CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT

2005 FLOOD AWARENESS SURVEY

FINAL REPORT

PREPARED BY

PAMELA S. GALLION
Cannon Survey Center
University of Nevada
Las Vegas

DECEMBER 2005

REGIONAL FLOOD CONTROL DISTRICT

CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
2005 FLOOD AWARENESS SURVEY

RESEARCH METHODOLOGY

After a pilot testing session during the last week on September 2005, the University of Las Vegas (UNLV) Cannon Survey Center (CSC) conducted the telephone survey between October 4 and October 14, 2003. The calls were made on various days of the week between the hours of 11:00 a.m. and 8:00 p.m. Each individual interview lasted between 5 and 7 minutes. A total of 501 interviews were completed with a margin of error of +/- 5% at the 95% confidence level.

A representative sample of Clark County telephone numbers was purchased for this survey from Survey Sampling, Inc. (SSI). SSI has been providing scientific samples of telephone numbers for research since 1977. The sample list of 4,972 telephone numbers for this survey included both listed and unlisted working numbers.

The telephone numbers were categorized into "blocks." Each block consisted of 100 contiguous numbers identified by the first two digits of the last four digits of a telephone number. For example, in the telephone number 346-7300, "73" is the block identifier. After the blocks were verified to contain residential telephone numbers, the numbers to be called were randomly generated from each block. This procedure allowed the inclusion of unlisted numbers and any newly listed numbers that were not included in the most recently published telephone directories for Clark County.

Random digit-dialing techniques were used to select respondent households with information developed using the most current telephone exchange data available. An "exchange" is defined as the three-digit prefix of the telephone number.

The interviewers made up to three attempts on each telephone number. These attempts were made at different times of the day and on different days of the week. Once contacted, each respondent was given the opportunity to complete the survey at another time. Research has shown that offering respondents the opportunity to schedule a pre-planned telephone interview at a later point in time can greatly increase cooperation and willingness to participate in the study.

The CSC used 11 interviewing stations for this survey. The interviewing staff was comprised of a demographically diverse group of approximately 15 interviewers. Before making any calls, the interviewers received training in interviewing techniques and survey methodology.

Prior to their work on this survey, the CSC staff attended a survey-specific training session. Training included a refresher session that covered the following topics:

1. Interviewer roles and responsibilities
2. Importance of maintaining strict confidentiality and general principles of survey administration
3. Interviewing procedures that included how to ask survey questions and specific guidelines for probing for answers, precoded questions, and any open-ended questions
4. How to maximize respondent cooperation
5. Operation of CATI software
6. General administration procedures.

Survey interviewers also received detailed training regarding the specifics of this study including a project overview, study-specific interviewing procedures, and a detailed discussion of the questionnaire contents.

Professional staff members were provided with detailed answers to questions that may be raised by survey respondents and an explanation of the terms that needed a precise definition or clarification, such as the definition of "flooded street." This information was assembled into an interviewing manual that was distributed to each interviewer and left at each of their computer stations as a reference guide.

In addition to the director and the data collection supervisor, all interviewers were monitored by telephone room supervisors. One field supervisor or senior researcher was present at all times during the data collection period to ensure the quality and integrity of the data collection process. The telephone room supervisor was able to instantaneously address any problems that might arise in the field.

At the conclusion of the interviewing phase, data were cleaned and then analyzed using SPSS 12.5 software. This software is a comprehensive statistical software system that aids the data analysis process at many levels with procedures ranging form data listings, tabulations, and simple descriptive to complex statistical analyses. Graphics for screening data, understanding and interpreting analyses, and communicating results are integrated with the statistical procedures.

In order to include the responses of non-English-speaking respondents, the survey instrument was translated into Spanish. All calls that were coded as a language barrier were turned over to two experienced native Spanish-speaking interviewers, who then made follow-up calls to the number in an attempt to complete the interview. There were

131 calls initially coded as a language barrier from this sub-list of 131 Spanish-speaking respondents. Twenty-five (25) of those interviews were completed, which represents 19% of this subset and approximately 5% of all completed interviews.

The dispositions of all calls are listed in Table 1. The cooperation rate for the survey was 36%.

Table 1. CALL DISPOSITIONS.

Disposition of Call	N [count]	Percent
Completed Interview	501	10
Answering Machine	791	16
Blocked Call	35	1
Business	462	9
Perpetual Busy	96	2
Callback	25	1
Fax	363	7
Language Barrier	106	2
No Answer	723	15
Not Eligible	91	2
Not in Service	1,012	20
Refusal	767	15
TOTAL	**4,972**	**100**

PROJECT SUMMARY

CHARACTERISTICS OF THE SAMPLE

As in previous administrations of the survey, five demographic variables were used to create the subsets for data analysis of the sample. The variables were (1) respondent's area of residence in Clark County, (2) the length of time the respondent resided in Clark County, (3) the respondent's level of education, (4) the respondent's age, and (5) the respondent's gender. This year an additional subset of 25 respondents (5% of the total) was created by administering the survey in Spanish to non-English-speaking respondents. The following summarizes the results of the 2005 CSC flood survey.

As can be seen in Figure 1, 39.3% of respondents live in the southeast section (compared to 35.8% in 2004), 26.2% live in the northwest section (compared to 26.8% in 2004), 15.4% live in the northeast section (compared to 17.4% in 2004), and 17.2% live in the southwest section (compared to 17.9% in 2004) of Clark County. Respondents residing in outlying areas of Clark County, such as Mesquite, Boulder City, and Logandale, represent only 1.4% of the completed surveys (compared to 2.0% in 2004).

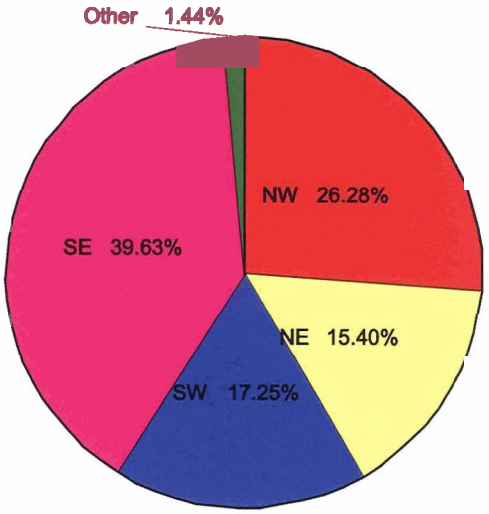


FIGURE 1. RESPONDENT'S AREA OF RESIDENCE IN CLARK COUNTY.

Figure 2 indicates, half of the respondents (50.81%) are long-time residents of Clark County having lived here longer than 10 years. This is followed by 17.4% of respondents who have lived here for between 6 and 10 years. An almost equal number of residents have lived here between 3 and 6 years (12.1%) and between 1 and 3 years (12.3%). Likewise, the percentages are similar for residents who have lived in Clark County for between 6 months and 1 year (3.8%) and those who have lived here for less than 6 months (3.2%). These percentages are similar to those obtained in last year's administration of the survey and differ by less than one percentage point across all variables.

Figure 3 represents the educational level of the survey participants. As is indicated, the response with the highest incidence is the 27% of respondents who have graduated from high school as their highest level of education; this is closely followed by 24% of respondents who have attended some college, but have not obtained a degree. The number of respondents with less than a high school diploma (8%) has increased this year (compared to 5% in 2004). The other levels of education remain fairly consistent with the data obtained in past administrations of this survey.

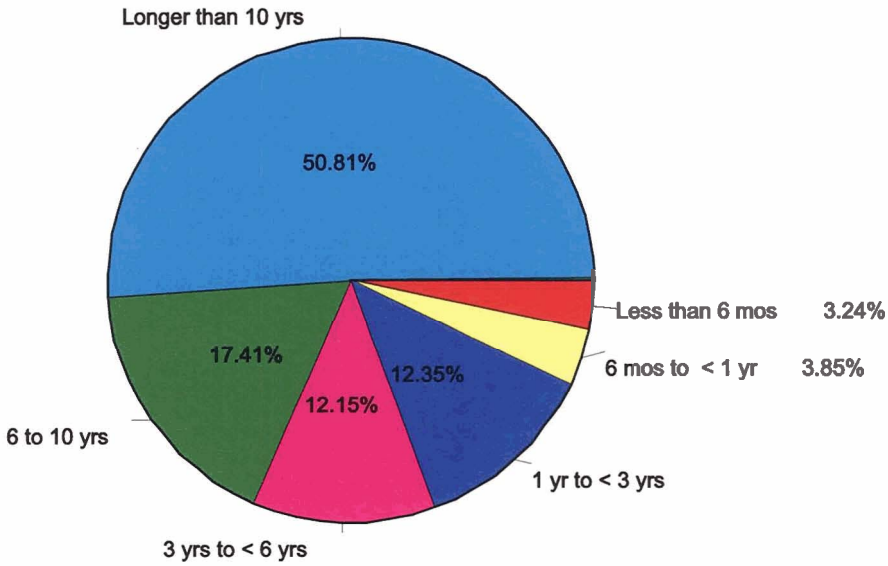


FIGURE 2. LENGTH OF TIME RESPONDENT RESIDED IN CLARK COUNTY.

