

## Appendix C: Detailed Survey Methods

The National Citizen Survey (The NCS™), conducted by National Research Center, Inc., was developed to provide communities an accurate, affordable and easy way to assess and interpret resident opinion about important local topics. Standardization of common questions and survey methods provide the rigor to assure valid results, and each community has enough flexibility to construct a customized version of The NCS.

Results offer insight into residents' perspectives about the community as a whole, including local amenities, services, public trust, resident participation and other aspects of the community in order to support budgeting, land use and strategic planning and communication with residents. Resident demographic characteristics permit comparison to the Census as well as comparison of results for different subgroups of residents. The City of American Canyon funded this research. Please contact Lora Hudson at [lhudson@cityofamericancanyon.org](mailto:lhudson@cityofamericancanyon.org) if you have any questions about the survey.

### Survey Validity

The question of survey validity has two parts: 1) how can a community be confident that the results from those who completed the questionnaire are representative of the results that would have been obtained had the survey been administered to the entire population? and 2) how closely do the perspectives recorded on the survey reflect what residents really believe or do?

To answer the first question, the best survey research practices were used for the resources spent to ensure that the results from the survey respondents reflect the opinions of residents in the entire community. These practices include:

- Using a mail-out/mail-back methodology, which typically gets a higher response rate than phone for the same dollars spent. A higher response rate lessens the worry that those who did not respond are different than those who did respond.
- Selecting households at random within the community to receive the survey to ensure that the households selected to receive the survey are representative of the larger community.
- Over-sampling multi-family housing units to improve response from hard-to-reach, lower income or younger apartment dwellers.
- Selecting the respondent within the household using an unbiased sampling procedure; in this case, the "birthday method." The cover letter included an instruction requesting that the respondent in the household be the adult (18 years old or older) who most recently had a birthday, irrespective of year of birth.
- Contacting potential respondents three times to encourage response from people who may have different opinions or habits than those who would respond with only a single prompt.
- Inviting response in a compelling manner (using appropriate letterhead/logos and a signature of a visible leader) to appeal to recipients' sense of civic responsibility.
- Providing a pre-addressed, postage-paid return envelope.
- Offering the survey in Spanish or other language when requested by a given community.
- Weighting the results to reflect the demographics of the population.

The answer to the second question about how closely the perspectives recorded on the survey reflect what residents really believe or do is more complex. Resident responses to surveys are influenced by a variety of factors. For questions about service quality, residents' expectations for service quality play a role as well as the "objective" quality of the service provided, the way the resident perceives the entire community (that is, the context in which the service is provided), the scale on which the resident is asked to record his or her opinion and, of course, the opinion, itself, that a resident holds about the service. Similarly a resident's report of certain behaviors is colored by what he or she believes is the socially desirable response (e.g., reporting tolerant behaviors toward "oppressed groups," likelihood of voting for a tax increase for services to poor people, use of alternative modes of travel to work besides the single occupancy vehicle), his or her memory of the actual behavior (if it is not a question speculating about future actions, like a vote), his or her confidence that he or she can be honest without suffering any negative consequences (thus the need for anonymity) as well as the actual behavior itself.

How closely survey results come to recording the way a person really feels or behaves often is measured by the coincidence of reported behavior with observed current behavior (e.g., driving habits), reported intentions to behave with observed future behavior (e.g., voting choices) or reported opinions about current community quality

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with objective characteristics of the community (e.g., feelings of safety correlated with rates of crime). There is a body of scientific literature that has investigated the relationship between reported behaviors and actual behaviors. Well-conducted surveys, by and large, do capture true respondent behaviors or intentions to act with great accuracy. Predictions of voting outcomes tend to be quite accurate using survey research, as do reported behaviors that are not about highly sensitive issues (e.g., family abuse or other illegal or morally sanctioned activities). For self-reports about highly sensitive issues, statistical adjustments can be made to correct for the respondents' tendency to report what they think the "correct" response should be.

Research on the correlation of resident opinion about service quality and "objective" ratings of service quality vary, with some showing stronger relationships than others. NRC's own research has demonstrated that residents who report the lowest ratings of street repair live in communities with objectively worse street conditions than those who report high ratings of street repair (based on road quality, delay in street repair, number of road repair employees). Similarly, the lowest rated fire services appear to be "objectively" worse than the highest rated fire services (expenditures per capita, response time, "professional" status of firefighters, breadth of services and training provided). Resident opinion commonly reflects objective performance data but is an important measure on its own. NRC principals have written, "If you collect trash three times a day but residents think that your trash haul is lousy, you still have a problem."

