seemed to be in line with that found as a state average. As the perception is that online surveys are biased toward White, it was surprising to the author how large the percentage of Asian survey respondents was in California when

compared with other states. By generation, 9.6%, 6.9%, and 3.9% of Millennials, Generation X, and Baby Boomers identified as Asian.

### *Black/African American*

The U.S. Census Bureau reported that 6.5%, 4.5%, and 12.5% of California, Colorado, and Texas, respectively, were Black/African American (43). The sample collected for this research found that 6.6%, 4.9%, and 9.7% of California, Colorado and Texas, respectively were Black/African American. The sample collected for the research project had a slightly higher percentage for California and Colorado but a lower percentage for Texas. Overall, there is a slight underrepresentation of Black/African American.

By generation, 8.4%, 7.0%, and 6.1% of Millennials, Generation X, and Baby Boomer survey respondents identified as Black/African American.

### *Native Hawaiian/Other Pacific Islander*

The U.S. Census Bureau reported that 0.5%, 0.2%, and 0.1% of California, Colorado, and Texas, respectively are Native Hawaiian or other Pacific Islander (43). The sample collected for this research found that 1.0%, 0.4%, and 0.7% of California, Colorado and Texas, respectively were Native Hawaiian/other Pacific Islander. Therefore, across all states, Native Hawaiian/other Pacific Islander were overrepresented; however, the percentages are small.

By generation, 1.3%, 0.7%, and 0.2% of Millennials, Generation X, and Baby Boomer survey respondents identified as Native Hawaiian/other Pacific Islander.

### *White*

The U.S. Census Bureau reported that 72.9%, 87.5%, and 79.7% of California, Colorado, and Texas, respectively are White (43). The sample collected for this research found that 78.8%, 91.0%, and 85.3% of California, Colorado and Texas, respectively were White. Therefore, across all states, White survey respondents are overrepresented. The author was a bit surprised at how large, both according to the U.S Census Bureau and as within the study sample, the percentage of White survey respondents was in Colorado. The author expected that state to report, within the U.S. Census Bureau, a more diverse population.

By generation, 80.2%, 85.6%, and 89.1% of Millennials, Generation X, and Baby Boomer survey respondents identified as White.

### *Multi-Racial*

The U.S. Census Bureau reported that 3.8%, 2.9%, and 1.9% of Californians, Coloradans, and Texans, respectively, identify as two or more races (43). The sample collected for this research found that 5.5%, 4.3%, and 3.3% of California, Colorado and Texas, respectively, identify as two or more races. Therefore, it would appear that in the survey sample collected for this study, a larger percentage of survey respondents than reported for the state overall identify as multi-racial.

By generation, 6.6%, 3.7%, and 2.8% of Millennials, Generation X, and Baby Boomers identified more than one race.

*Summary*

Overall, the collected sample seems to represent the U.S. Census Bureau percentages, when analyzed by state, well. There are some examples of overrepresentation (American Indian/Native Alaskan; Native Hawaiian/other Pacific Islander; and White) and also some examples of underrepresentation of races. As expected, the Millennial generation survey respondents identified the largest percentage of non-White race categories. The Millennial generation also had the greatest number of survey respondents who did not respond to this question. While this could in-part reflect their more technically savvy ability to understand that they could skip the question without answering, it could also hint that Millennials are either offended by the question or feel that race or the fixed categories do not define them as much as the older generations.

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