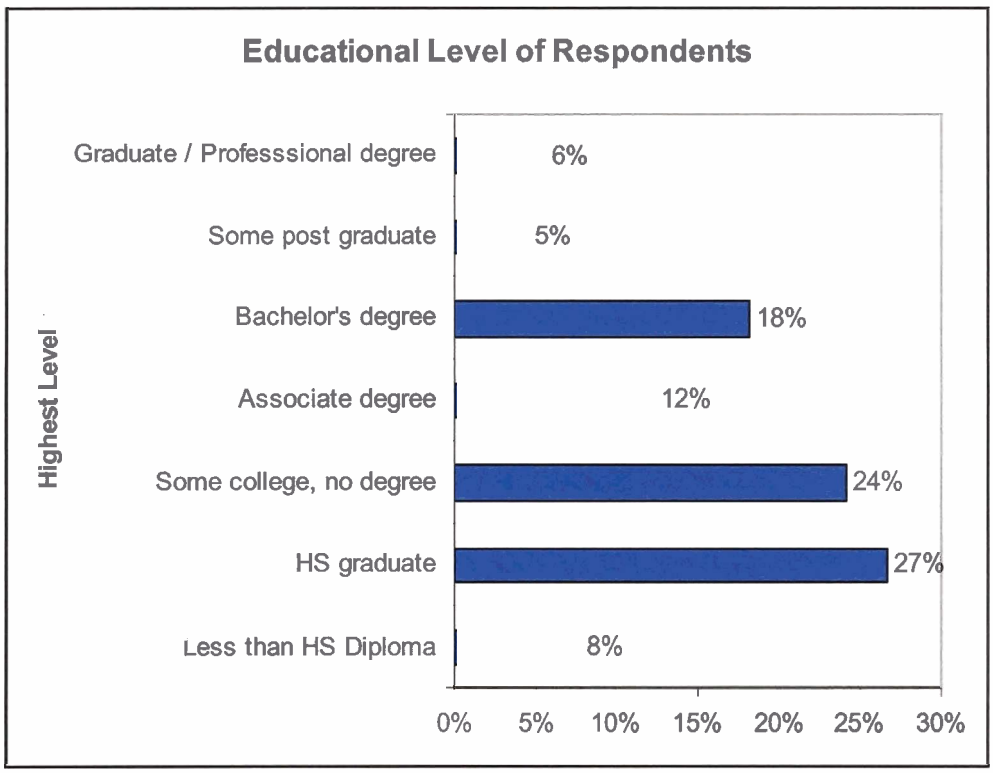


FIGURE 3. EDUCATIONAL LEVEL OF RESPONDENTS.

Instead of dividing the data on age into quartiles as was done in the past, age variables were created for this survey that matches the census variables (Figure 4). This change was made to allow comparison of survey age variables with census variables. When looking at the age of the respondents, the graph above shows that the largest number of respondents (37%) fall between the ages of 45 and 64. An equal number of respondents (28%) fall into the 25 to 44 age group and the 65 and older age group. Only 6% of respondents were between the ages of 18 and 24. The median age of respondents was 53. This is up from the median age of last year's respondents (46). The division of gender was 39% male and 61% female.

The respondent's gender in this survey was 39% male and 61% female.

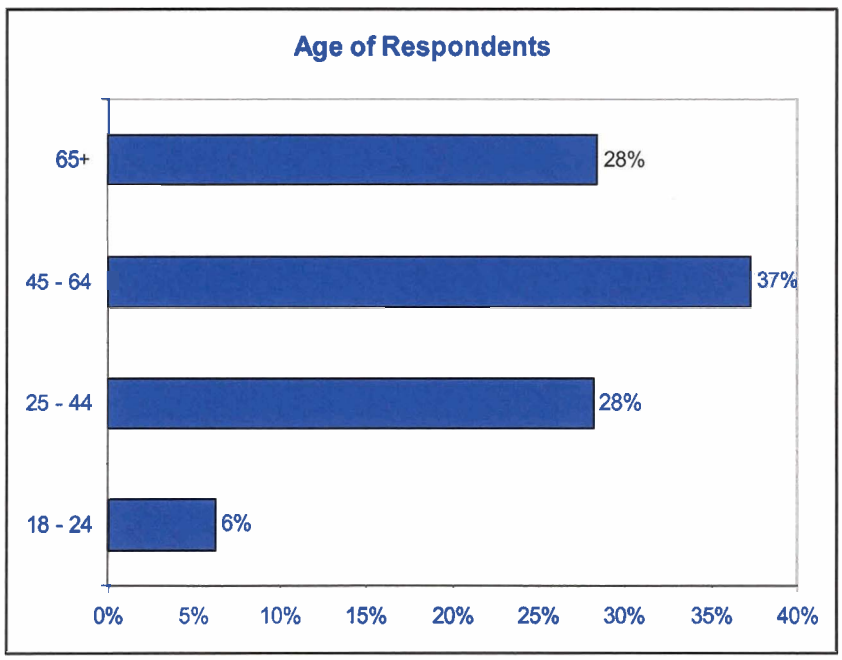


FIGURE 4. RESPONDENT'S AGE.

ANSWERS TO FLOODING AWARENESS QUESTIONS

UNAIDED AWARENESS—The respondents are not told which Clark County Agency the survey is being conducted for unless they ask, and then the information is provided at the conclusion of the survey. This is done intentionally to keep the slate clean for the first question in the survey which is "Are you aware of any weather-related dangers that can occur in Clark County?" In this survey 77% of the respondents [N = 386], compared to 84% in 2004, reported that they were aware of weather-related dangers that can occur in Clark County. These 386 respondents formed the subset from which the unaided awareness of flooding was obtained. This group was asked the follow-up question: "What types of weather-related dangers are you aware of that can occur in Clark County?" From this group, 319 were able to answer "flood" or "flash flood" unaided. This represents 83% of the subset and 64% of the entire sample who were able to mention "flood" unprompted. This percentage reflects a decline after last years jump from 55% unaided awareness in 2003 to 78% unaided awareness in 2004.

AIDED AWARENESS—Respondents who reported that they were not aware of any weather-related natural disasters that can occur in Clark County and respondents who did not mention "floods" of "flash floods" in the unprompted question were asked directly "Are you aware that flash flooding occurs here in Clark County?" Eighty-two percent (82%) of the respondents [N =109] from this subset were aware that flash flooding can occur.

COMBINED/TOTAL AWARENESS—When looking at the total number of respondents in both the prompted and unprompted questions, 94% of respondents were aware that flooding can occur in Clark County.

As indicated on Figure 5, the survey results show that the combined awareness (total of unaided and prompted responses) remains consistently very high from 1999 through 2005. There was, however, a significant drop in the percentage of respondents who were able to mention "flood" or "flash flooding" unaided. This year 64% were able to answer "flood" or "flash flooding" unaided as compared to 78% who were able to do so last year.

There were differences in some of the subsets, although they do not solely account for the 14 percentage point difference in unaided awareness. For example, when looking at the data from the Spanish-speaking respondents only, a third of respondents were able to mention "flooding" or "flash flooding" unaided.

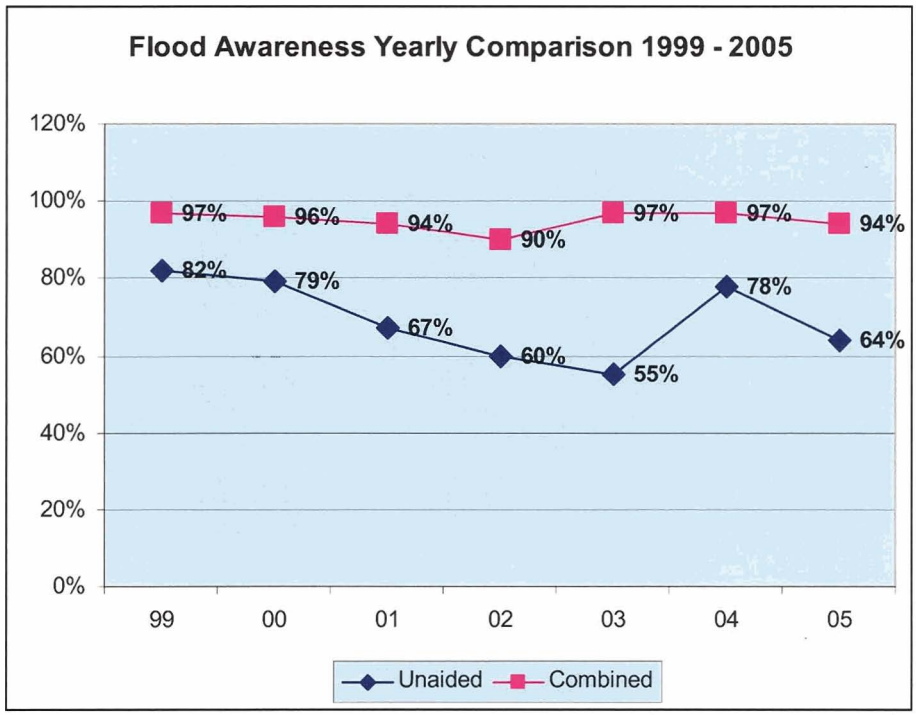


FIGURE 5. AWARENESS OF FLOODING COMPARISONS 1999 THROUGH 2005.

Figure 6 displays the differences in responses by the length of time that the respondent has lived in Clark County. The graph indicates that a high percentage of respondents who have lived here longer than 10 years were able to mention "floods" or "flash flooding" in an aided or unaided situation (combined). When looking at the data for those respondents who could mention floods without any prompts (unaided) the highest incidence was in the group of respondents that has lived here between 6 to 10 years.

