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Attitudes Toward Water Conservation, Supply Management, and Distribution: The Results of a Survey of San Francisco Voters

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KEY FINDINGS

- Environmental concerns serve a significant motivational role in a person's likelihood to conserve water.
- Survey respondents were more inclined to conserve water to protect the environment than to enable more development. Looking at the three measures that focused on development, however, it is clear that voters favor the creation of affordable housing over market rate housing or office space.
- Respondents were more supportive of using recycled water for irrigation than of blending groundwater with drinking water to increase supplies. However, respondents grew more favorable toward the latter when they believed it had a positive effect on the environment.
- The majority of respondents believe that the growth estimated to result from "Plan Bay Area" would somewhat worsen (33%, $n = 130$) or greatly worsen (32%, $n = 123$) their quality of life. Conversely, 8% ($n = 33$) believe "Plan Bay Area" would somewhat improve their quality of life and only 3% ($n = 11$) believe it would greatly improve their quality of life. A large portion of the sample (24%; $n = 92$) had no opinion on the matter.
- The majority of participants favor making the members of the San Francisco Public Utilities Commission Board elected (54%, $n = 215$) as is done at most water agencies throughout the state. A quarter of respondents (25%; $n = 100$) were not in favor of changing these to elected positions and 21% ($n = 82$) were unsure.

INTRODUCTION

The Tuolumne River Trust (TRT), a non-profit conservation organization based in San Francisco, was interested in assessing voters' attitudes on issues related to water conservation, alternative water supplies, development and the environment. To collect the necessary data to inform this effort, TRT contracted with the Social Science Research Center (SSRC), at California State University, to conduct 402 telephone surveys. The survey was administered to a random sample of San Francisco voters who were 18 years of age or older, and able to complete the survey in English. The survey findings will be used to assess whether the San Francisco Public Utilities Commission (SFPUC), which oversees water supply for San Francisco and several other Bay Area counties, is acting in accordance with the values of its constituents.

METHODOLOGY

Between May 14, 2018 and May 19, 2018, SSRC completed a total of 402 telephone interviews with individuals from San Francisco. The margin of error for the total sample of 402 is plus or minus 4.89 percentage points, at the 95% confidence level.

The survey instrument was drafted by research staff at Tuolumne River Trust and refined by the SSRC for comprehensiveness, flow, length and factors that influence respondent cooperation and interest. Respondents were asked approximately 37 questions that measured opinions about current and future water supplies, city development and the environment. The survey instrument is reproduced in Appendix A and further details about the methodology and procedures employed to collect the data can be found in Appendix B.

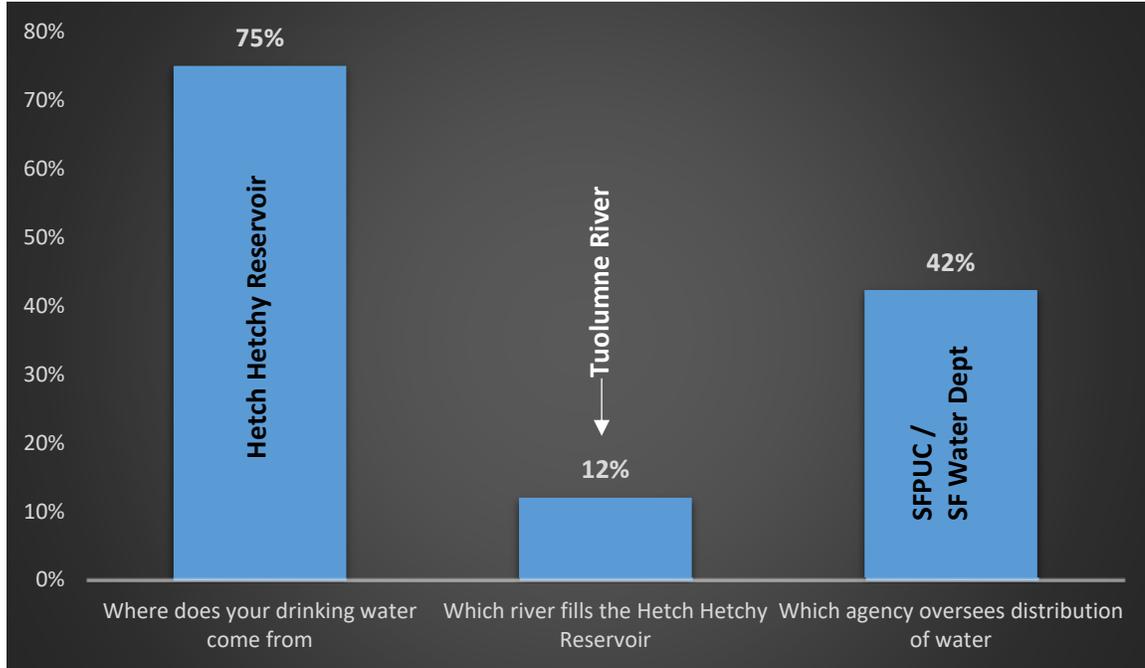
RESULTS

Knowledge of Primary Water Source and Distributor

Three items assessed respondents' knowledge of the source of the City's drinking water, as well as the agency that oversees the distribution of water in San Francisco. As shown in Figure 1, the majority of survey respondents could identify the Hetch Hetchy Reservoir as the source of most of the City's drinking water. However, only 12% of survey respondents were aware that the Tuolumne River fills the

Hetch Hetchy Reservoir. Slightly more than four in ten reported knowing that the San Francisco Public Utilities Commission/Water Department is responsible for water distribution in the City.

Figure 1. Knowledge of Primary Source of Drinking Water and Agency That Oversees Water Distribution in San Francisco



Attitudes Toward Water Conservation

The next set of survey items addressed respondents' attitudes towards water conservation, including the extent to which environmental concerns play a role in their attitudes and behaviors. As shown in Figure 2, an overwhelming majority of respondents ($n = 368$; 93%) took action to conserve water during the most recent drought.

Of those who did so, 94% ($n = 341$) cited concerns about the environment as playing either a *major* role ($n = 258$) or some role ($n = 83$) in their decision to do so. These results are illustrated in Figure 3.

Figure 2. Proportion of Respondents who Conserved Water During Last Drought

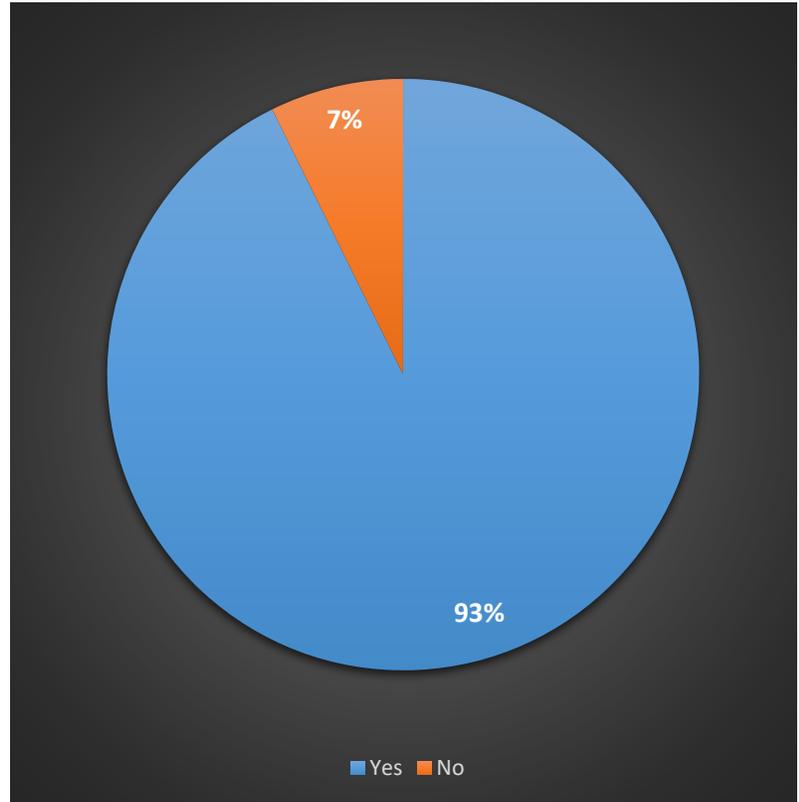
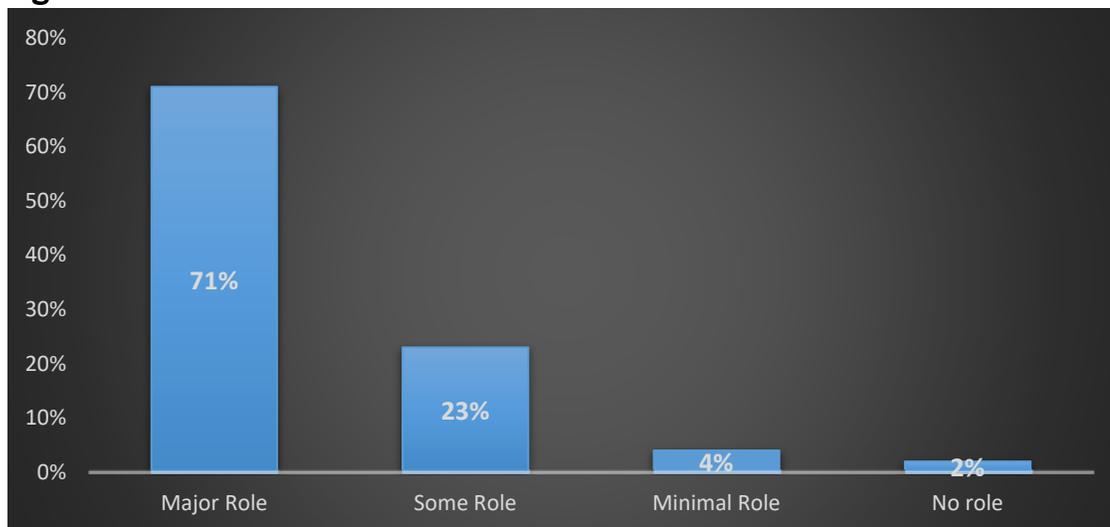
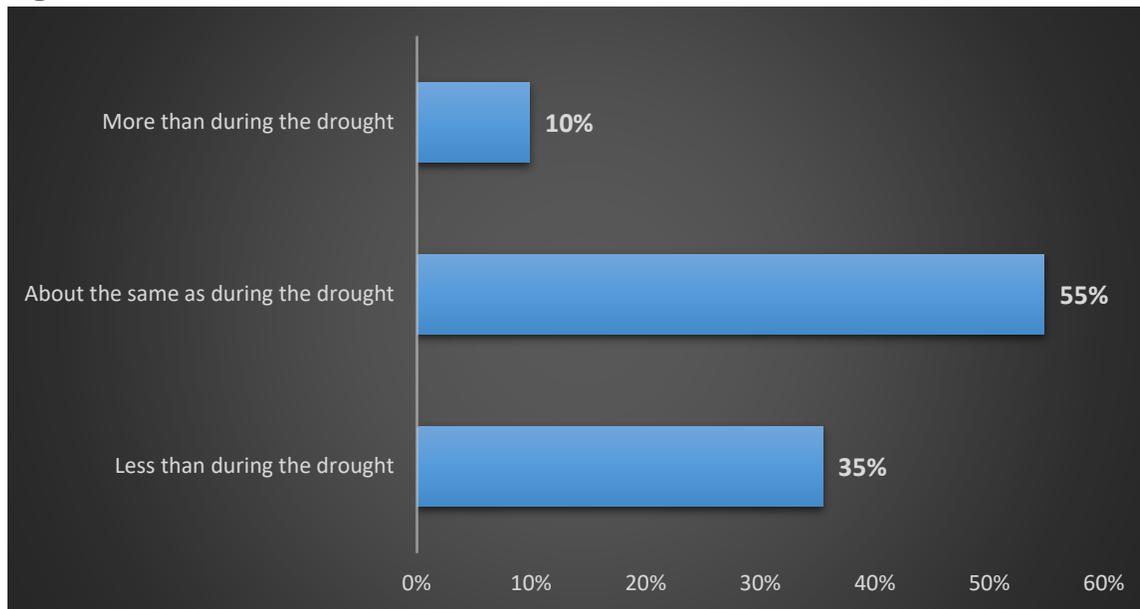


