



GODBE RESEARCH
Gain Insight



Appendix A: Detailed Methodology

Sample Characteristics

Overall, 400 residents of Redwood City completed the survey, representing a total universe of approximately 58,438 adult residents. The study parameters resulted in a margin of error of plus or minus 4.9 percent. Interviews were conducted from December 3 through December 12, 2008, and the average interview length was approximately 18 minutes.

Sample, Screeners and Weighting

The respondents for this study were selected using random digit dialing (RDD), which randomly selects phone numbers from the active residential phone exchanges within the area of the study. Interviewers first asked potential respondents a series of questions which were used to ensure that the person lived in Redwood City and was at least 18 years old.

Once collected, the sample of respondents was compared with the actual adult population of Redwood City (based on 2006 US Census Estimates) to examine possible differences between the demographics of the sample of respondents and the actual population universe. The data were weighted to correct differences, and the results presented are representative of the adult population characteristics in Redwood City in terms of gender, age, and ethnicity.

Survey Question Randomization

To avoid the problem of systematic position bias, where the order in which a series of questions is asked systematically influences the answers, several questions in the survey were randomized such that the respondents were not consistently asked the questions in the same order. The series of items in Questions 4, 9, 29 and 30 were randomized to avoid such position bias.

Questions 10, 12, 13, 16, 20, 28, 38 and G allowed the residents surveyed to mention multiple responses. For this reason, the response percentages may sum to more than 100, and these represent the percent of the residents that mentioned a particular response, rather than the percent of total responses.

Subgroup Comparisons

In addition to looking at the overall results, it is also useful to examine the responses of different demographic and behavioral groups. Generally, Godbe Research comments only on statistically significant differences in key segments in this type of report. The present report highlights statistically significant differences observed in responses by gender, age, ethnicity, and area of residence. For percentages broken out by other respondent groups, including children in the household, ages of children in the household, annual household income, and satisfaction with City services, please see Appendix D.

Margin of Error I

Because a survey typically involves a limited number of people who are part of a larger population group, by mere chance alone, there will almost always be some differences between a sample and the population from which it was drawn. These differences are known as “sampling error,” and they are expected to occur regardless of how scientifically the sample has been selected. The advantage of a scientific sample is that we are able to calculate the sampling error. Sampling error is determined by four factors: the population size, the sample size, a confidence level, and the dispersion of responses.

The following table shows the possible sampling variation that applies to a percent result reported from a probability type sample. Because the sample of 400 respondents was drawn from the estimated population of approximately 58,438 adult residents in Redwood City, one can be 95 percent confident that the margin of error due to sampling will not vary, plus or minus, by more than the indicated number of percent points from the result that would have been obtained if the interviews had been conducted with all persons in the universe. As the table indicates, the maximum margin of error for all aggregate responses is between 2.9 and 4.9 percent for the survey.

This means that, for a given question with dichotomous response options (e.g., Yes/No) answered by all 400 respondents, one can be 95 percent confident that the difference between the percent breakdowns of the sample and those of the total population is no greater than 4.9 percent. The percent margin of error applies to both sides of the answer, so that for a question in which 50 percent of respondents said yes, one can be 95 percent confident that the actual percent of the population that would say yes is between 45 (50 minus 4.9) percent and 55 (50 plus 4.9) percent.

The margin of error for a given question also depends on the distribution of responses to the question. The 4.9 percent refers to dichotomous questions where opinions are evenly split in the sample with 50 percent of respondents saying yes and 50 percent saying no. If that same question were to receive a response in which 10 percent of the respondents say yes and 90 percent say no, then the margin of error would be no greater than plus or minus 2.9 percent. As the number of respondents in a particular subgroup (e.g., age) is smaller than the number of total respondents, the margin of error associated with estimating a given subgroup's response will be higher. Due to the high margin of error, Godbe Research cautions against generalizing the results for subgroups that are composed of 25 or fewer respondents.

Margin of Error II

<i>n</i>	Distribution of Responses				
	90% / 10%	80% / 20%	70% / 30%	60% / 40%	50% / 50%
800	2.1%	2.8%	3.2%	3.4%	3.4%
700	2.2%	2.9%	3.4%	3.6%	3.7%
600	2.4%	3.2%	3.6%	3.9%	4.0%
500	2.6%	3.5%	4.0%	4.3%	4.4%
400	2.9%	3.9%	4.5%	4.8%	4.9%
300	3.4%	4.5%	5.2%	5.5%	5.6%

Reading Crosstabulation Tables

The questions discussed and analyzed in this report comprise a subset of crosstabulation tables available for each question. Only those subgroups that are of particular interest or that illustrate particular insights are included in the discussion. Should readers wish to take a closer look at other segments for a given question, the complete breakouts appear in Appendix D. These crosstabulation tables provide detailed information on the responses to each question by demographic and behavioral groups that were assessed in the survey. A typical crosstabulation table is shown here.

A short description of the item appears on the left-hand side of the table. The item sample size, in this case $n = 400$, is presented in the first column of data under "Total."