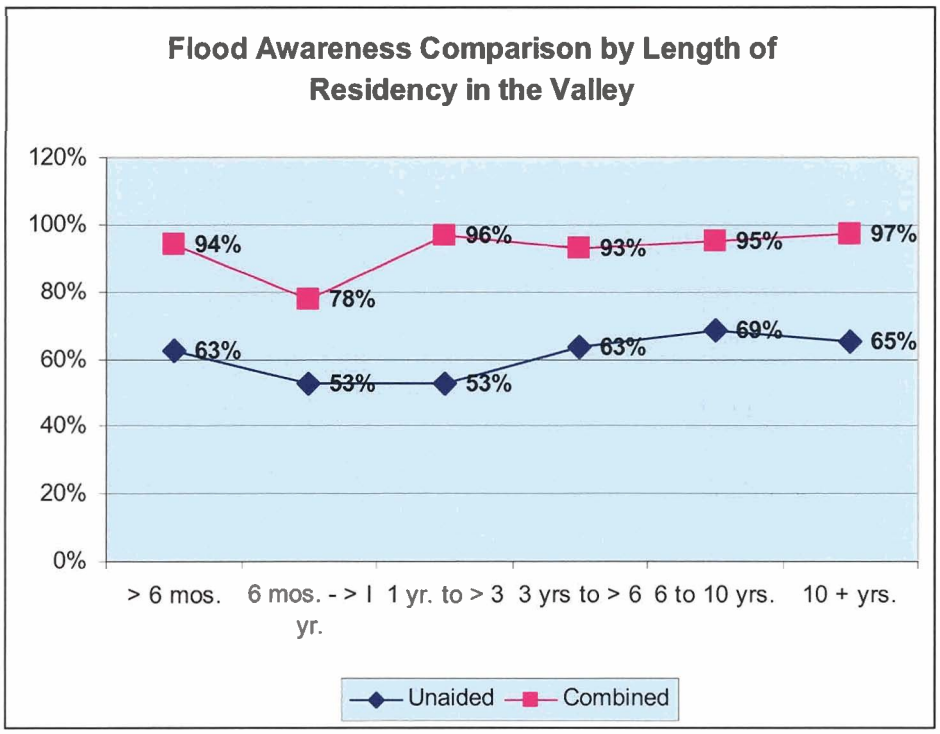
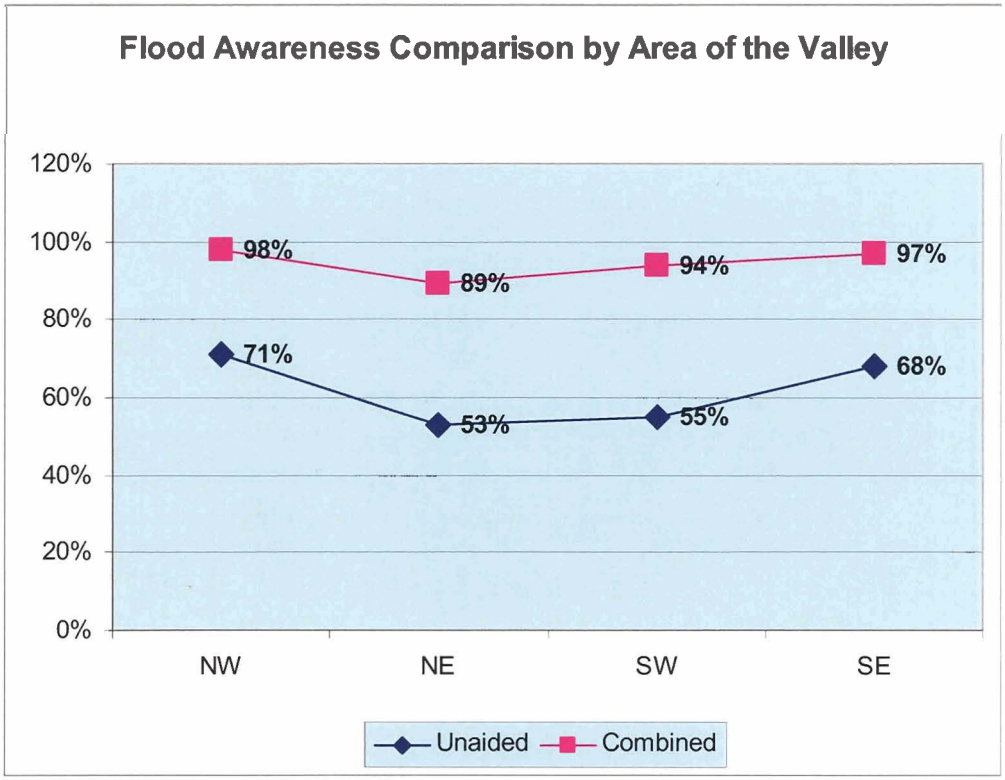


FIGURE 6. AWARENESS OF FLOODING AMONG SUB-POPULATIONS: LENGTH OF TIME IN CLARK COUNTY.

When looking at the data for the area of residence in Clark County, the combined awareness is fairly consistent with all regions except the northeast (89%) (Figure 7). While the combined awareness data are consistent with last year's data, the aided mention of "floods" is down in all areas of Clark County, and there are some interesting statistics in this year's data. For instance, after a 6% rise in combined awareness last year in the northeast, this year it had the lowest incidence of combined awareness. This trend in the northeast continues with unaided awareness (from 53% in 2005 to 83% in 2004). Likewise, in the southwest, another growth area, unaided awareness dropped from 81% in 2004 to 55% in 2005.



*Aided awareness is not depicted on graph.

FIGURE 7. AWARENESS OF FLOODING AMONG SUB-POPULATIONS: AREA OF VALLEY.

As in past administrations of this survey, the youngest members of the sample are the least likely to mention "flood" or "flash flood" in either situation. Only 47% of 18- to 24-year olds were able to mention "floods" unaided; however, 87% were able to do so in the combined situation. The highest incident was among 45- to 64-year old respondents. Sixty-nine percent (69%) of this subset were able to mention "flood" unaided, and 97% were able to do so in the combined situation (Figure 8).

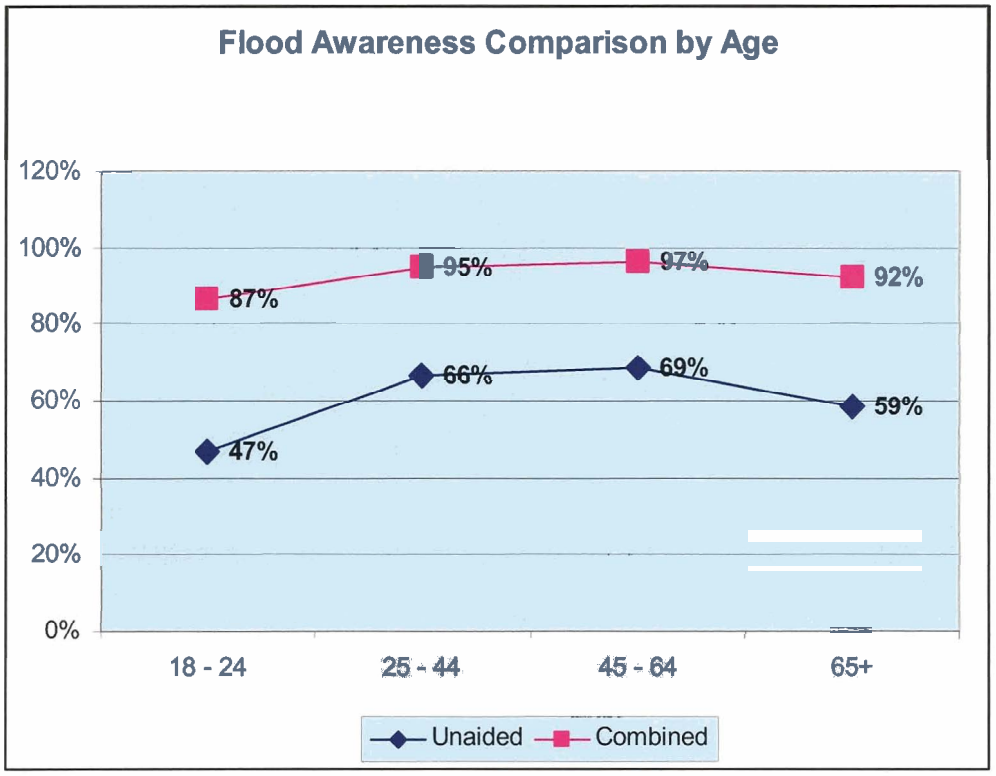


FIGURE 8. AWARENESS OF FLOODING AMONG SUB-POPULATIONS: AGE OF RESPONDENTS.

OTHER WEATHER-RELATED NATURAL DISASTERS MENTIONED

Respondents who in question 1 answered that they are aware of weather-related dangers that can occur in Clark County [N = 386] were asked unprompted to name the types of weather-related disasters that they were aware of. Table 2 shows the responses that were mentioned other than "flood" or "flash flood."

Table 2 indicates that only a handful of other weather-related natural disasters were mentioned. The list of responses generated this year does not differ from the list generated in the previous administrations of the survey.

TABLE 2. OTHER TYPES OF DISASTERS MENTIONED.

Type or Disaster	Percent*
Dust / Sand Storms / High Winds	5%
Heavy Rains / Thunder Storms	4%
Heat	3%
Earthquakes	2%
Fire / Lightening	2%
Unable to Specify	5%

* All percents are valid percents based on the sub-set that responded yes to Q1.

FLOOD-RELATED ISSUES

All respondents were asked a series of questions to assess general knowledge of flood-related issues. Table 3 shows the overall frequency results. Respondents were asked to "agree," "somewhat agree," "somewhat disagree," or "disagree" with each of the statements. The "agree" and "somewhat agree" responses were combined for the percent who "Agree" and likewise the "somewhat disagree," and "disagree" responses were combined for the percent who "Disagree."

The responses again are very similar to last year's responses, again with a slight decrease in awareness of the issues. There was a significant downward trend (14 percentage points) in the percentage of respondents who are aware of the ways that flooding is being controlled in Clark County (from 83% in 2004 to 69% in 2005). However, there was an increase this year in the percentage of respondents that knew about resources available to learn more about flash flooding (from 52% in 2004 to 57% in 2005).

TABLE 3. FLOOD-RELATED ISSUES.