Figure 3. Role of Environmental Concerns in Water Conservation Efforts



Looking at more recent conservation efforts, Figure 4 shows that 55% ($n = 201$) of survey respondents conserve roughly the same amount of water as they did during California's most recent drought, while another 10% ($n = 36$) reported conserving more than that. Put another way, nearly two-thirds of survey respondents conserve the same amount, if not more, than they did during the most recent drought. The 35% of respondents who reportedly conserve less than they did during the most recent drought complete the distribution of responses to this item.

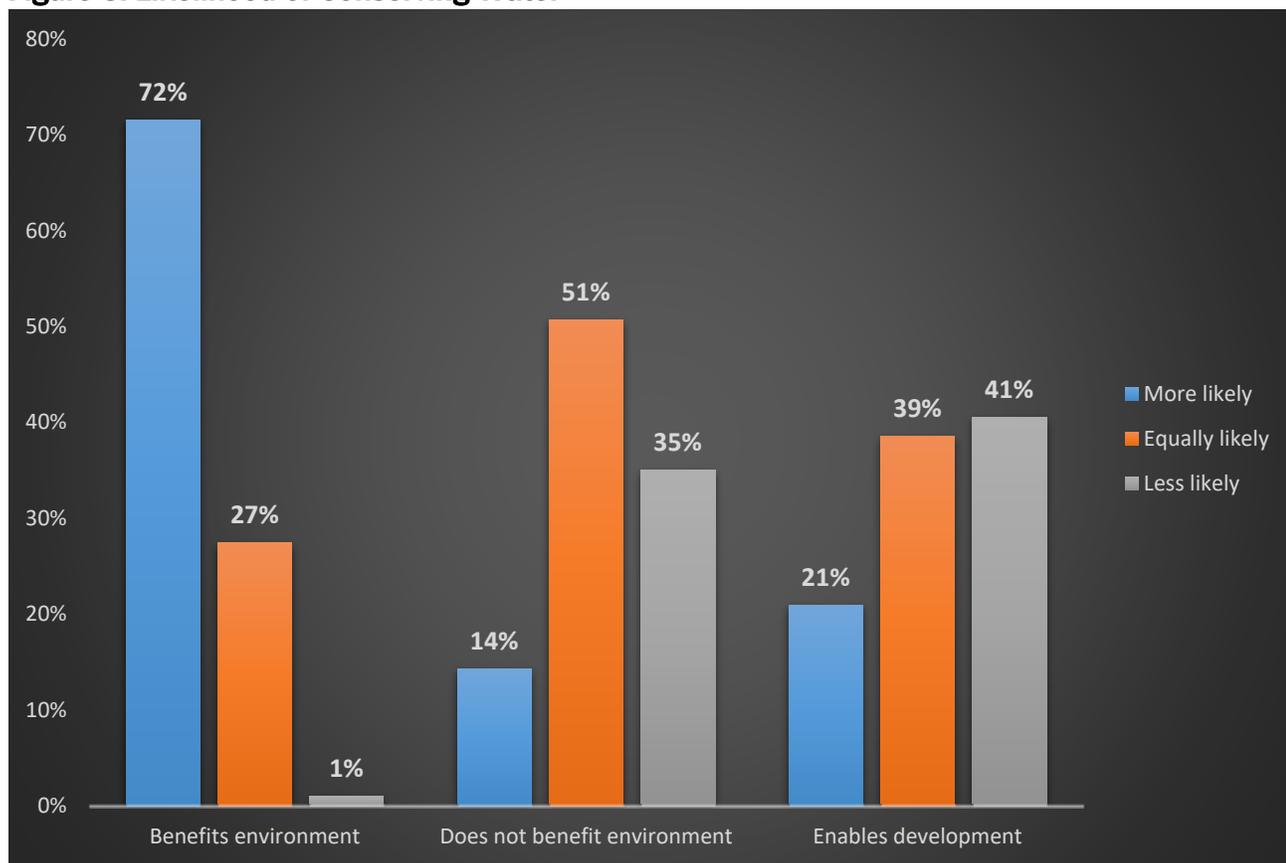
Figure 4. Current Efforts to Conserve Water



Respondents reported whether they would be more or less inclined to conserve water in three different scenarios: 1) if they learned it benefitted the environment; 2) if they learned it did *not* benefit the environment; and 3) if they learned it would enable more development without necessarily benefitting the environment. Figure 5 shows that 72% ($n = 282$) of respondents would be *more* likely to conserve water if it benefitted the environment, while 27% ($n = 108$) said they would be equally likely to conserve, and 1% ($n = 4$) said they would be *less* likely to conserve. If conserving water did not *necessarily* benefit the environment, only 14% ($n = 54$) said they would be more likely to conserve, while 51% ($n = 191$) said they would be equally likely, and 35% ($n = 132$) said they would be *less* likely. Thus, it appears that environmental concerns serve a significant motivational role in a person's likelihood to conserve water.

Finally, 21% ($n = 74$) of respondents said they would be more likely to conserve water if it enabled more development without *necessarily* benefitting the environment. Conversely, 41% ($n = 143$) of respondents reported they would be *less* likely to conserve, and 39% ($n = 136$) said they would be equally likely to conserve. This suggests there are individuals motivated to conserve water for reasons other than the environment. However, the data also suggest that the conservation efforts of these individuals might be offset by those less likely to conserve water if they think it will facilitate development in the absence of benefitting the environment.

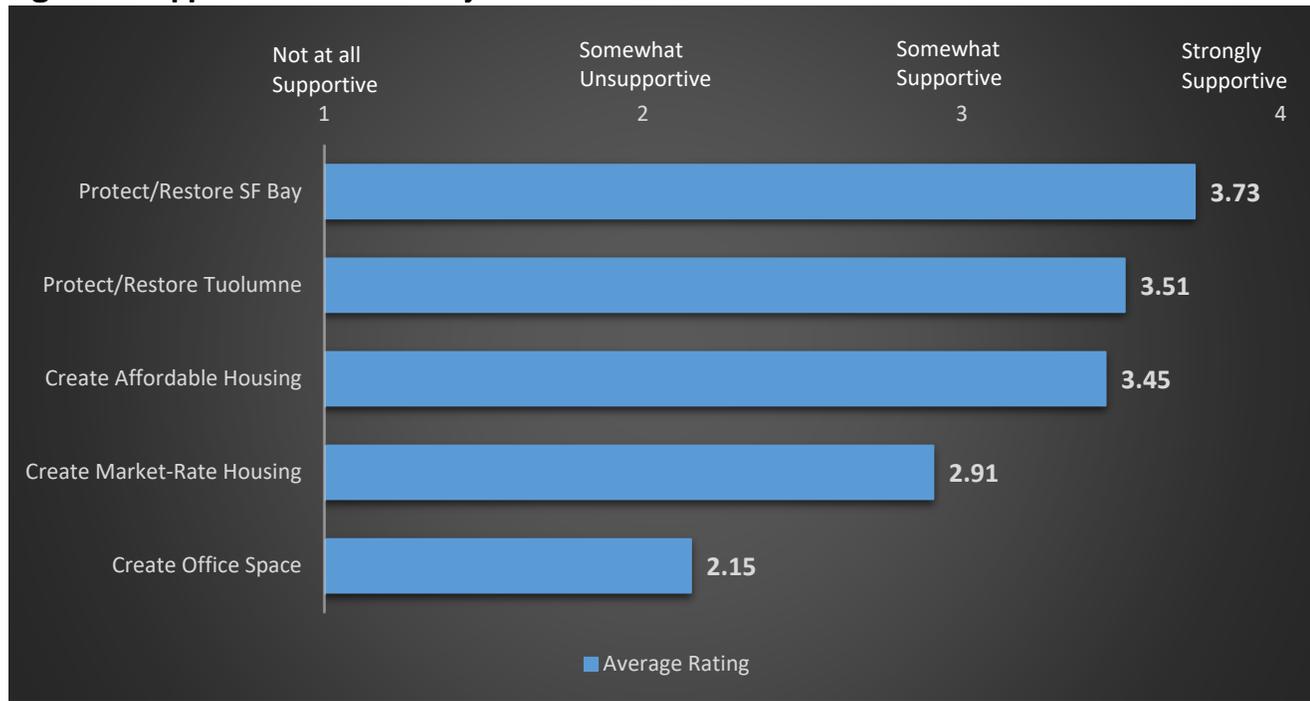
Figure 5. Likelihood of Conserving Water