The results to each possible answer choice of all respondents are presented in the first column of data under "Total." The aggregate number of respondents in each answer category is presented as a whole number, and the percent of the entire sample that this number represents is just below the whole number. For example, among the total respondents, 236 respondents were very satisfied with the quality of life in Redwood City and this number of respondents equals 59 percent of the total sample size of 400. Next to the "Total" column are other columns representing responses from the men and the women. The data from these columns are read in exactly the same fashion as the data in the "Total" column.

		Gender		
		Total	Male	Female
Generally speaking are you satisfied or dissatisfied with the overall quality of life in Redwood City?	Total	400	199	201
	Very satisfied	236	107	128
		58.9%	53.9%	63.9%
	Somewhat satisfied	130	70	60
		32.5%	35.1%	30.0%
	Somewhat dissatisfied	25	18	6
		6.2%	9.2%	3.2%
	Very dissatisfied	6	3	3
1.6%		1.8%	1.4%	
DK/NA	3	0	3	
	0.7%	0.0%	1.5%	

Subgroup Comparisons

To test whether or not the differences found in percent results among subgroups are likely due to actual differences in opinions or behaviors – rather than the results of chance – a “z-test” was performed. In the headings of each column are labels, “A,” “B,” “C,” etc. along with a description of the variable. The “z-test” is performed by comparing the percent in each cell with all other cells in the same row within a given variable (within Gender in the pictured table, for example).

The results from the “z-test” are displayed in a separate table below the crosstabulation table. If the percent in one cell is statistically different from the percent in another, the column label will be displayed in the cell from which it varies significantly. For instance, in the adjacent table, a significantly higher percent of women (64%) were “Very Satisfied” with the quality of life in Redwood City than the percent of men (54%). Hence, the letter “A” which stands for “Male” respondents appears under column “B,” which stands for “Female” respondents. The letters in the table indicate the differences where one can be 95 percent confident that the results are due to actual differences in opinions or behaviors reported by subgroups of respondents.

It is important to note that the percent difference among subgroups is just one piece in the equation to determine whether or not two percentages are significantly different from each other. The variance associated with each data point is integral to determining significance. Therefore, two calculations may be different from each other according to the percent reported, yet the difference may not be statistically significant according to the “z” statistic.

		Gender		
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Very dissatisfied	6	3	3	
	1.6%	1.8%	1.4%	
DK/NA	3	0	3	
	.7%	.0%	1.5%	

		Gender	
		Male	Female
		(A)	(B)
Generally speaking are you satisfied or dissatisfied with the overall quality of life in Redwood City?	Very satisfied		A
	Somewhat satisfied		
	Somewhat dissatisfied	B	
	Very dissatisfied		
	DK/NA		

Understanding a Mean

In addition to the analysis of the percent of the responses, certain results are discussed with respect to a descriptive “mean.” Means are the arithmetic averages of responses. For example, to derive respondents’ satisfaction with a City service, a number value is first assigned to each response category (in this case, Very Satisfied = +2, Somewhat Satisfied = +1, Somewhat Dissatisfied = -1, and Very Dissatisfied = -2). The individual answer of each respondent is then assigned the corresponding number – from +2 to -2 in this example. Finally, all respondents’ answers are averaged to produce a final score that reflects overall resident satisfaction with a City service. The resulting mean makes the interpretation of the data considerably easier.

In the Crosstabulation tables, as well as in some tables and charts throughout the report, for Questions 4 and 9 of the survey, the reader will find mean scores. These mean scores represent the average response of each group. The adjacent table shows the scales for these two questions. Responses of “DK/NA” were not included in the calculations of the means for any question.

Question	Measure	Scale	Values
Q4	Satisfaction Ratings	+2 to -2	+2 = Very Satisfied +1 = Somewhat Satisfied -1 = Somewhat Dissatisfied -2 = Very Dissatisfied
Q9	Sense of Community Ratings	+4 to 0	+4 = “Very Strong” +3 = “Somewhat Strong” +2 = “Somewhat Weak” +1 = “Very Weak” 0 = “None at all”

Means Comparisons

Only those subgroups that are of particular interest, or that illustrate a particular insight, are included in the discussion within the report with regard to mean scores. A typical crosstabulation of mean scores is shown in the adjacent table.

The aggregate mean score for each item in the question series is presented in the first column of the data under "Total." For example, among all the survey respondents, the issue "Availability of affordable housing" earned a mean score of 0.1. Next to the "Total" column are other columns representing the mean scores assigned to the respondents grouped by Gender.

The data from these columns are read in the same fashion as the data in the "Total" column. To test whether two mean scores are statistically different, a "t-test" is performed. As in the case of the "z-test" for percents, a statistically significant result is indicated by the letter representing the data column.

	Gender		
	Total	Male	Female
A. Availability of affordable housing	0.1	0.3	-0.1
B. Traffic law enforcement	1.1	1.1	1.1
C. Neighborhood police patrols	0.9	1.1	0.8
D. Trimming and maintenance of City trees	1.1	1.1	1.1
E. Keeping the City clean	1.1	1.0	1.1

	Gender	
	Male	Female
	(A)	(B)
A. Availability of affordable housing	B	
B. Traffic law enforcement		
C. Neighborhood police patrols	B	
D. Trimming and maintenance of City trees		
E. Keeping the City clean		