Flood Related Issue	Agree (percent)	Disagree (percent)
I know about the dangers of flash flooding (q3a)	95	3
I know about the time of year flash flooding is most likely to occur in Clark County (q3b)	81	14
I know about safety precautions relating to flash flooding (q3c)	83	13
I know about the resources available to learn more about flash flooding (q3d)	56	41
I know ways in which flooding is being controlled in Clark County (q3e)	69	26
I know about the availability of flood insurance (q3f)	75	19

ANSWERS TO QUESTIONS ABOUT FLASH FLOODING

(Q3A) I KNOW ABOUT THE DANGERS OF FLASH FLOODING

Ninety-five percent (95%) of all respondents agree that they know about the dangers of flash flooding. When looking at these data among the subpopulations, there is some variation. When looking at the data by area of residence in Clark County, nearly all (99%) of the respondents in the southwest agreed with the statement and 96% of respondents in both the southeast and the northwest agreed with the statement. The area with the lowest incidence of agreement, with the exception of outlying areas (86%), was in the northeast, where 89% of respondents agreed with the statement.

These data have very little variation by the length of time the respondent had resided in Clark County. There was between 90% and 96% of respondents in each of these groups that agreed with the statement. The lowest incidence (90%) was in the group of respondents who have lived here between 6 months and a year. This was also the group who had the lowest incidence of aided and unprompted awareness of flooding. Respondents who have lived here longer than 10 years were the most likely to agree with the statement (96%).

The older the respondent the more likely they were to agree with the statement. While 90% of the youngest participants (ages 18 to 24) agreed with the statement, 97% of respondents between the ages of 45 and 64 and those over 65 years of age agreed with the statement.

There was no significant difference in gender. Ninety-six percent (96%) of males agreed with the statement as compared to 94% of females.

(Q3B) I KNOW ABOUT THE TIME OF YEAR FLASH FLOODING IS MOST LIKELY TO OCCUR IN CLARK COUNTY

Eighty-one percent (81%) of all respondents reported that they know about the time of year when flash flooding is most likely to occur in Clark County. There is some variation in the subpopulations, especially when looking at the data by the length of time the respondent has resided in the Valley. Only 53% of respondents who have lived here less than 6 months (compared to 51% in 2004) agreed with the statement. For the most part, the percentage increases with the length of time the respondent has lived in the area with the exception of a drop in responses in the 3- to 6-year age group (68%). Sixty-eight percent (68%) of those living here between 6 months and a year also agreed with this statement. Otherwise the agreement in the other subgroups in this set was between 80% and 87% with those living here more than 10 years having the highest percentage of agreement.

When looking at the data by the area where the respondent resides, the percentage of agreement was between 73% and 85% with the lowest incidence in the northeast portion of the Valley and the highest incidence in the southeast portion of the Valley.

The youngest respondents were significantly less likely to agree with this statement. Only 53% of 18- to 24-year-old respondents agreed with this statement, while in the other age groups between 81% and 83% of the respondents agreed with this statement.

Eighty-three percent (83%) of males agreed with the statement and 79% of females agreed with the statement.

(Q3C) I KNOW ABOUT SAFETY PRECAUTIONS RELATING TO FLASH FLOODING

Eighty-three percent (83%) of all respondents know about safety precautions relating to flash flooding. Respondents that live in the northwest part of the Valley (91%) are the most likely of any of the subsets to know about safety precautions relating to flash flooding. When looking at the data by area of the Valley, those respondents living in the northeast (73%) are the least likely to agree with the statement. In all of the other geographic areas between 81% and 89% of respondents agreed with the statement.

Out of all the subgroups those who have lived here less than 6 months were the least likely of any subpopulation to know about safety precautions relating to flash flooding. Only 63% of respondents in this group agreed with the statement. Conversely, 88% of those respondents who have lived here longer than 10 years know about safety precautions relating to flash flooding.

As with other questions in this series, the younger the respondent, the least likely they were to know about safety precautions. While 77% of 19- to 24-year olds agreed with the statement, 79% of 25- to 44-year olds, and 86% of 45- to 64-year olds and 86% of those older than 65 agreed with the same.

Eighty percent (80%) of males knew about the safety precautions relating to flash flooding while 85% of females knew the same.

(Q3D) I KNOW ABOUT RESOURCES AVAILABLE TO LEARN MORE ABOUT FLASH FLOODING

Fifty-six percent (56%) of all respondents said they know about the resources available to learn more about flash flooding. Respondents who live in the southwest are the most likely to know (64%) about the resources available to learn more about flash flooding. In the other areas of the valley between 53% and 57% of respondents were aware of the same.

Only 36% of those respondents who have lived here less than 6 months agreed with the statement while 57% of those who have lived here longer than 10 years know about flood-related resources. The highest incidence in this subset was 62% of respondents who have lived in the area between 1 and 3 years who know about flood-related resources.

There was not much variation in responses based on age in all of the age categories between 53% and 59% of respondents know about flood-related resources. There was only one percentage point difference between the responses of males (55%) and females (56%).

(Q3E) I KNOW ABOUT WAYS FLASH FLOODING IS BEING CONTROLLED IN CLARK COUNTY

Sixty-nine percent (69%) of all respondents know about ways in which flooding is being controlled in Clark County. There are some differences among the subgroups. There is a statistically significant relationship between the length of time that a resident has lived in Clark County and the age of the respondent and their knowledge of the ways that floods are controlled. For example, on 38% of residents who have lived in Clark County for less than 68 months and 32% of those who have lived here between 6 months and a year know about the ways that floods are controlled. This percentage doubles (67%) for residents who have lived here longer than a year and finally caps out at 77% of residents who have lived here longer than 10 years knowing how flash flooding is being controlled in the Valley. Similarly with the age variable, the youngest respondents (18 to 24) are the least likely (49%) to be aware of the ways that flooding is controlled in the Valley while the respondents over 65 are the most likely to aware of the same (77%).

There was no real difference between the areas that the respondent lives in and their knowledge of the ways flooding is controlled. Respondents in the northeast were the least likely (61%) to be aware while residents in the northwest were the most likely (76%).

There was only one percentage point difference between males (70%) and females (69%) on this question.

(Q3F) I KNOW ABOUT THE AVAILABILITY OF FLOOD INSURANCE

Seventy-five percent (75%) of respondents responded that they know about the availability of flood insurance. Respondents in the southwest part of the Valley are the most likely (82%) to know about the availability of flood insurance. In other areas of the community, 77% of respondents in the southeast, 78% in the northwest, and 63% in the northeast are aware of the same.

Residents who have lived here less than 6 months are the least likely (56%) to know about the availability of flood insurance. Conversely, respondents who have lived here the longest (10 years or longer) are the most likely to know about the availability of flood insurance (79%). An interesting upward spike is found in the group of respondents who have lived in the Valley for between 6 months and a year; 79% of this subgroup also reported knowing about the availability of flood insurance. In the other length of time variables between 69% and 74% of respondents were aware of the same.

There is a statistically significant relationship between age and knowledge about the availability of flood insurance. As one would expect, the youngest respondents (18 to 24 years old) who may not be homeowners were the least likely to know about the availability of flood insurance (53%). Nearly 80% of respondents who are between 45 and 64 and those 65 and older know about the availability of flood insurance.

Seventy eight percent (78%) of males and 73% of females know about the availability of flood insurance.

ANSWERS TO INFORMATION SOURCE QUESTIONS

The survey respondents were asked to respond "yes" or "no" to a list that was read to them as possible sources for learning about the flooding hazard in Clark County. Table 4 presents the data in rank order.

TABLE 4. RANK ORDER FOR SOURCES OF OBTAINING FLOOD INFORMATION.

Rank	Source	2005	2004	2003
1	Television	87%	93%	88%
2	Newspapers	58%	64%	58%
3	Friends / Relatives	48%	52%	47%
4	Radio	47%	57%	59%
5	Billboards	39%	53%	48%
6	Brochure	26%	26%	25%
7	Postcard from CCRFCD	23%	24%	NA
8	School-Age Children	14%	15%	20%
9	Welcome Home Magazine	5%	5%	NA
9	CCRFCD Website	5%	13%	18%

As in past years, television is the main source where the respondents learn about flash flooding. Newspapers also continue to be in the top three ways that respondents are getting flood-related information. Regarding a website as a source for obtaining information about flooding, this year respondents were asked specifically if they had learned about flooding from the Clark County Regional Flood Control District (CCRFCD) website. This change in wording could account for the difference in the responses between this year and the previous two years.

When running cross-tabulations on the above list of sources to learn about flash flooding against the subgroups (age, length of time in the valley, area of residence, and gender), only three statistically significant relationships could be found. A statistically significant relationship exists between the age variable and the billboard-source and newspaper-source variables. In addition, there is a statistically significant relationship between the length of time the resident has lived in Clark county and the newspaper as a source variable.

When looking at each of the information sources, the following can be said about the demographic profile of the respondents most likely to obtain information from that source.[a]

a. **Brochure** – Male (27%) between the ages of 45 and 64 (29%) living here between 6 and 10 years (35%) and currently residing in the southwest (40%) section of the Valley.

b. **Billboard** – Male (40%) between the ages of 25 and 44 (45%) living here between 6 and 10 years (47%) and currently residing in the northwest (46%) section of the Valley.

c. **Television** – Female (88%) between the ages of 25 and 44 (89%) living here longer than 10 years (89%) and currently residing in the northeast (93%) section of the Valley.

d. **Radio** – Female (50%) between the ages of 25 and 44 (55%) living here between 6 months and a year (53%) and currently residing in the southwest (52%) section of the Valley.

e. **Newspaper** – Female (60%) over the age of 65 (68%) living here longer than 10 years (61%) and currently residing in the southwest (63%) section of the Valley.