Support for Potential City-Wide Measures

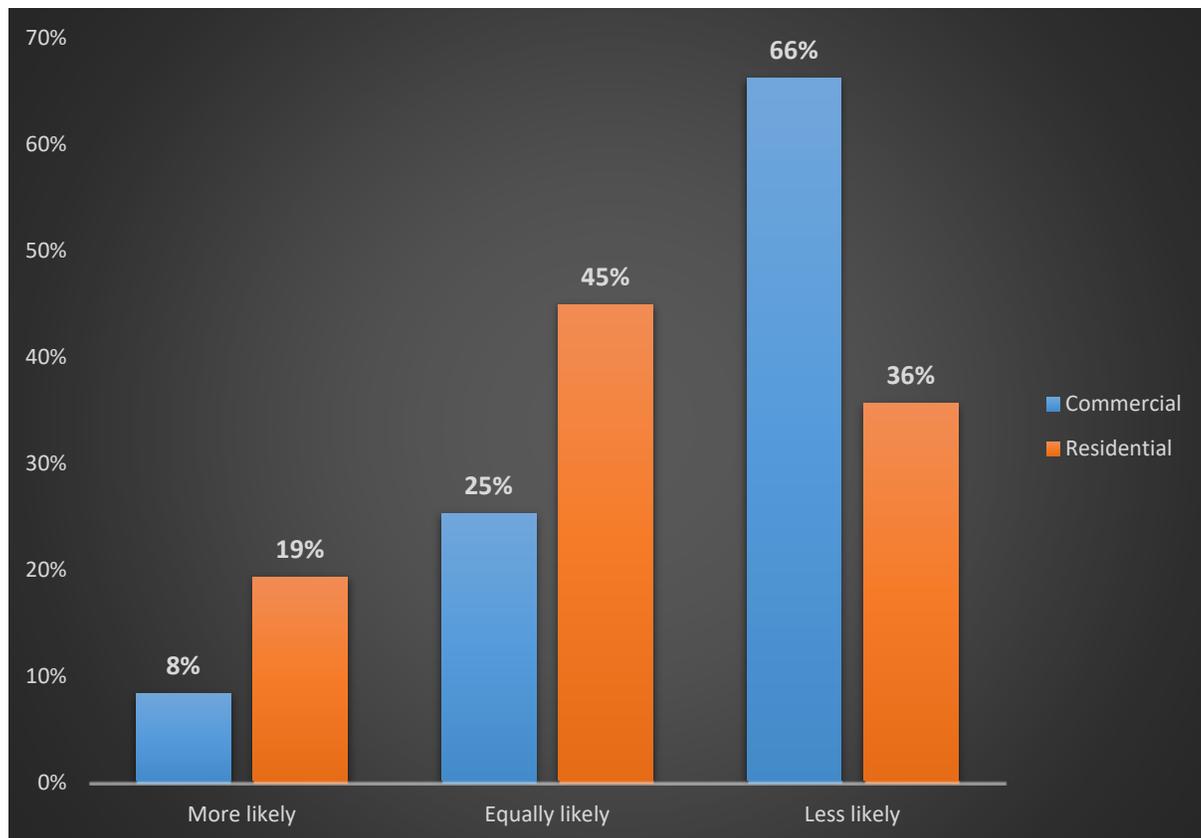
Respondents rated their support for five potential city-wide measures on a scale from one to four where 1 = “Not at all supportive,” 2 = “Somewhat unsupportive,” 3 = “Somewhat supportive,” and 4 = “Strongly supportive.” Figure 6 depicts each of the five measures along with the average support rating for each. Of the respondents, 97% ($n = 374$) said they were either strongly supportive (78%; $n = 299$) or somewhat supportive (19%; $n = 75$) of measures that would protect and restore San Francisco Bay. Further, 92% ($n = 336$) of respondents were either strongly supportive (63%; $n = 231$) or somewhat supportive (29%; $n = 105$) of measures that would protect and restore the Tuolumne River. The opposite result was seen for measures related to creating more office space – 60% ($n = 226$) said they were either somewhat unsupportive (25%; $n = 95$) or not at all supportive (35%; $n = 131$). In terms of housing, 88% ($n = 342$) were either strongly supportive (64%, $n = 250$) or somewhat supportive (24%; $n = 92$) of measures that would create more affordable housing, while 69% ($n = 259$) were either strongly supportive (41%; $n = 153$) or somewhat supportive (28%; $n = 106$) of measures that would create more market-rate housing. It is also evident that voters favor the creation of affordable housing over market-rate housing or office space.

Figure 6. Support for Potential City-Wide Measures



Respondents were asked to reconsider their support for measures proposing new housing and commercial development in light of their potential effect on the environment. As Figure 7 displays, respondents were much more likely to support measures for housing development than they were for commercial development when considering the impact of development on the environment. In fact, two-thirds of respondents (66%, $n = 243$) stated they were less likely to support measures enabling commercial development when the environmental impact is considered. Conversely, only a little over one-third of respondents (36%, $n = 127$) expressed that they would be less likely to support *housing* development when considering the environmental impact. Overall, housing development was almost twice as likely to be supported by respondents over commercial development when considering the environmental impact.

Figure 7. Likelihood of Supporting Potential Commercial vs. Residential Development Measures

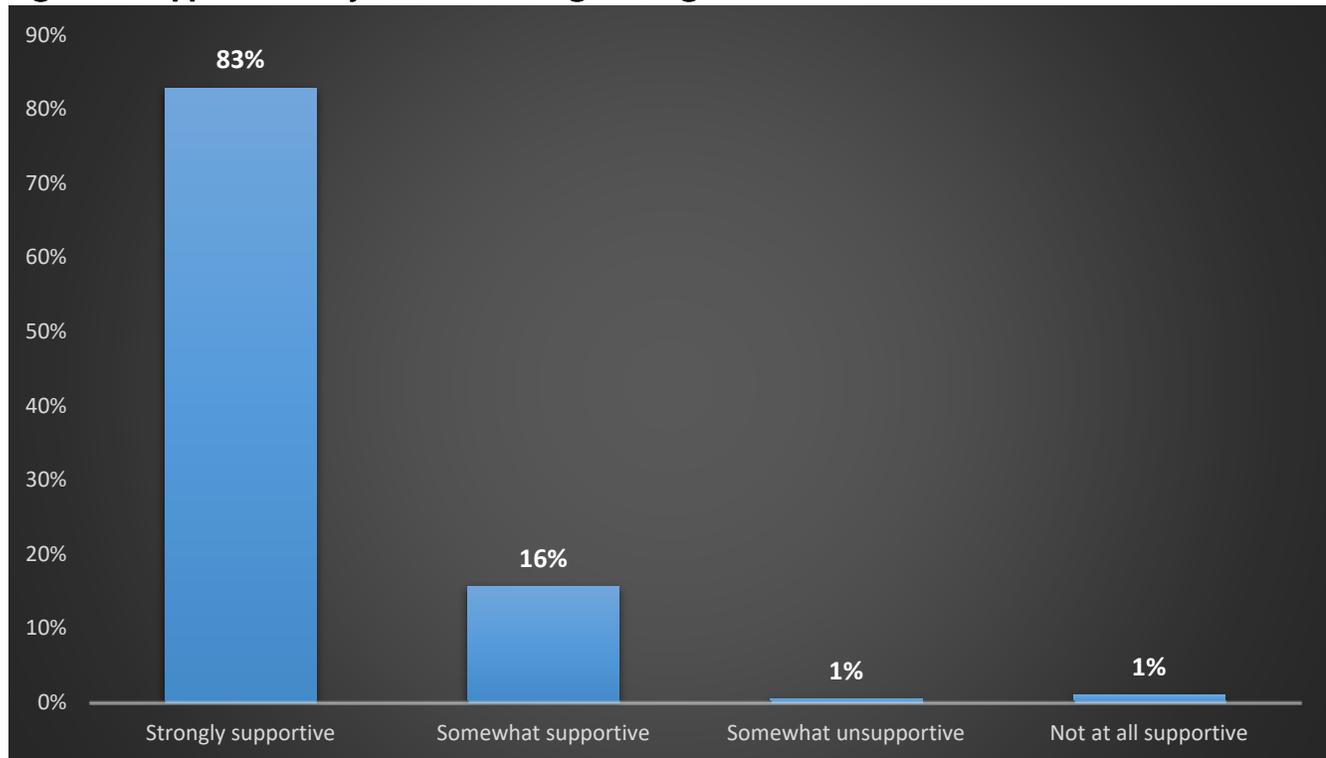


Support for Projects to Increase Water Supplies

Next, respondents rated their support for the use of recycled water for landscape irrigation as well as the practice of blending groundwater with drinking water to increase water supplies. They were then asked to reassess their support for both practices in light of their potential impacts on the environment and development.