### Survey Sampling

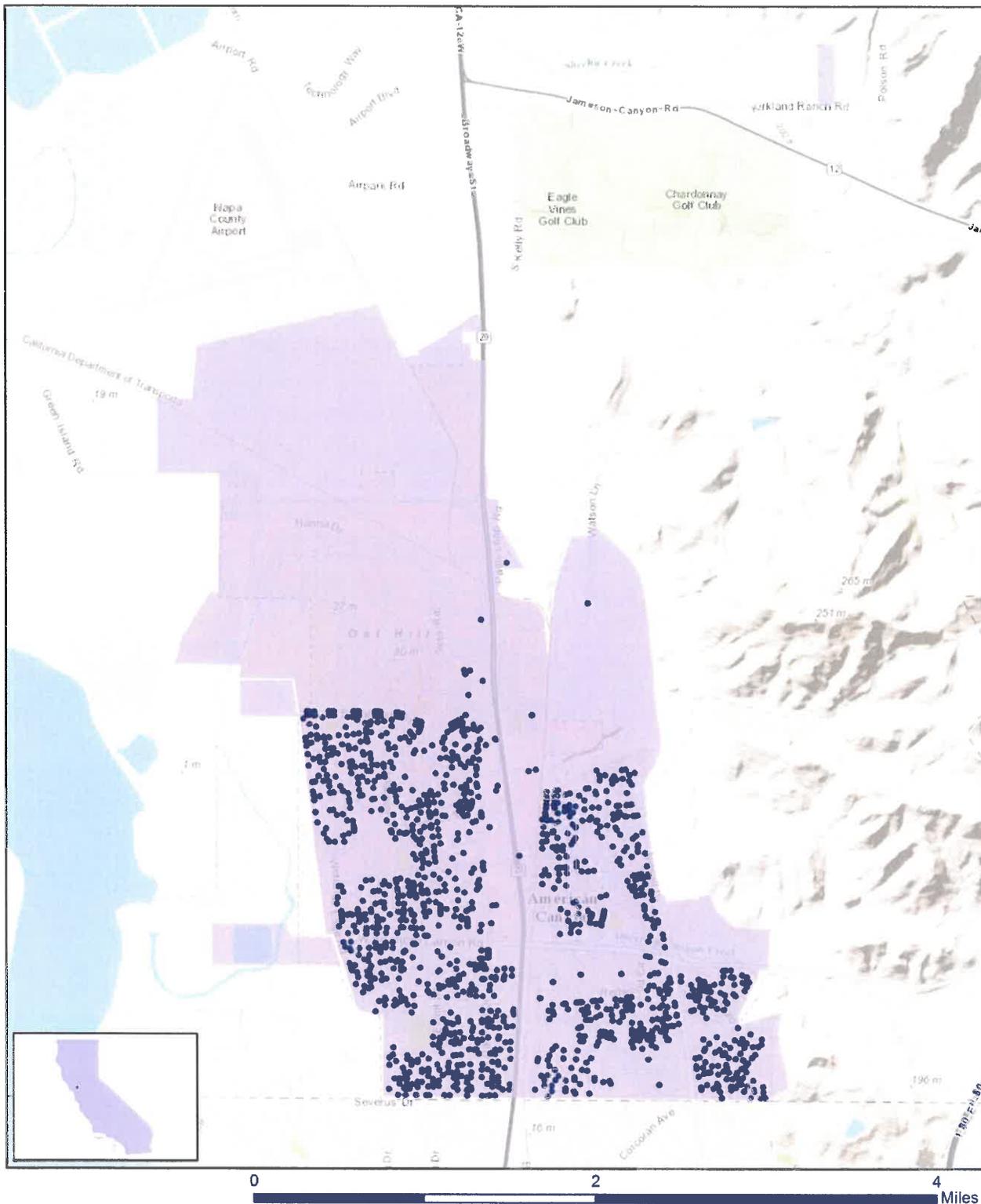
"Sampling" refers to the method by which households were chosen to receive the survey. All households within the City of American Canyon were eligible to participate in the survey. A list of all households within the zip codes serving American Canyon was purchased based on updated listings from the United States Postal Service. Since some of the zip codes that serve the City of American Canyon households may also serve addresses that lie outside of the community, the exact geographic location of each housing unit was compared to community boundaries using the most current municipal boundary file (updated on a quarterly basis) and addresses located outside of the City of American Canyon boundaries were removed from consideration.

To choose the 2,000 survey recipients, a systematic sampling method was applied to the list of households previously screened for geographic location. Systematic sampling is a procedure whereby a complete list of all possible households is culled, selecting every *N*th one, giving each eligible household a known probability of selection, until the appropriate number of households is selected. Multi-family housing units were over sampled as residents of this type of housing typically respond at lower rates to surveys than do those in single-family housing units. Figure 1 displays a map of the households selected to receive the survey. In general, because of the random sampling techniques used, the displayed sampling density will closely mirror the overall housing unit density (which may be different from the population density). While the theory of probability assumes no bias in selection, there may be some minor variations in practice (meaning, an area with only 15% of the housing units might be sampled at an actual rate that is slightly above or below that).

An individual within each household was selected using the birthday method. The birthday method selects a person within the household by asking the "person whose birthday has most recently passed" to complete the questionnaire. The underlying assumption in this method is that day of birth has no relationship to the way people respond to surveys. This instruction was contained in the cover letter accompanying the questionnaire.