---

a. Due to the small number of responses in outlying areas, they were omitted from the profile.

f. **Welcome Home Magazine** – Male or female (5%) between the ages of 45 and 64 (8%) living here less than 6 months (13%) and currently residing in the southwest (7%) section of the Valley.

g. **Postcard from the CCRFCD** – Female (25%) between the ages of 25 and 64 (28%) living here between one and three years (16%) and currently residing in the northwest (25%) section of the Valley.

h. **CCRFCD Website** – Female (6%) between the ages of 18 and 24 (10%) living here between one and three years (7%) and currently residing in the northeast (11%) section of the Valley.

i. **Friends and/or relatives** – Female (51%) between the ages of 18 and 24 (62%) living here less than 6 months (63%) and currently residing in the northwest (50%) section of the Valley.

j. **Your school-age children** – Female (16%) between the ages of 25 and 44 (29%) living here less than 6 months (19%) and currently residing in the northeast (21%) section of the Valley.

SCHOOL-AGE CHILDREN—In order to assess the effectives of flood awareness information aimed at school-age children, additional questions were asked of respondents who self reported that they learned about floods from their school-age children. These respondents were asked if their children attended elementary (k–5) public school. Of the 68 respondents who learned about flash flooding from their school-age children, 44 were eligible for the follow-up question because their children attend elementary public schools where the materials are being distributed. Unfortunately, this number is so small that no significance can be drawn from the responses but, for informative purposes, 14 respondents (31% of the eligible population) reported that their children did bring home information about flood awareness in the past year; of these, 77% of the respondents reported that they both read the information and found it useful.

(Q4L) I WATCHED THE FLOOD CHANNEL ON CABLE TELEVISION

Respondents were asked if they have cable television. Those respondents who answered yes (83%) were then asked if they had ever watched The Flood Channel on cable channels 2 or 4. Forty-two percent (42%) of those respondents that have cable television reported that they have watched The Flood Channel. This figure is down from the 56% of respondents that reported watching The Flood Channel last year and closer to the 48% that reported watching it in 2003. In actual numbers, in this and the previous two administrations of the survey, 161 respondents watched The Flood Channel in 2005, 230 in 2004, and 171 in 2003. Those respondents who had watched The Flood Channel were asked (unprompted) what they remember most from watching it. Table 5 provides the rank order of responses.

TABLE 5. RANK ORDER – REMEMBERED MOST FROM WATCHING FLOOD CHANNEL.

Rank	Item	2005	2004	2003
1	Dangers of flash flooding	42%	26%	42%
2	Safety precautions	19%	25%	13%
3	Unable to specify	19%	20%	NA
4	Ways floods are controlled	9%	4%	12%
5	Other*	7%	22%	7%
6	Where to learn more about flooding	6%	2%	3%

* "Other" includes such responses as "cars floating," "rescues" and "devastation."

As can be seen from the table above, what respondents remembered the most from watching The Flood Channel is the dangers of flash flooding. While the ranking of items is consistent with the ranking of items in previous administrations of the survey, there has been an overall increase in the percentage of respondents who remember most the "dangers of flash flooding" when watching The Flood Channel.

DEMOGRAPHIC PROFILE OF FLOOD CHANNEL VIEWERS—Those who have lived in the area the longest are the most likely to have watched The Flood Channel. Sixty percent (60%) of respondents who have lived here longer than 10 years have watched The Flood Channel. This is an 11% increase over last year (49%). For respondents who have lived here 6 to 10 years, the percentage drops to 18% and continues dropping down all the way to 1% for those respondents who have lived here less than 6 months. Residents in the southeast are almost twice as likely (41%) as residents in the southwest (21%) to have watched The Flood Channel, and are more than three times more likely to have watched it than respondents in the northeast (12%). Twenty-five percent (25%) of respondents in the northwest have watched The Flood Channel.

When looking at other demographic variables, those that watch The Flood Channel are most likely to have a high school education (30%) or some college (24%). They are also female (58%) between the ages of 45% and 64 (37%). Further, 83% of The Flood Channel viewer respondents have reported that they do not live in a flood zone.

ANSWERS TO PERSONAL EXPERIENCE QUESTIONS

(Q5 – Q7) HAVE YOU EVER EXPERIENCED A FLOODED STREET OR ROAD IN CLARK COUNTY?

Next part of the survey, respondents were read a definition of a flooded *street* (a street or road where water covers the street from curb to curb, and you can't see the pavement) and then asked if either as a driver or as a passenger of a vehicle they had ever encountered a flooded street or road in Clark County. Sixty-eight percent (68%) of respondents reported that they had encountered a flooded street. This percentage is down from the 77% who reported the same in 2004, but is similar to the percentage of respondents who reported encountering a flooded street in 2003 (65%). Respondents who had encountered a flooded street were read four statements and asked which one best described their response to encountering a flooded street.

1. Turned back and took an alternate route
2. Waited for the water to go down and then drove through it
3. Drove through it and made it
4. Drove through it and got stuck

Statements 1 and 2 are considered good or appropriate choices, while Statements 3 and 4 are considered poor or inappropriate choices.

Respondents who answered that they drove through it and made it or drove through it and got stuck were asked to define why they made that choice.

GOOD OR APPROPRIATE CHOICES

Sixty-seven percent (67%) of respondents made a good or appropriate choice when encountering a flooded road in Clark County. This is up from 63% who did so last year. By far the largest percentage of respondents who made a good or appropriate choice (61%) "turned back and took an alternate route." Six percent (6%) "waited for the water to go down then drove through it."

Those who have lived here the longest (10 years or longer) are the most likely to turn around and take an alternate route (59%). Only 2% of those who have lived here under a year and 10% of those who have lived here between 1 and 3 years did the same. Those who turned around and took an alternate route are more likely to live in the southeast (41%) than in any other part of the Valley (northwest 27%, southwest 20%, northeast 11%).

POOR OR INAPPROPRIATE CHOICES

Eighty-five respondents (85%) made a poor or inappropriate choice when encountering a flooded street or road in Clark County.[b] From this group 22% drove through it and made it, while 2% [N = 5] drove through it and got stuck. The most often cited reason why they made a poor choice was they "didn't think it was unsafe to do so" (61%). Thirteen percent (13%) were "in a hurry," 5% "didn't know any better," and 3% thought "it would be fun."

Younger respondents are more likely to think that it is unsafe to drive through a flooded street. Eighty-six percent (86%) of respondents between the ages of 18 and 24 responded the same.

(Q8) ARE STREETS A PART OF THE FLOOD CONTROL SYSTEM?

The data shows that there has been an increase in awareness that "streets are a part of the flood control system." This year 62% of respondents were aware of this as compared to 56% of respondents who were aware of the same last year. Twenty-four percent (24%) of respondents did not know that streets are a part of the flood control system, while 14% responded that they "didn't know." There are no real differences among the responses in the subgroups on this question.

b. Please note that 11% of respondents reported that they did not remember what they did when encountering a flooded road or street.

ANSWERS TO FLOOD INSURANCE QUESTIONS

(Q9A – Q9F) ARE YOU AWARE IF FLOOD INSURANCE IS AVAILABLE?

Some additional questions relating to flood insurance were added to the survey this year. This will provide CCRFCD with four additional data points for analysis. This series of questions was asked of all respondents [N = 501]. In addition to asking whether the respondent was aware if flood insurance is available to everyone, respondents were asked if flood insurance was only available to those living in a flood zone. Respondents were also asked if flood insurance will only cover the structure of a residence, whether flood insurance will cover the contents of a residence, and whether flood insurance costs the same whether or not the residence is in a flood zone. Finally, the respondent was asked whether there was a requirement to buy flood insurance if the residence is in a flood zone.

Table 6 shows the correct responses to the series of questions on flood insurance. As is indicated, a large percentage of respondents know that "flood insurance is available to everyone" (63%), that "flood insurance covers both contents and structure" (64%), and that flood insurance is not just available to those that live in a flood zone (61%). About half (52%) of respondents know that flood insurance is dependent of the location of the residence. Only about a third of respondents know that if you live in a flood zone you must buy flood insurance (35%), and about a third incorrectly thought that flood insurance will only cover the structure of a residence.

TABLE 6. FLOOD INSURANCE ISSUES.

Issue	Correct (percent)
Flood insurance is available to everyone (q9a)	63%
Flood insurance will only cover structural damage (q9b)	32%
Flood insurance is only available to those living in a flood zone (q9c)	61%
Flood insurance will cover both structure and content (q9d)	64%
Flood insurance costs the same regardless of whether of not the residence is in a flood zone (q9e)	52%
If you live in a flood zone you must buy flood insurance (q9f)	35%

(Q9A) ARE YOU AWARE THAT FLOOD INSURANCE IS AVAILABLE TO EVERYONE?

Sixty-three percent (63%) of respondents agreed that flood insurance is available to everyone. This is an increase of six percentage points for respondents who agreed (57%) from the 2004 administration of the survey. Respondents who reside in the northwest were the most likely (66%) to agree with the statement; respondents in the southwest and outlying areas were the least likely to agree (57%). Sixty-four percent (64%) of respondents in both the northeast and southeast also agreed with the statement.

When looking at the data by length of time in Clark County, there are some differences. Those respondents who were long-term residents (at least 6 years) are very likely to agree with the statement (70%) as well those who have lived here a year or less (68%). The percentage drops to between 54% and 57% for residents who have lived here at least a year but less than six years.

There is an interesting trend when looking at the data by the age of the respondent. The youngest respondents (18 to 24) were the most likely (73%) to agree with the statement and progressively the oldest respondents (65 and older) were the least likely to agree (60%) with the statement.

(Q9B) ARE YOU AWARE THAT FLOOD INSURANCE WILL ONLY COVER DAMAGE TO THE STRUCTURE OF A RESIDENCE?