Figure 8 depicts that respondents were highly supportive of the use of recycled water for irrigation, with 83% strongly supportive ($n = 324$), and 16% somewhat supportive ($n = 61$). In fact, only two respondents said they were somewhat unsupportive (1%), and only four respondents said they were not at all supportive (1%).

Figure 8. Support for Recycled Water Usage in Irrigation



As shown in Figure 9, participants were more likely to support the use of recycled water for irrigation if it were to benefit the environment (79%, $n = 312$) than if it enabled commercial development (37%, $n = 138$). In fact, participants' support was twice as high for measures that would benefit the environment.

Figure 9. Likelihood of Supporting Measures for Recycled Water Usage

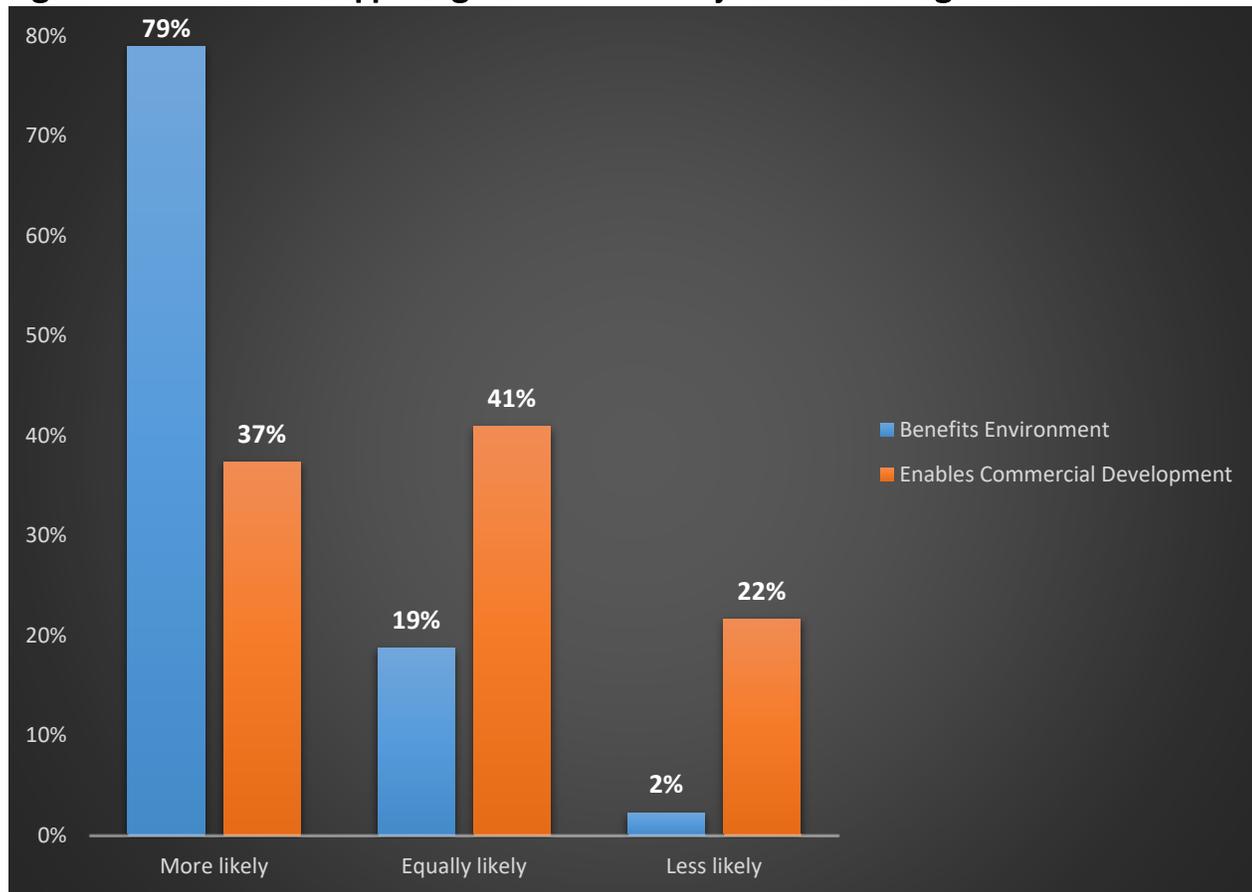


Figure 10 depicts the respondents' support for blending groundwater with drinking water with the intention of increasing the available water supply. The respondents were more diverse in their support of this method of increasing water supply, as shown by the small difference between the categories of "Somewhat supportive" (36%, $n = 109$) and "Not at all supportive" (32%, $n = 99$).

Figure 10. Support for Blending Groundwater with Drinking Water to Increase Water Supply.

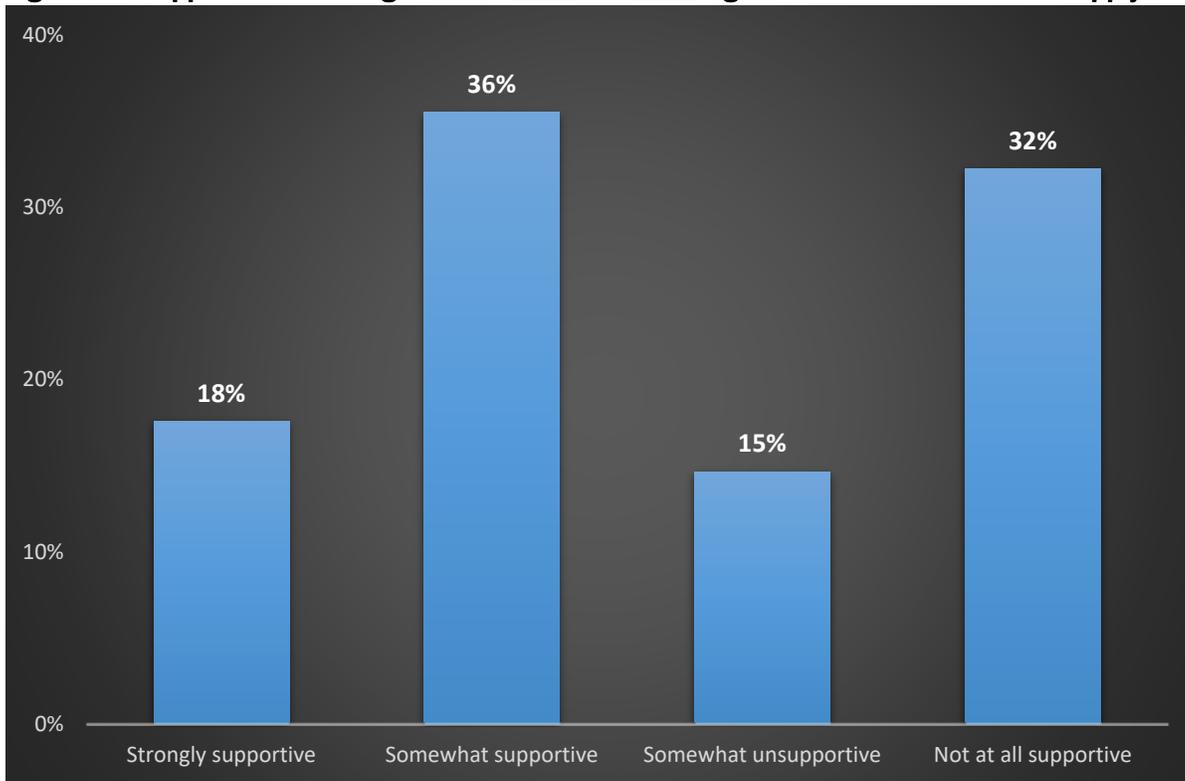
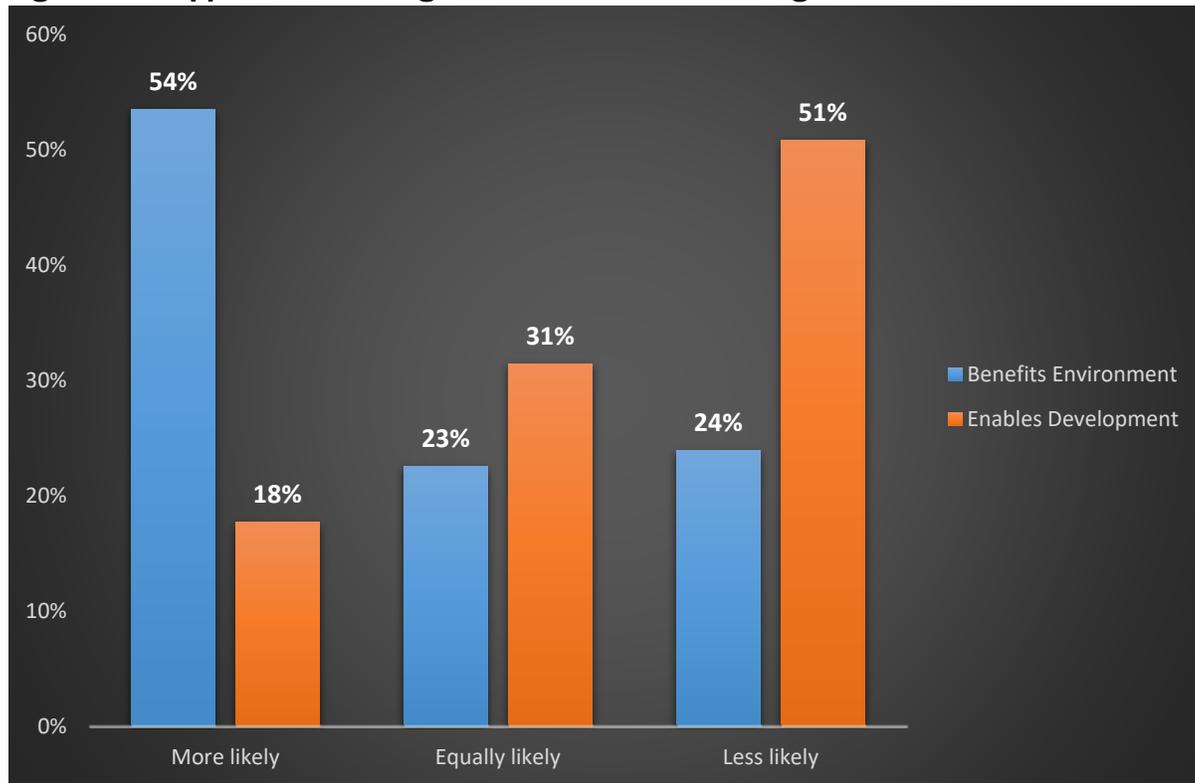