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Figure 1: Location of Survey Recipients



## Survey Recipients in American Canyon, CA

- Survey Recipients



Note: Although the 34 Mobile Home Parks are only represented with one dot, (due to address format), 204 units were sent surveys

## Survey Administration and Response

Selected households received three mailings, one week apart, beginning on April 13, 2015. The first mailing was a prenotification postcard announcing the upcoming survey. The next mailing contained a letter from the City Manager inviting the household to participate, a questionnaire and a postage-paid return envelope. The final mailing contained a reminder letter, another survey and a postage-paid return envelope. The second cover letter asked those who had not completed the survey to do so and those who had already done so to refrain from turning in another survey. Respondents could opt to take the survey online instead of returning a paper survey. Completed surveys were collected over the following six weeks.

About 1% of the 2,000 surveys mailed were returned because the housing unit was vacant or the postal service was unable to deliver the survey as addressed. Of the remaining 1,976 households that received the survey, 494 completed the survey providing an overall response rate of 25%. Of the 494 completed surveys, 35 were completed online.

## Confidence Intervals

It is customary to describe the precision of estimates made from surveys by a “level of confidence” and accompanying “confidence interval” (or margin of error). A traditional level of confidence, and the one used here, is 95%. The 95% confidence interval can be any size and quantifies the sampling error or imprecision of the survey results because some residents’ opinions are relied on to estimate all residents’ opinions.<sup>1</sup>

The margin of error for the City of American Canyon survey is no greater than plus or minus four percentage points around any given percent reported for the entire sample (494 completed surveys).

For subgroups of responses, the margin of error increases because the sample size for the subgroup is smaller. For subgroups of approximately 100 respondents, the margin of error is plus or minus 10 percentage points.

## Survey Processing (Data Entry)

Upon receipt, completed surveys were assigned a unique identification number. Additionally, each survey was reviewed and “cleaned” as necessary. For example, a question may have asked a respondent to pick two items out of a list of five, but the respondent checked three; in this case, NRC would use protocols to randomly choose two of the three selected items for inclusion in the dataset.

All surveys then were entered twice into an electronic dataset; any discrepancies were resolved in comparison to the original survey form. Range checks as well as other forms of quality control were also performed.

## Survey Data Weighting

The demographic characteristics of the survey sample were compared to those found in the 2010 Census and American Community Survey estimates for adults in the City of American Canyon. The primary objective of weighting survey data is to make the survey sample reflective of the larger population of the community. The characteristics used for weighting were HU type (attached or detached), Tenure (rent or own), Sex, Age and Hispanic. The results of the weighting scheme are presented in the following table.

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<sup>1</sup> A 95% confidence interval indicates that for every 100 random samples of this many residents, 95 of the confidence intervals created will include the “true” population response. This theory is applied in practice to mean that the “true” perspective of the target population lies within the confidence interval created for a single survey. For example, if 75% of residents rate a service as “excellent” or “good,” then the 4% margin of error (for the 95% confidence interval) indicates that the range of likely responses for the entire community is between 71% and 79%. This source of uncertainty is called sampling error. In addition to sampling error, other sources of error may affect any survey, including the non-response of residents with opinions different from survey responders. Though standardized on The NCS, on other surveys, differences in question wording, order, translation and data entry, as examples, can lead to somewhat varying results.

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Table 77: American Canyon, CA 2015 Weighting Table

	Population Norm	Unweighted Data	Weighted Data
<b>Housing</b>			
Rent home	21%	18%	21%
Own home	79%	82%	79%
Detached unit	92%	90%	92%
Attached unit	8%	10%	8%
<b>Race and Ethnicity</b>			
White	41%	47%	42%
Not white	59%	53%	58%
Not Hispanic	78%	86%	78%
Hispanic	22%	14%	22%
<b>Sex and Age</b>			
Female	52%	57%	53%
Male	48%	43%	47%
18-34 years of age	29%	8%	28%
35-54 years of age	43%	40%	43%
55+ years of age	28%	52%	30%
Females 18-34	14%	6%	20%
Females 35-54	22%	22%	19%
Females 55+	16%	29%	13%
Males 18-34	15%	2%	8%
Males 35-54	21%	18%	23%
Males 55+	13%	24%	16%

### Survey Data Analysis and Reporting

The survey dataset was analyzed using the Statistical Package for the Social Sciences (SPSS). For the most part, the percentages presented in the reports represent the “percent positive.” The percent positive is the combination of the top two most positive response options (i.e., “excellent” and “good,” “very safe” and “somewhat safe,” “essential” and “very important,” etc.), or, in the case of resident behaviors/participation, the percent positive represents the proportion of respondents indicating “yes” or participating in an activity at least once a month.

On many of the questions in the survey respondents may answer “don’t know.” The proportion of respondents giving this reply is shown in the full set of responses included in Appendix A. However, these responses have been removed from the analyses presented in the reports. In other words, the tables and graphs display the responses from respondents who had an opinion about a specific item.