This is a new question this year. The baseline data indicates that only 32% of respondents are aware that flood insurance *will* cover damage to more than the structure of a residence. Nearly a third (31%) of respondents did not know how to answer this question. They either did not understand the question as written or this is a content area where public education may need to be increased. When looking at the data by the subgroups, the statistics that stand out the most are: by age, 73% of the youngest respondents (18 to 24) either answered incorrectly (43%) or did not know how to respond (17%). Respondents between the ages of 45 and 64 were the most likely (46%) to respond correctly to this question. Eighty-six percent (86%) of respondents who have lived in Clark County for less than a year either answered incorrectly (26%) or did not know how to respond to the question (58%). Respondents who have lived here between 6 and 10 years were the most likely (47%) to respond correctly to the question.

(Q9C) ARE YOU AWARE THAT FLOOD INSURANCE IS NOT ONLY AVAILABLE TO THOSE WHO LIVE IN A FLOOD ZONE?

This is a new question this year. Sixty-one percent (61%) of respondents correctly disagreed with this statement indicating their awareness that flood insurance is *not* only available to those who live in a flood zone. When looking at the data by the subgroups, there is not much disparity by the section of Clark County that the respondent lives in or

the age of the respondent. There was one upward spike in the group of residents who have lived here between 1 and 3 years, 78% of this group responded correctly to the question. In all of the other "length of time resided in Clark County" subgroups, around 56% of respondents responded correctly to the question.

(Q9D) *ARE YOU AWARE THAT FLOOD INSURANCE IS AVAILABLE TO COVER DAMAGE TO THE CONTENTS OF A RESIDENCE?*

This also is a new question added to the survey this year. Overall 64% of respondents correctly agreed with the statement that flood insurance is available to cover damage to the contents of a residence. There is not too much disparity among the responses of those in the various subgroups. When looking at the section of Clark County that the respondent resides in, those least likely to know that flood insurance is available to cover damage to the contents of a resident live in the northeast (56%) and those most likely to know live in the northwest (71%) or the outlying areas (71%). Respondents who have lived here between 3 and 6 years were the most likely to agree (72%) with the statement while those who have lived here 10 years or longer were the least likely (62%). When looking at the data by age, the youngest respondents (18 to 24) are the most likely (73%) of any of the age groups to respond correctly to this statement, while the oldest respondents (65 and older) were the least likely (54%)

(Q9E) *ARE YOU AWARE THAT THE COST OF FLOOD INSURANCE IS THE SAME REGARDLESS OF WHETHER OR NOT THE RESIDENCE IS IN A FLOOD ZONE?*

This question is also new to this year's survey. More respondents were unable to answer this question than any other in this series. A third of respondents answered "don't know." Fifty-two percent (52%) of the respondents did disagree with the statement indicating their knowledge that the cost of flood insurance is *not* the same regardless of whether or not the residence is in a flood zone. The respondent most likely to respond correctly to this question lives in the northwest (60%), has lived in Clark County between 3 and 6 years (59%), and is between the ages of 25 and 44 (57%). The oldest respondents (65 and older) were the least likely respondents (44%) from any of the age groups to respond correctly to this statement.

(Q9F) *ARE YOU AWARE THAT, IF YOU LIVE IN A FLOOD ZONE, YOU MUST BUY FLOOD INSURANCE?*

When looking at the results from this series of questions on flood insurance, this question had the most incorrect responses. Only 35% of respondents correctly agreed that if you live in a flood zone, you must buy flood insurance. Fifty-two percent (52%) of respondents disagreed with the statement and 14% didn't know. When looking at the data by subgroups, interestingly, the youngest respondents (18 to 24) were nearly twice as likely to respond correctly (50%) as those respondents who are age 65 and older

(27%). In the other age groups 42% of those between the ages of 25 and 44 responded correctly and 31% of those between the ages of 45 and 64 also responded correctly. Those respondents who have lived here the longest (10 years or more) were the most likely (58%) to respond correctly from the "length of residency" subgroup. When looking at the data by section of Clark County, respondents in the northeast were far less likely to respond correctly to this question (37%) than those in other areas (60% northwest, 53% southwest, and 53% southeast).

ANSWERS TO ENVIRONMENTAL QUESTIONS

(Q10) *ARE YOU AWARE WHETHER THE STORMWATER AND URBAN RUNOFF THAT TRAVELS THROUGH THE FLOOD CONTROL CHANNELS AND STORM DRAINS IS "TREATED" OR "UNTREATED?"*

Another new question was added this year to assess respondents' knowledge on whether or not the stormwater and urban runoff that travels through the flood control channels and storm drains is treated or untreated. Sixty-four percent (64%) of respondents correctly responded that this water is "untreated." Twenty-five percent (25%) answered incorrectly and 12% reported that they did not know.

Respondents who know that the urban runoff was untreated [N = 297] were asked a follow up question to assess any changes in behavior apparent from having the knowledge (Table 7). The follow-up question was "As a result of knowing that urban runoff and stormwater is 'untreated,' have you changed any behaviors that would help protect the environment and Lake Mead?" Sixty-one (61) respondents have changed a behavior as a result of having this knowledge. This number represents 21% of those respondents who know that urban runoff is untreated. The 61 respondents who reported that they had changed a behavior were asked what behavior that they had changed.

TABLE 7. BEHAVIOR CHANGES–KNOWING URBAN RUNOFF IS UNTREATED.

Rank	Behavior Change	Percent
1	Proper disposal of chemicals	38%
2	Other*	29%
3	Proper disposal of general waste	19%
4	Use a commercial carwash	10%
4	Proper disposal of oil	10%
5	Proper clean/up disposal of pet waste	3%
5	Use of organic fertilizers	3%

* "Other" includes desert landscaping, don't litter, and try not to have runoff.

The behavior changes reported by the respondent are primarily in the manner in which they are disposing of everything from general waste to chemicals. Thirty-eight percent (38%) of respondents reported that they make certain that they dispose of chemicals properly. Nineteen percent (19%) are properly disposing of general products by "not dumping off the curb or into a gutter" and "watching what I dispose of in drains." Ten percent (10%) of respondents in this group are using a commercial car wash rather than washing their cars in the driveway or street and 10% are also properly disposing of oil. Three percent (3%) are disposing of pet waste properly and an additional 3% has reported using organic fertilizers.

This is clearly an area where effort should be put forth in educating the public of alternative actions that they can take. They are aware that the runoff is untreated, yet only 61 respondents made a behavior change because of the knowledge.

ANSWERS TO FLOOD ZONE QUESTIONS

(Q11A) DO YOU KNOW HOW TO FIND OUT IF YOU LIVE IN A FLOOD ZONE?

Half of the respondents reported that they know how to find out whether or not they live in a flood zone. This is down from 57% that was reported for the same question last year. The profile of the typical respondent who knows how to find out if he/she lives in a flood zone is a male (58%) older than age 65 (55%) who lives in the southwest (58%) and has lived in the Valley 3 and 6 years (52%) or between 6 months and a year (52%). This does paint a profile of the many new homeowners who are buying into master-planned adult communities.

(Q11B) DO YOU KNOW IF YOU LIVE IN A FLOOD ZONE?

Only 4% of respondents [N = 21] reported that they live in a flood zone. Last year 10% of respondents reported living in a flood zone.

(Q12) DO YOU HAVE FLOOD INSURANCE?

Six percent (6%) of respondents [N = 29] reported that they have flood insurance. Of the 21 respondents who reported that they live in a flood zone and are therefore required to purchase flood insurance, 9 respondents reported that they do have flood insurance. This represents 45% of those that live in a flood zone. This is up from the 32% of those living in a flood zone that had flood insurance from last year's survey.

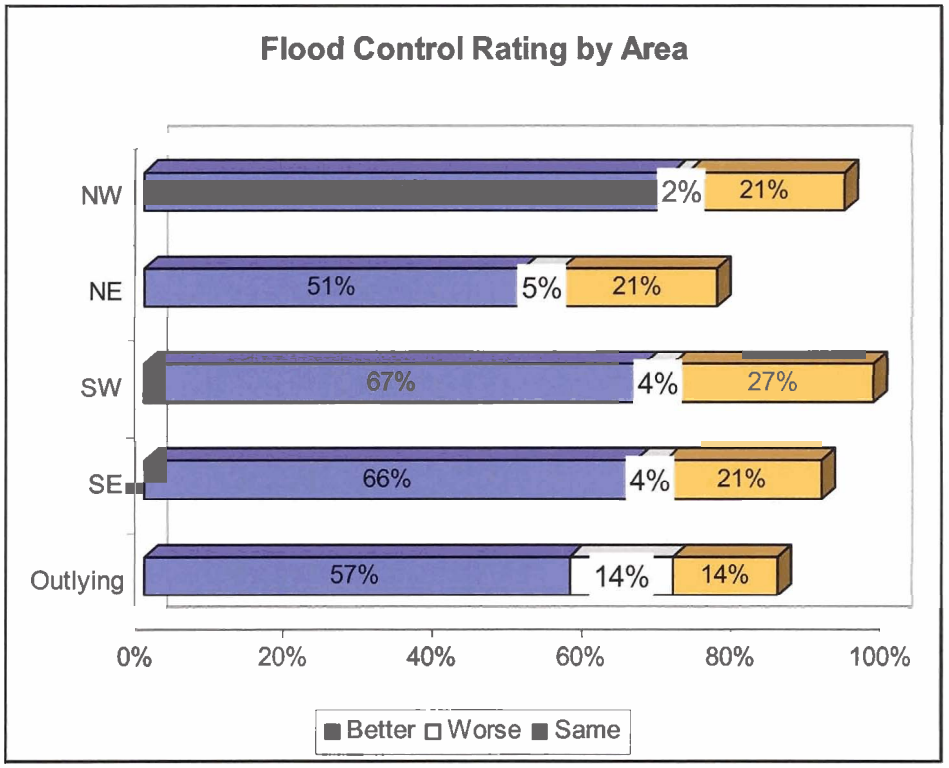
ANSWERS TO FLOOD CONTROL QUESTIONS

OVERALL FLOOD CONTROL RATING

(Q13) ***SINCE YOU BECAME A RESIDENT OF CLARK COUNTY, DO YOU THINK THE WAY FLOOD CONTROL IS BEING HANDLED HAS GOTTEN BETTER, GOTTEN WORSE, OR STAYED ABOUT THE SAME?***

Sixty-four percent (64%) of respondents feel that since the time that they have become residents of Clark County that the way flood control is handled has gotten better. Twenty-two percent (22%) think that it has stayed the same and 10% "don't know." Only 3% of respondents think that the way flood control is handled has gotten worse.