Figure 11 shows that participants were much more likely to support blending groundwater with drinking water if it benefitted the environment (54%, $n = 190$) than if it enabled development (18%, $n = 63$).

Figure 11. Support for Blending Groundwater with Drinking Water



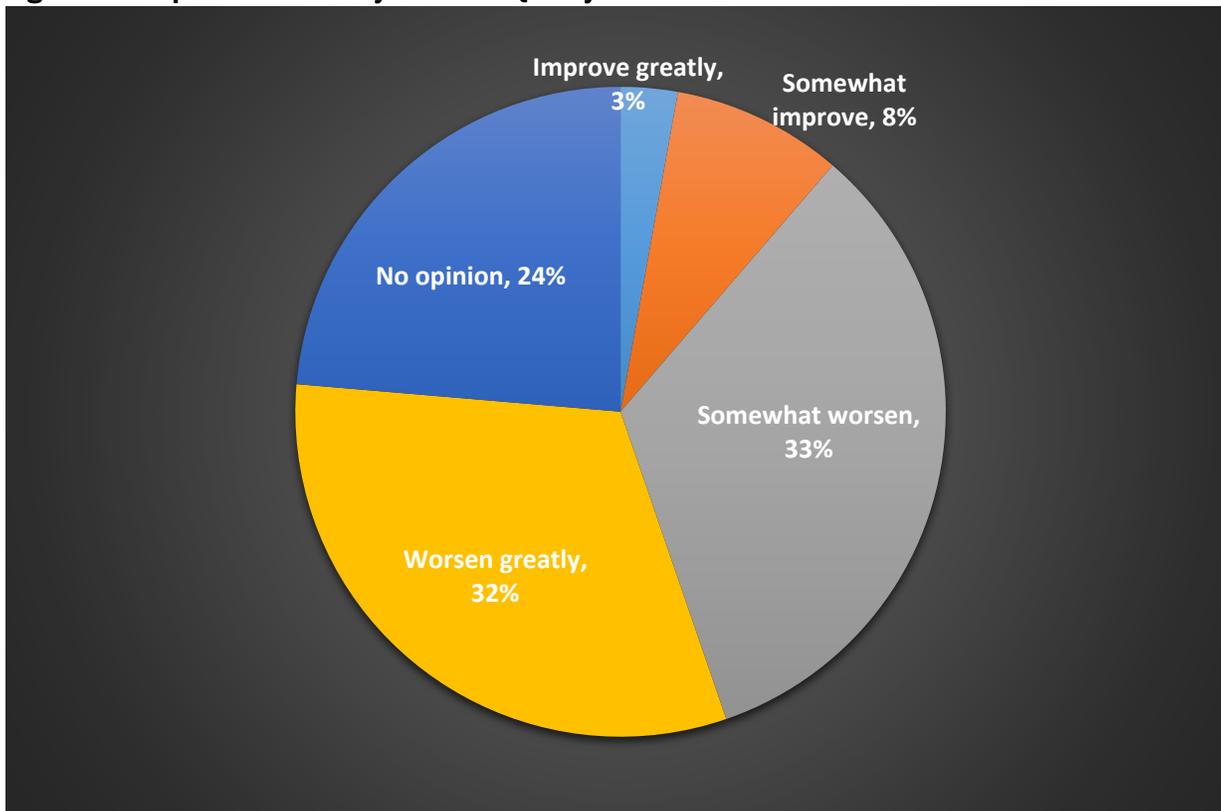
Potential Impact of “Plan Bay Area” on Residents’ Quality of Life

Respondents were read the following statement:

“The Association of Bay Area Governments has created a roadmap for what the Bay Area might look like in 2040 called “Plan Bay Area.” This plan forecasts the addition of 1.3 million new jobs and 2 million more people to the region between 2010 and 2040.”

They then rated the affect this growth would have on their quality of life on a four-point scale where 1 = “Improve greatly,” 2 = “Somewhat improve,” 3 = “Somewhat worsen” and 4 = “Worsen greatly.” Respondents were also given the option to state they had no opinion on the subject. As shown in Figure 12, the majority of respondents stated that the growth resulting from “Plan Bay Area” would somewhat worsen (33%, $n = 130$) or greatly worsen (32%, $n = 123$) their quality of life. Interestingly, there was a sizeable number of participants who expressed that they had no opinion on the matter (24%, $n = 92$). Only 11% ($n = 44$) of respondents said “Plan Bay Area” would either somewhat improve (8%; $n = 33$) or greatly improve (3%; $n = 11$) their quality of life.

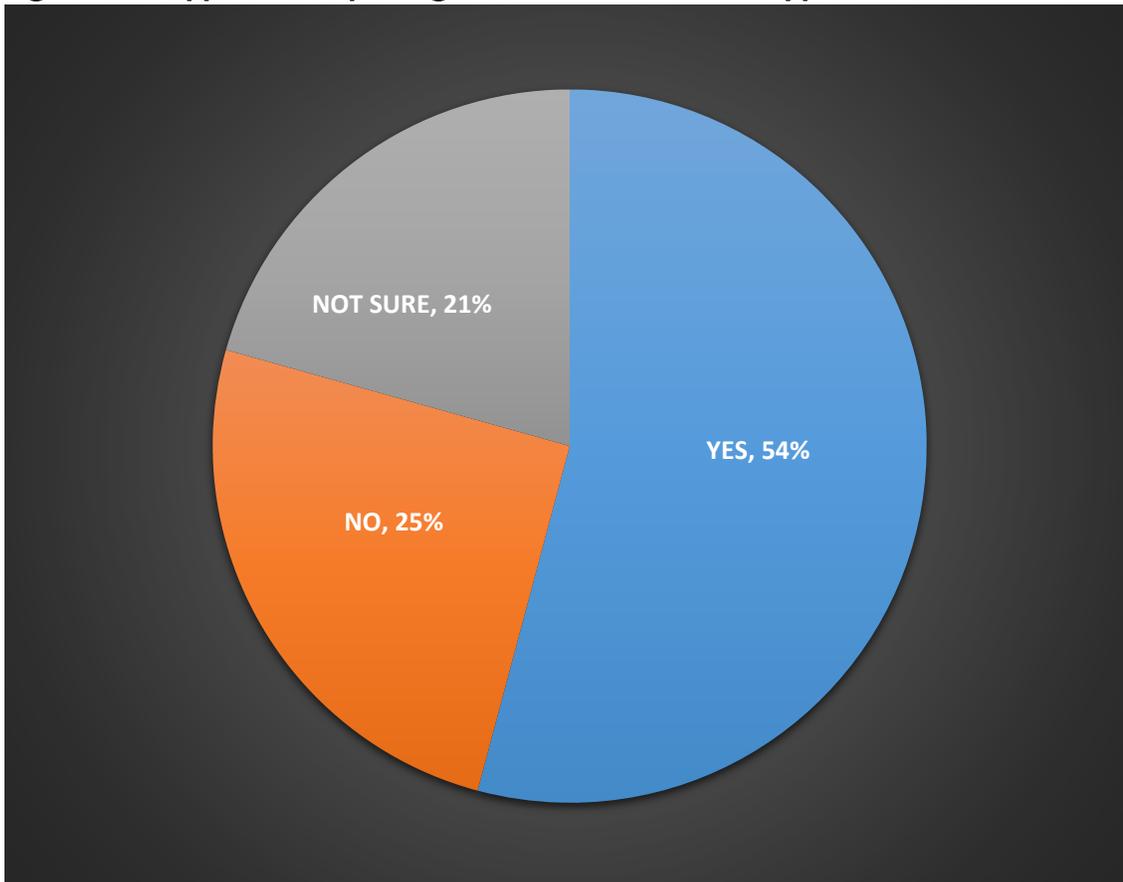
Figure 12. Impact of “Plan Bay Area” on Quality of Life.



Support for Electing Members of the San Francisco Public Utilities Commission

Finally, as Commissioners of the San Francisco Public Utilities Commission (SFPUC) are currently appointed by the Mayor and approved by the Board of Supervisors, participants were asked if they thought the Commissioners should be elected. As shown in Figure 13, the majority of participants favored making the positions elected (54%, $n = 215$), while only 25% ($n = 100$) supported the status quo.