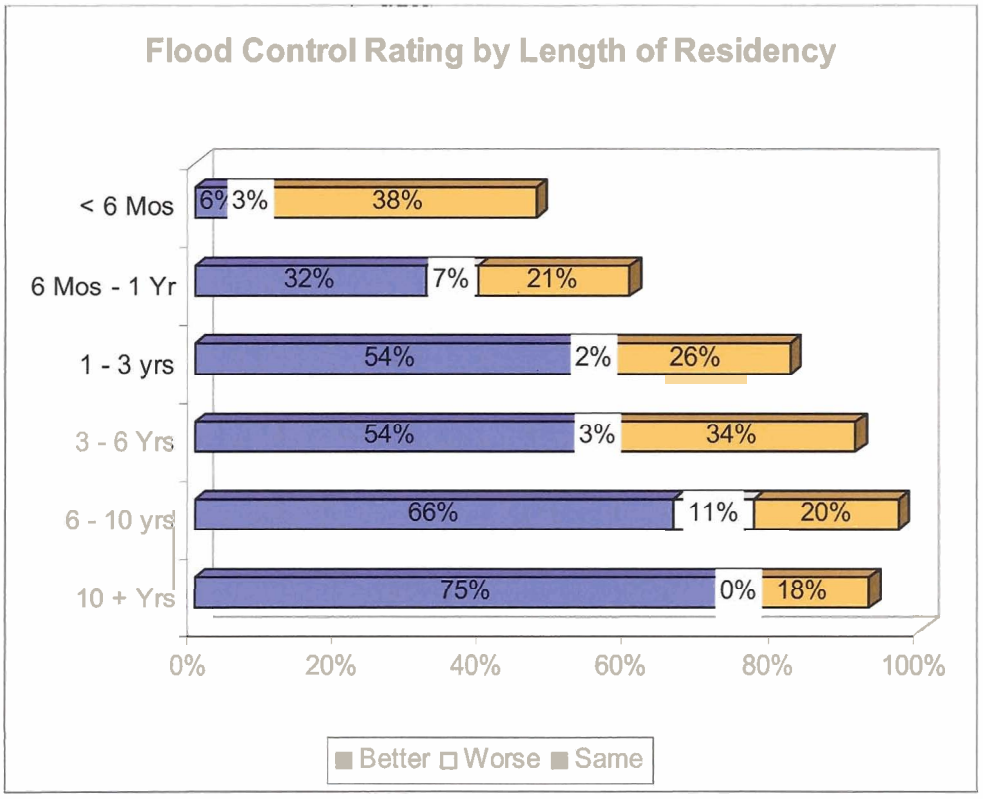
Figure 9 depicts the flood control rating by area. Respondents in the northwest are the most likely (71%) to agree that flood control has gotten better; while those in the northeast are the least likely (51%) to agree it has improved.



* The total percentage in this graph do not add up to 100%, the missing percentages represent the "don't know" responses.

FIGURE 9. FLOOD CONTROL RATING BY AREA.

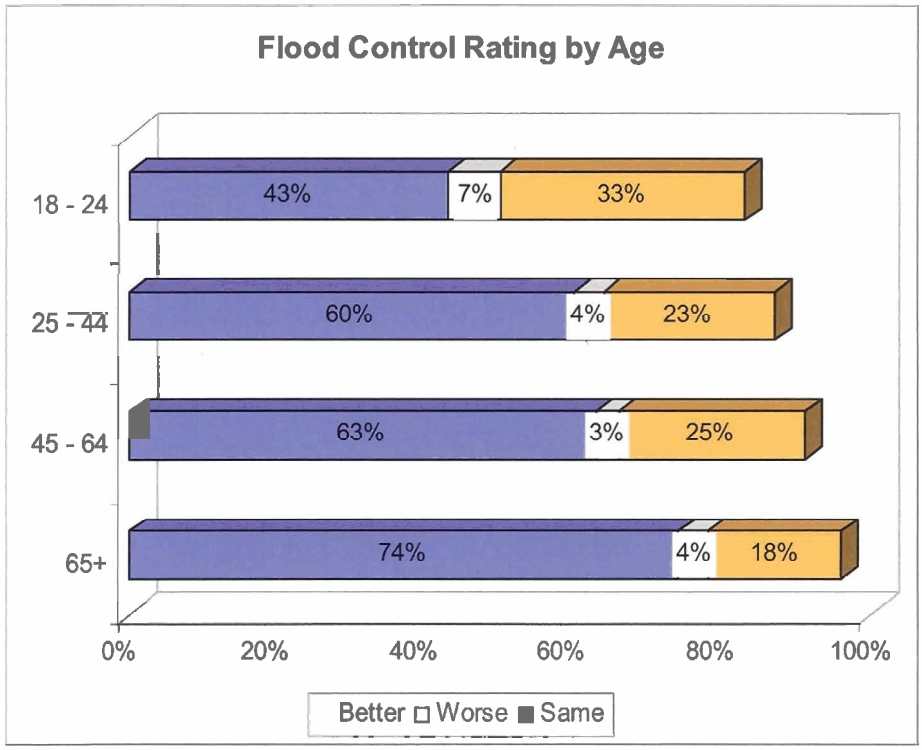
Figure 10 shows the flood control rating by the length of time that the resident has resided in Clark County. As is indicated, those respondents who have lived here 10 years or longer are the most likely (75%) to think the way flood control is being handled has gotten better. It makes sense that those that have lived here a year or less would not have much of a time frame to judge this by. After a respondent has lived here at least a year more than half (54%) think that the way flood control is handled has gotten better.



* The total percentage in this graph do not add up to 100%, the missing percentages represent the "don't know" responses.

FIGURE 10. FLOOD CONTROL RATING BY LENGTH OF RESIDENCY.

As Figure 11 indicates, the older the respondent, the more likely he/she is to think that flood control in Clark County is being handled "better." Seventy-five percent (75%) of respondents over the age of 65 think this as compared to 63% of respondents between the ages of 45 and 64, 60% of respondents between the ages of 25 and 44, and only 43% of respondents between the ages of 18 and 24.



* The total percentage in this graph do not add up to 100%, the missing percentages represent the "don't know" responses.

FIGURE 11. FLOOD CONTROL RATING BY AGE.

(Q14) OVERALL, HOW WOULD YOU RATE THE WAY FLOOD CONTROL IS BEING HANDLED IN CLARK COUNTY?

The overall survey results indicate that 57% of respondents would rate the way that flood control is handled in a positive way; 12% gave flood control an "excellent" rating, while 45% gave flood control a "good" rating. Twenty-six percent (26%) rated flood control "fair," while only 6% gave flood control a "poor" rating [N = 29]. Ten percent (10%) of the respondents did not know how to rate flood control.

When looking at Figure 12, there is not much disparity in the data according to the section of Clark County where the respondent resides. Respondents in the NE are the least likely (41%) to rate flood control as "good" or "excellent." In the NW, SW, and SE portions of Clark County, at least 61% of respondents rated flood control as "good" or "excellent." In outlying areas, 43% rated flood control "good" and 43% rated it "poor," the respondents in the outlying areas were the largest group to rate flood control poorly.

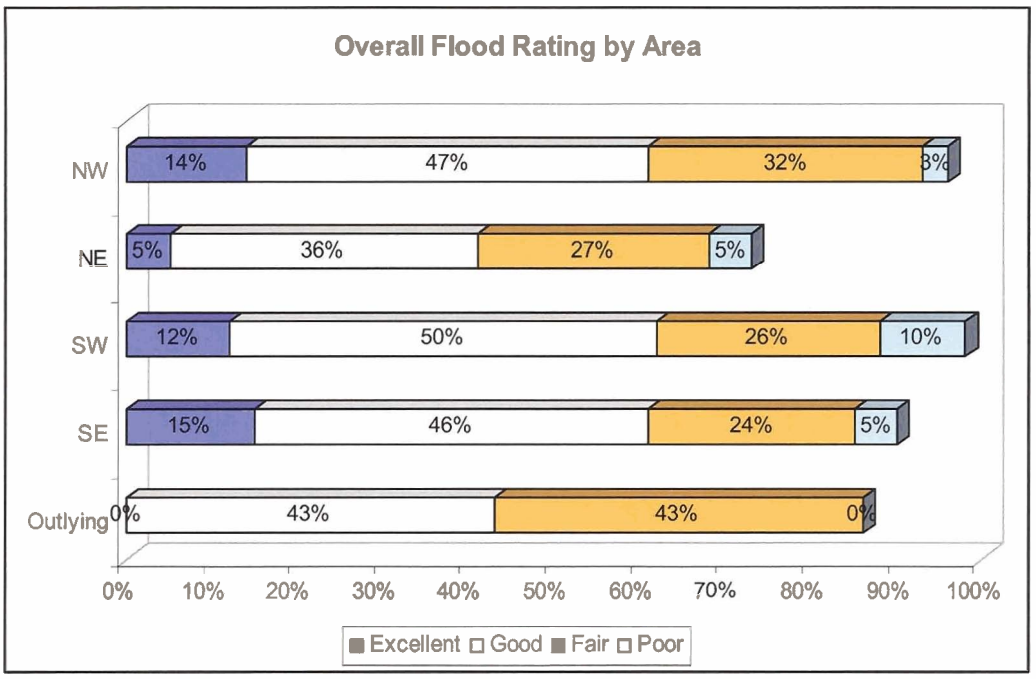


FIGURE 12. OVERALL FLOOD RATING BY AREA.