Figure 13. Support for Replacing SFPUC Board Member Appointment with Election



DESCRIPTION OF STUDY SAMPLE

This survey yielded a sample that was almost perfectly distributed among males ($n = 196$; 50.3%) and females ($n = 194$; 49.7%). As seen in Table 1, the age of participants was fairly well distributed with a slight trend toward later middle-age to older adults. The largest proportion of participants was those between 65 and 74 years old ($n = 86$; 23%), while the average age of the total sample was 56 years old.

Table 1. Age of Participants

Age Range	Count	%
18-24	3	1
25-34	41	11
35-44	55	15
45-54	70	19
55-64	66	18
65-74	86	23
75-84	36	10
>84	13	4
Total Valid Responses	370	100
REFUSED TO ANSWER	32	
Total Sample	402	

As shown in Table 2, members of the survey sample are highly educated, with 36% being at least college graduates and another 47% having some post baccalaureate education or a graduate degree.

Table 2. Level of Education

Education Level	Count	%
Less than High School Degree	4	1
High School Graduate	11	3
Some College	55	14
College Graduate	141	36
Some Graduate School	35	9
Graduate Degree	149	38
Total Valid Responses	395	100
REFUSED TO ANSWER	7	
Total	402	

As shown in Table 3, the majority of survey respondents were Caucasian, while nearly equal proportions described themselves as Asian/Asian American, Hispanic/Latino or as belonging to some “other” racial or ethnic group. The smallest proportion of respondents self-identified as Black/African American.

Table 3. Race/Ethnicity of Participants

Race/Ethnicity	Count	%
Asian/Asian American	37	10
Black/African American	20	5
Hispanic/Latino	31	8
White	257	69
Other	29	8
Total Valid Responses	374	100
REFUSED TO ANSWER	28	
Total	402	

Table 4 shows the majority of the survey sample (65%) is registered as Democrat, and the next largest proportion (24%) is registered as Independent. A small selection (6%) of the sample is Republican while 5% identifies with some “other” party or has no party preference.

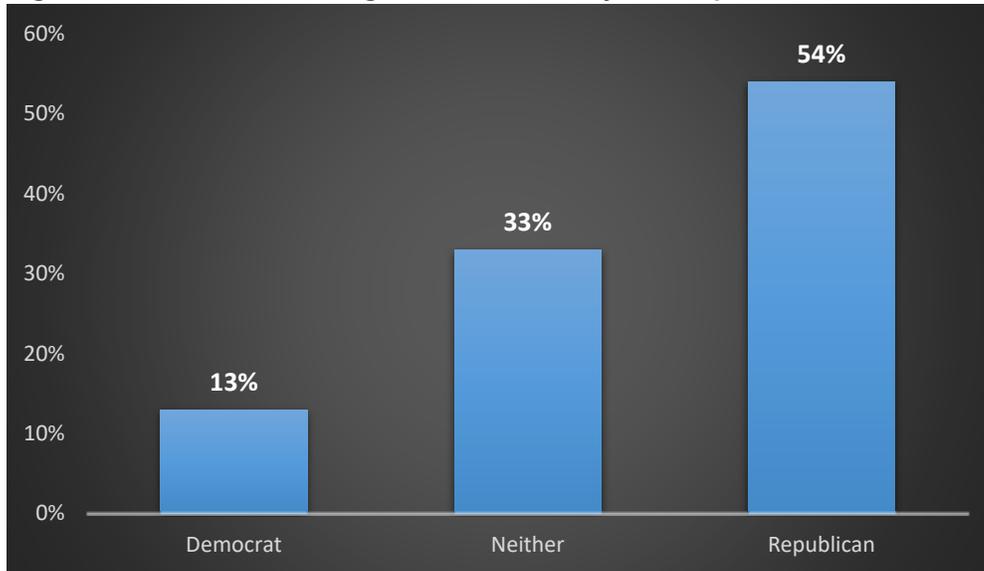
Table 4. Political Affiliation

Affiliation	Count	%
Democrat	247	65
Independent	93	24
Republican	21	6
Other	4	1
No preference	15	4
Total Valid Responses	380	100
REFUSED TO ANSWER	21	
Total	402**	

****Note:** 1 respondent answered “Don’t Know”

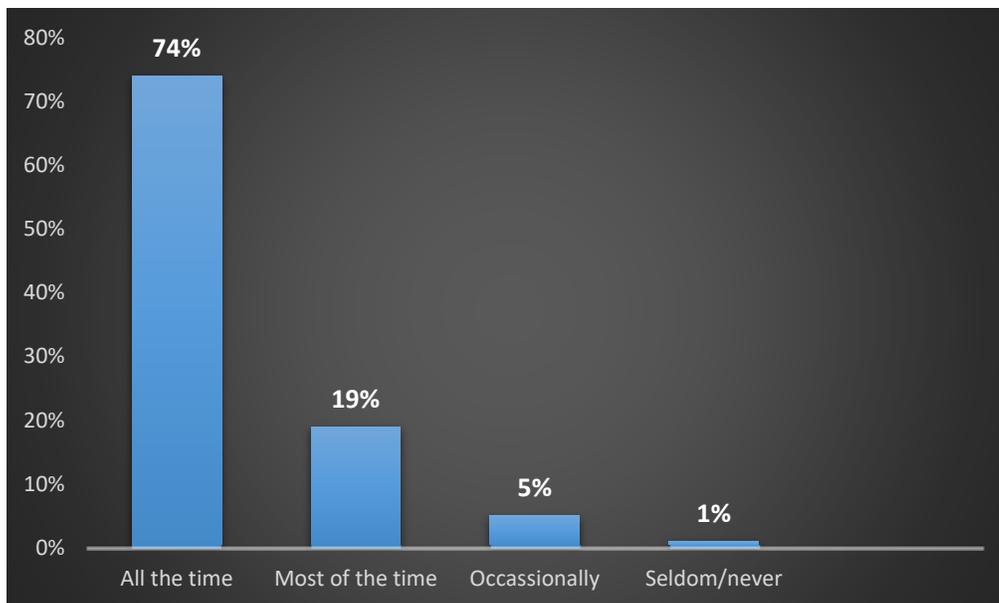
Among those who did not identify as being either Democrat or Republican, the majority leans more to the Republican Party as depicted in Figure 14.

Figure 14. Political Leaning of Non-Two-Party Participants



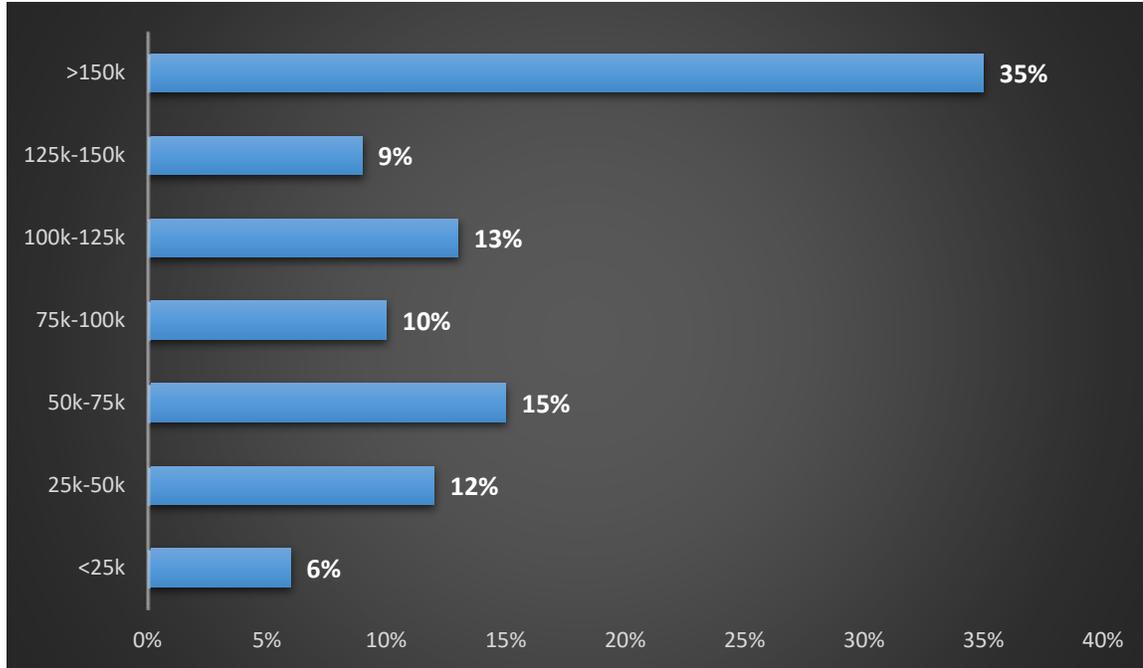
Additionally, Figure 15 shows nearly three quarters of survey respondents in the study sample reported voting “All of the time,” while the next largest proportion votes “Most of the time.” 6% of the sample reportedly votes either “Occasionally” or “Never.”

Figure 15. Voting Frequency



The majority of the survey sampled had a household income of over \$150,000 in 2017, while less than 10% reported a household income of less than \$25,000.

Figure 16. Household income for 2017



****Mean Household Income was 100k-125k**

Appendix A. Survey Instrument

1805SFV

San Francisco Poll

Spring 2018

DRAFT

- INTRO1 Hello, I'm calling from the [Social Science Research Center] at Cal State University Fullerton. Have I reached [INSERT NAME OF RESIDENT]?
1. YES [SKIP TO INTRO2]
 2. NO
- NOTPROP May I speak to that person or anyone in the household who is at least 18 years old and registered to vote in the City of San Francisco?
1. CONTINUE OR DISPOSITION ACCORDINGLY
- INTRO 2 We are conducting a study of 400 registered voters in San Francisco to gather their thoughts on current and future water supplies in the region, city development, and the environment. The information you provide will be used to help shape public policy priorities. The survey takes about 15 minutes and is completely confidential. You may skip any item you don't want to answer, or stop the survey at any time.
- May we please have a few minutes of your time for this study?
- CONTINUE OR DISPOSITION APPROPORIATELY
- TANK Thank you for your time, but we are looking only for adults 18 and older who are registered to vote in San Francisco for this survey. Have a nice (afternoon/evening). [END]
- CHKLAND Am I speaking to you on a landline or cell phone today?
1. LANDLINE [SKIP TO]
 2. CELLULAR
- QCEL2 And are you currently in a safe place to talk for a few minutes, or would you like us to call you back at another time?
1. CONTINUE OR DISPOSITION APPROPORIATELY
- INT3 Participation in this study is completely voluntary, and you are free to decline to answer any survey question, to decline to participate entirely, or to stop participating at any time with no penalty to you. Your identity and your responses will remain confidential to the extent permitted by law. Only research staff at the SSRC will have access to any identifying information, which will be destroyed at the end of this study. Any survey

data that is shared with third parties will be contained in a completely de-identified data file. The results of this study will be reported in the aggregate: no individual's responses will be identifiable. Neither our director nor the staff at any other institution have any financial interest in the results of this study. These data are being collected to inform local decision-making and will not be sold to a third party. Nor will these data be used at a later date to sell you something. If you have questions about your rights as a research participant or general questions about the study, I have some numbers I can provide you. [IF REQUESTED]: You may contact California State University, Fullerton Regulatory Compliance Coordinator at (657) 278-7719, or the Institutional Review Board (IRB) Chair at (657) 278-5062. For any other questions about the study, contact Laura Gil-Trejo at 657-278-7691. May we please have a few minutes of your time for this study?"

Now that you have this information, would you be willing to proceed?

1. YES [SKIP TO T1]
2. NO [END SURVEY]

TANK2 Thank you for your time. Have a nice (afternoon/evening). [END]

T1 The first set of questions will address your knowledge of the community's water system.

Q1 Would you say that you definitely know, maybe know, or definitely don't know where the city's drinking water comes from?

1. I DEFINITELY KNOW
2. I MAYBE KNOW
3. I DEFINITELY DON'T KNOW [SKIP TO T2]
9. REFUSED [SKIP TO T2]

Q2 Where do you think your city's drinking water comes from?

1. TUOLUMNE RIVER [SKIP TO Q5]
2. HETCH HETCHY RESEVOIR [SKIP TO Q3]
3. OTHER BAY AREA RESERVOIR (CRYSTAL SPRINGS, CALAVERAS, OTHER)
[READ T2.5]
4. OTHER SPECIFY> [READ T2]
7. DON'T KNOW [READ T2]
9. REFUSED [READ T2]

T2 Most of the city's drinking water comes from the Hetch Hetchy Reservoir.

T2.5 It is correct that some of the City's water comes from Bay Area reservoirs, but most comes from the Hetch Hetchy Reservoir.

Q3 Would you say that you definitely know, maybe know, or definitely don't know which river fills the Hetch Hetchy Reservoir?

1. I DEFINITELY KNOW
2. I MAYBE KNOW
3. I DEFINITELY DON'T KNOW [SKIP TO T3]
9. REFUSED [SKIP TO T3]

Q4 Which river fills the Hetch Hetchy Reservoir?

1. TUOLUMNE RIVER [SKIP TO Q5]
2. OTHER SPECIFY> [READ T3]

T3 The Tuolumne River (Too-all-a-me) fills the Hetch Hetchy Reservoir.

Q5 Would you say that you definitely know, maybe know, or definitely don't know which agency oversees the distribution of water in San Francisco?

1. I DEFINITELY KNOW
2. I MAYBE KNOW
3. I DEFINITELY DON'T KNOW [READ T4]
9. REFUSED [READ T4]

Q6 Which agency do you think oversees the distribution of water in San Francisco?

1. THE SAN FRANCISCO PUBLIC UTILITIES COMMISSION [SKIP TO T6]
2. THE SAN FRANCISCO WATER DEPARTMENT [READ T5]
3. OTHER SPECIFY>
7. DON'T KNOW
9. REFUSED

T4 The San Francisco Public Utilities Commission oversees the distribution of water in San Francisco.

T5 Correct, and the San Francisco Water Department is overseen by the San Francisco Public Utilities Commission.

T6 The next few items address your attitudes towards water conservation.

Q7 During the most recent drought, did you personally take actions to conserve water?

1. YES
2. NO [SKIP TO Q10]
7. DON'T KNOW [SKIP TO Q10]
9. REFUSED [SKIP TO Q10]

- Q8 To what extent did concerns about the environment play a role in your decision to conserve water during that time?
1. It played no role
 2. It played a minimal role
 3. It played some role
 4. It played a major role in my decision
 7. DON'T KNOW
 9. REFUSED
- Q9 And how would you describe current efforts to conserve water? Would you say...
1. You personally do not take action to conserve water
 2. You personally conserve less than you did during the drought
 3. You personally conserve about the same amount you did during the drought.
 4. You personally conserve more than you did during the drought
 7. DON'T KNOW
 9. REFUSED
- Q10 Would you be more, less or equally likely to conserve water if you learned it benefitted the environment?
1. More likely
 2. Less likely
 3. Equally likely
 7. DON'T KNOW
 9. REFUSED
- Q11 Would you be more, less or equally likely to conserve water if you learned that it did not necessarily benefit the environment?
1. More likely
 2. Less likely
 3. Equally likely
 7. DON'T KNOW
 9. REFUSED
- Q12 Would you be more or less inclined to conserve water if you learned it would enable more development without necessarily benefitting the environment?
1. More likely
 2. Less likely
 3. Equally likely
 7. DON'T KNOW
 9. REFUSED
- T7 This next set of questions addresses your attitudes toward potential city-wide measures.

- Q13 How strongly would you support measures to protect and restore the Tuolumne (Too-all-a-me) River?
- Q14 How strongly would you support measures to protect and restore San Francisco Bay?
- Q15 How strongly would you support the creation of more affordable housing in San Francisco?
- Q16 How strongly would you support the creation of more market-rate housing in San Francisco?
- Q17 How strongly would you support the creation of more office space in San Francisco?
1. Strongly supportive
 2. Somewhat supportive
 3. Somewhat unsupportive
 4. Not at all supportive
 7. DON'T KNOW
 9. REFUSED
- T8 Development, whether commercial or residential, places a burden on existing water sources.
- Q18 Would you be more, equally or less likely to support measures that enable commercial development knowing the implications they might have on the environment?
1. More likely
 2. Equally likely
 3. Less likely
 7. DON'T KNOW
 9. REFUSED
- Q19 Would you be more, equally or less likely to support measures that enable housing development knowing the implications they might have on the environment?
1. More likely
 2. Equally likely
 3. Less likely
 7. DON'T KNOW
 9. REFUSED
- Q20 How strongly do you support the use of recycled water to irrigate landscapes?
1. Strongly supportive
 2. Somewhat supportive
 3. Somewhat unsupportive
 4. Not at all supportive
 7. DON'T KNOW
 9. REFUSED

- Q21 Would you be more, less or equally likely to support the use of recycled water to irrigate landscapes if you learned it benefited the environment?
1. More likely
 2. Less likely
 3. Equally likely
 7. DON'T KNOW
 9. REFUSED
- Q22 And, would you be more, less or equally likely to support the use of recycled water to irrigate landscapes if you learned it enabled development?
1. More likely
 2. Less likely
 3. Equally likely
 7. DON'T KNOW
 9. REFUSED
- Q23 How strongly do you support blending groundwater with drinking water to increase water supplies?
1. Strongly supportive
 2. Somewhat supportive
 3. Somewhat unsupportive
 4. Not at all supportive
- Q24 Would you be more or less likely to support blending groundwater with drinking water if you learned it benefited the environment?
1. More likely
 2. Less likely
 3. Equally likely
 7. DON'T KNOW
 9. REFUSED
- Q25 Would you be more or less likely to support blending groundwater with drinking water if you learned it enabled more development?
1. More likely
 2. Less likely
 3. Equally likely
 7. DON'T KNOW
 9. REFUSED

Q26 The Association of Bay Area Governments has created a roadmap for what the Bay Area might look like in 2040 called "Plan Bay Area." This plan forecasts the addition of 1.3 million new jobs and 2 million more people to the region between 2010 and 2040.

How do you think the growth projections from Plan Bay Area would affect your quality of life overall?

1. Improve greatly
2. Somewhat improve
3. Somewhat worsen
4. Worsen greatly
5. No opinion
7. DON'T KNOW
9. REFUSED

Q27 The Board Members of the San Francisco Public Utilities Commission, which oversees water distribution, are currently appointed by the Mayor and approved by the Board of Supervisors. Would you favor changing the system to make Board Members elected positions as is done at most water agencies in California?

1. YES
2. NO
3. NOT SURE
9. REFUSED

T8 Last, I have a few questions for statistical purposes only.

D1 What year were you born?

- <-SPECIFY YEAR
999. REFUSED

D2 What is your gender?

1. MALE
2. FEMALE
9. REFUSED

D3 Are you of Hispanic or Latino origin or descent?

1. YES
2. NO
7. DON'T KNOW
9. REFUSED

- D4 Which of the following describes your race? You can select as many as apply.
1. White
 2. Black or African American
 3. Asian or Asian American
 4. Other
 7. DON'T KNOW
 9. REFUSED
- D5 What is the highest degree or level of education you have completed?
1. Less than high school degree
 2. High school degree
 3. Some college
 4. College graduate
 5. Some graduate school
 6. Graduate degree
 7. DON'T KNOW
 9. REFUSED
- D9 In politics today, do you consider yourself a Republican, Democrat, or Independent?
1. REPUBLICAN [SKIP TO D10]
 2. DEMOCRAT [SKIP TO D10]
 3. INDEPENDENT
 4. NO PREFERENCE
 5. OTHER PARTY
 7. DON'T KNOW
 9. REFUSED
- D9A As of today, do you lean more to the Republican Party or more to the Democratic Party?
1. REPUBLICAN
 2. DEMOCRATIC
 3. NEITHER
 7. DON'T KNOW
 9. REFUSED

D10 How often would you say you vote: all of the time, most of the time, occasionally, seldom, or never?

1. ALL OF THE TIME
2. MOST OF THE TIME
3. OCCASSIONALLY
4. SELDOM
5. NEVER
7. DON'T KNOW
9. REFUSED

D11 What is your zip code? [IF RESPONDENT REFUSES TO ANSWER, ENTER 999]

D12 Finally, and of course confidentially, what was your total household income in 2017 from all sources, before taxes. Please STOP me when I get to the right category.

1. Less than \$25,000 per year
2. More than \$25,000 but less than \$50,000
3. More than \$50,000 but less than \$75,000
4. More than \$75,000 but less than \$100,000
5. More than \$100,000 but less than \$125,000
6. More than \$125,000 but less than \$150,000
7. More than \$150,000
77. DON'T KNOW
99. REFUSED

THANK That's the last question. Thank you for your time and your participation. Would you like the name and phone number of people you may call with questions or concerns about this survey? [IF YES: Please feel free to call: Laura Gil-Trejo at 657-278-7691.

Appendix B. Survey Procedure and Extended Methodology

Research staff at Tuolumne River Trust (TRT) are interested in learning residents' thoughts on current and future water supply in San Francisco, city development, and the environment. To collect the necessary data to inform this effort, TRT contracted with the Social Science Research Center (SSRC) to conduct 400 telephone surveys. The survey was administered to residents of San Francisco City and/or County who were 18 years of age or older and able to complete the survey in English. The data gathered in this study will help inform public policy priorities the Trust is involved in shaping.

Between May 14, 2018 and May 19, 2018, the SSRC completed a total of 402 telephone interviews with individuals from the San Francisco region. The margin of error for the total sample of 402 is plus or minus 4.89 percentage points, at the 95% confidence level. Smaller subgroups will have larger margins of error.

The survey instrument was drafted by research staff at TRT and refined by the SSRC for comprehensiveness, flow, length and factors that influence respondent cooperation and interest. The instrument was pilot-tested on a small sample of respondents and slightly revised prior to full-scale administration. The final instrument was programmed for administration using computer assisted telephone interviewing (CATI) software. Respondents were asked approximately 37 questions that measured opinions about current and future water supply, city development, and the environment. Several demographic items were also asked. The survey instrument is reproduced in Appendix A.

Interviews were conducted between 3:00 PM and 9:00 PM, Monday through Thursday, between 11:00 AM and 7:00 PM on Saturday, and between 12:00 PM and 6:00 PM on Sunday, local time. The length of time required to complete each telephone interview ranged from eight minutes ($n = 6$; 1.5%) to 48 minutes ($n = 1$; 0.2%). The mean survey administration time was 13 minutes and 22 seconds, and the median time was 12 minutes and 30 seconds.

SAMPLE SELECTION

The population of inference for the current study consists of all registered voters in the San Francisco region, ages 18 years or older. This study used a listed sample approach. The SSRC contracted with Scientific Telephone Samples (STS), one of the premier vendors of statistically sound telephone samples, to obtain the list of potential participants. The list consisted of the name and telephone number of 8,000 registered voters in the San Francisco region for the study.

STS initially provided the SSRC with a list of 8,000 prescreened telephone numbers. These telephone numbers were a combination of landline and wireless, with some of the respondents having both listed. Of these, 2,117 (26.5%) were cellular phone records, 2,513 (31.4%) were landline records, and 42.1% ($n = 3,370$) had both cellular and landline numbers listed.

STS gathered the sample that was used from a list of registered voters in San Francisco County, California. The respondents were chosen using a random sample method, which meant that all households with a registered voter had the same probability of being selected for the survey. The households could only be selected one time, so all telephone numbers in the provided sample were different.

TECHNICAL APPROACH TO DATA COLLECTION

The SSRC implements Computer Assisted Telephone Interviewing (CATI) through WinCATI® software to facilitate the control of the sample, track scheduled call-backs, and monitor progress regarding the completion of sample design quotas. Programming is carried out using Ci3 software, which allows for the randomization of questions and question sets within a survey to eliminate response-order biases, response range limits to reduce recording errors, and complex interview navigation commands to ensure the proper administration of survey items.

Survey questions and response options appear on a computer screen while the interviewer is speaking to the respondent. Data are entered directly into the system so coding or keying errors are reduced. SSRC supervisors are present during all interviewing shifts and "random" call-monitoring is routinely performed to verify the accuracy of the data. All SSRC supervisors previously worked as a telephone

interviewer, and have received extensive training in telephone interviewing techniques and methodological considerations.

The CATI system includes a sophisticated call tracking and call-back scheduling procedure. This system assigns sample records to interviewing stations based on user configurable rules which include a randomization element, and also consider call history, and interviewer capability/training. An attempt history is maintained for each sample record which can be used to calculate productivity and other process-related statistics. If no contact is made, the call record will note the time of day and the interviewer who attempted the call. The call will then be automatically reassigned at a later time based upon an algorithm that reduces the probability that the call will come up again on the same day and time. When a contact is made but the interview is not completed, call information is recorded that includes whether a call-back has been scheduled, who the interviewer spoke with, who they should talk to if the eligible respondent is not at home, and the current disposition of the call (for example, immediate refusal, answering machine, mid- interview termination, etc.). In addition, the time of each call, the number of times the record has been called, and any interviewer-generated notes are recorded.

The CATI system allows the researcher to set the number of times a sample record is to be called before it is retired. SSRC standard operating procedure dictates 21 attempts for records. If contact is not established after 21 calls, the number is transferred to a holding queue. Exceptions are made to this procedure in two cases. First, if the 21st call attempt yields a scheduled callback, then a 22nd call attempt will be made as scheduled. Second, when a respondent begins a survey and cannot complete it at that time, but indicates that they will complete the survey at a later date, an indefinite number of call attempts are made to complete the survey with that individual. Due to the requirements for the survey both for number of completes and the time frame, the highest amount of calls on an individual record was 11. A total of 30,105 call attempts were made to complete the 402 surveys, with an average of 2.78 calls per completed survey.

DATA COLLECTION OUTCOMES

Of the 402 interviews, the gender distribution was almost completely equal with 50.3% ($n = 196$) as male and 49.7% ($n = 194$) as female.¹ The age range of respondents was wide, with a minimum of 19 years ($n = 1$; 0.2%) and a maximum of 94 ($n = 2$; 0.5%); on average, respondents were roughly 56 years old.² The race/ethnicity of respondents was somewhat diverse, with over two-thirds identifying as Caucasian/White ($n = 257$; 69%), with 8% ($n = 31$) of the sample identifying as Hispanic/Latino, 5% ($n = 20$) as Black/African American, 10% ($n = 37$) as Asian, and 8% ($n = 29$) as some other race.³

Table 2 presents the number of attempts required to complete each interview. As the table shows, three out of four surveys ($n = 292$, 87.2%) were completed in three or fewer call attempts.

Table B1. Number of Attempts by Completed Interviews		
Number of Attempts	Completed Interviews	% of all Completes
1	82	20.4%
2	104	25.9%
3	100	24.9%
4	75	18.7%
5	26	6.5%
6 or more	15	3.7%
Total	402	100.0%

¹ Twelve respondents did not provide their gender identity.

² Thirty-two respondents did not provide their year of birth.

³ Twenty-eight individuals refused to provide this information.

The SSRC calculates survey response rates using the American Association for Public Opinion Research (AAPOR) Response Rate Calculation Method 3 (RR3), which includes an estimate of eligibility among unscreened sample records based on the eligibility rate among respondents for whom a final determination could be made.

The RR3 formula is:

$$Rate = \frac{C}{(C+I)+(R+N)+eU}$$

Where C = complete interviews, I = incomplete interviews, R = eligible refusals, N = other eligible non-complete records, e = estimate of eligibility, and U = records with unknown eligibility.

In addition to the Response Rate, a Cooperation Rate was also calculated for the study. This rate is the proportion of interviews completed of all eligible units. The SSRC uses Cooperation Rate Method 3 (COOP3), which counts completed interviews, partial interviews, and refusals as eligible units.

The Response Rate for the sample was 6.2%, but the Cooperation Rate was 24.8%. In all, completed surveys comprised 5.0% ($n = 402$) of all records attempted ($N = 7,999$). The largest proportion of all records attempted were answering machines ($n = 4553$, 56.9%). Table 3 depicts the final dispositions of all 7,999 attempted records.

Table B2. Final Disposition of All Call Attempts		
Disposition	Count	%
Answering Machine	4553	56.9%
No Answer	340	4.3%
Non-Working/ Disconnected	530	6.6%
Refusal	152	1.9%
Hang-up	1037	13.0%
Busy Signal	164	2.1%
Call Blocking/ Technological Barrier	315	3.9%
Complete	402	5.0%
Not a Residence	43	0.5%
Temporarily Out Of Service	65	0.8%
Ineligible – Not Registered to Vote in SF	163	2.0%
Language Issue	122	1.5%
Definite Callback	20	0.3%
Number Changed	16	0.2%
Fax/ Data Line	44	0.6%
Partial	27	0.3%
Ineligible – Not 18	6	<0.1%
Total	7,999	100.0%