Figure 13 depicts the data by the length of time the respondent has lived in Clark County. As is indicated, those who have lived here less than a year had difficulty responding to an overall rating and nearly 50% answered that they "did not know." When looking at the other length of residency data, a preponderance of the responses in all of the groups (with the exception of the 6- to 10-year group), 38% rated overall flood control as "good." About one quarter of the respondents in these groups also rated flood control as "poor."

Figure 14, which depicts the data by the age of the respondent, shows that the older the respondent the more likely he/she is to rate flood control overall as excellent. The overall good rating also increased with the age of the respondent with 40% of the youngest respondents (18 to 24) giving flood control an overall rating of "good" and 51% of those older than 65 doing the same.

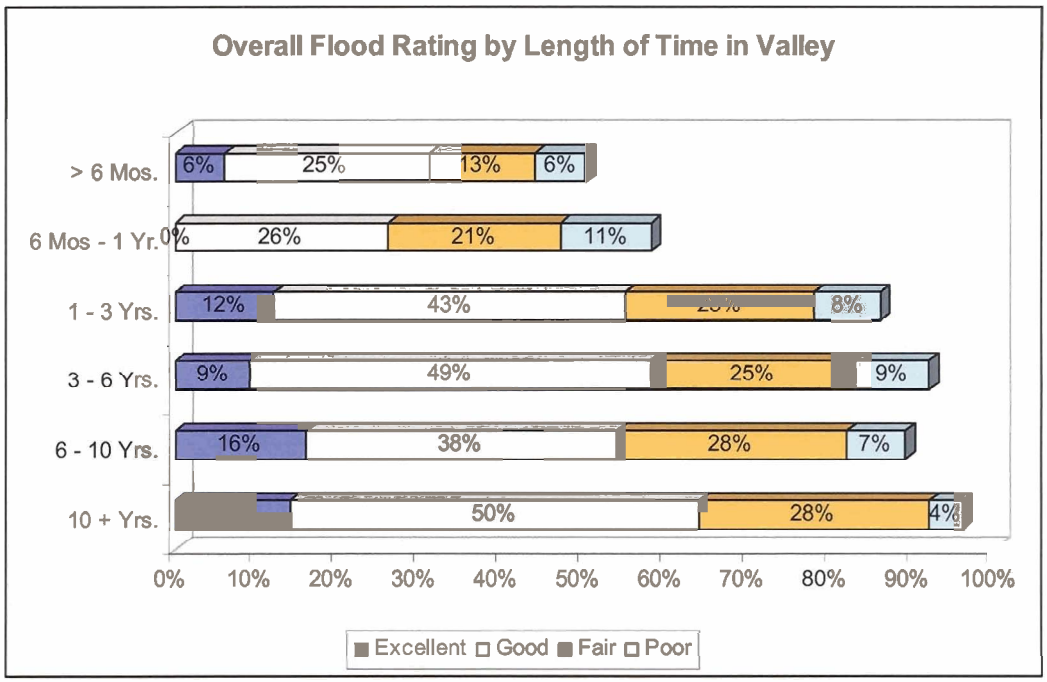


FIGURE 13. OVERALL FLOOD RATING BY LENGTH OF TIME IN VALLEY.

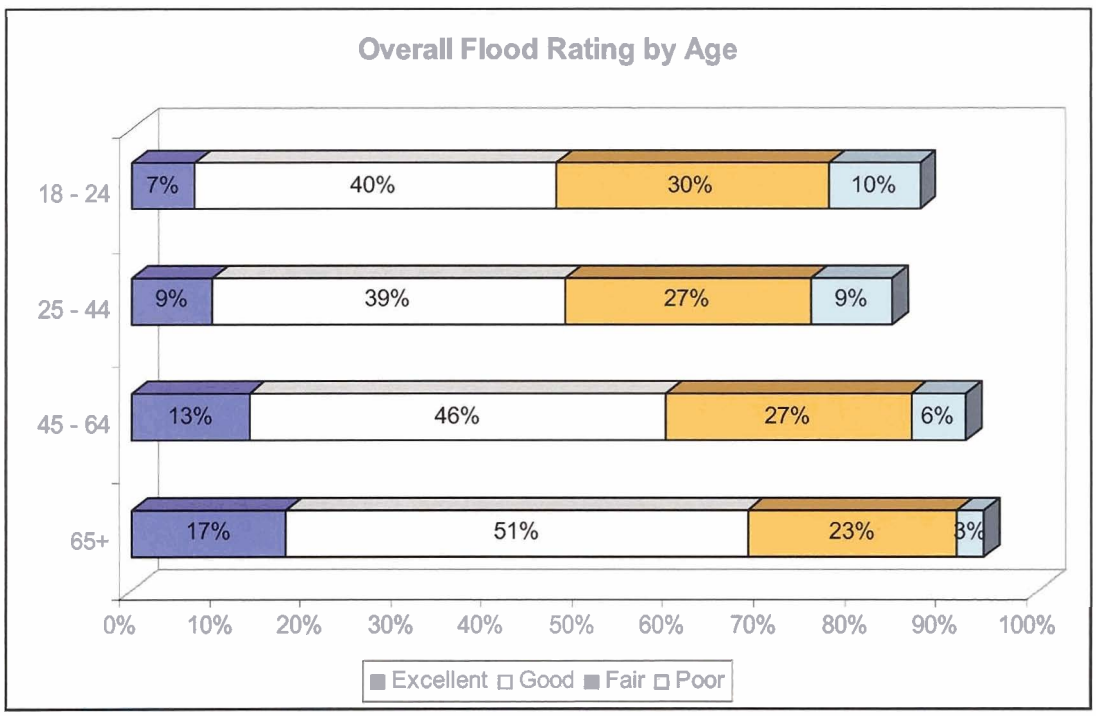


FIGURE 14. OVERALL FLOOD RATING BY AGE.

CHARACTERISTICS OF THE SPANISH-SPEAKING SUBSAMPLE

Five percent (5%) of the surveys were conducted with Spanish-speaking respondents [N = 24]. When looking at the data from the Spanish-speaking respondents there are quite a few differences. The typical Spanish-speaking respondent in this survey was female (60%) between the ages of 18 and 38 (65%) with an education level of less than a high school graduate (50%), which is 5% in the overall sample. The typical respondent from this subgroup falls into three equal time frames based on the length of time they resided in Clark County. Twenty-one percent (21%) have lived here 6 months to a year, the same number has lived in Clark County 6 to 10 years, and an equal number has lived here 10 years or longer. When comparing this data with the overall sample only, 3% have lived here 6 months to a year and 52% have lived here longer than 10 years. In addition, 50% of the respondents in this subset live in the southeast section of Clark County. No respondent from this group reported residing in the southwest section of Clark County.

AWARENESS OF FLOODING AND WEATHER-RELATED DANGERS

UNAIDED AWARENESS

Fifty-four percent (54%) of respondents [N = 13] in the Spanish-speaking subgroup (78% sample) were aware of weather-related dangers that can occur in Clark County. Of these, 8 respondents were able to mention "flood" or "flash floods" unprompted. This represents a third of the subset.

Table 8 shows the differences in the responses of the English-speaking respondents and the Spanish-speaking respondents. There is a large disparity between the answers in the two groups, indicative of the Spanish speaker's lack of knowledge on flood-related issues. For instance English speakers (83%) are nearly four times more likely than Spanish speakers (21%) to know about safety precautions relating to flash flooding. As the table above shows, this large disparity is evident in all the series of questions regarding flood-related issues.

TABLE 8. FLOOD-RELATED ISSUES: SPANISH SPEAKERS VS. ENGLISH SPEAKERS.

Flood Related Issue	Agree (English)	Agree (Spanish)
I know about the dangers of flash flooding (q3a)	95%	63%
I know about the time of year flash flooding is most likely to occur in the Las Vegas Valley (q3b)	81%	57%
I know about safety precautions relating to flash flooding (q3c)	83%	21%
I know about the resources available to learn more about flash flooding (q3d)	56%	Not asked*
I know ways in which flooding is being controlled in Clark County (q3e)	69%	13%
I know about the availability of flood insurance (q3f)	75%	25%

* Question 3d was inadvertently omitted from the Spanish version of the survey, thus no data was collected.

ANSWERS TO SOURCES OF INFORMATION QUESTIONS

In the next section of the survey respondents were asked to respond "yes" or "no" to a list that was read to them of possible sources for learning about flash flooding. Again the responses from this subset were different that the rest of the sample. With most of the sources (brochure, billboard, Welcome Home Magazine, CCRFCD web site, and school-age children) only one respondent selected the item. One-hundred percent (100%) of respondents selected television as a source where they had learned about flooding, 50% from friends and relatives, 39% selected radio, and 13% learned about floods from the newspaper. None of the Spanish-speaking respondents had learned about floods from a direct mail postcard. The data indicates that the CCRFCD should focus on reaching this group through the use of television and radio, with less focus of billboards.

Sixty-three percent (63%) of Spanish-speaking respondents have cable television compared to 84% of the rest of the sample. From the group with cable television, only 2 respondents have ever watched The Flood Channel. This represents 12.5% of the subset as compared to 43% of the rest of the sample with cable television who have ever watched The Flood Channel.

ANSWERS TO PERSONAL EXPERIENCE QUESTIONS

Thirty percent (30%) of Spanish-speaking respondents reported that they had at some time encountered a flooded street or road either as a driver or passenger in Clark County; this compared to 70% of the rest of the sample that reported the same. Seventy-percent (70%) of the respondents in the Spanish-speaking group turned around and took an alternate route; this compares to 61% of the rest of the population did the same.

Table 9 shows the differences in the responses between the English-speaking respondents and those who do not speak English. For the most part, respondents who completed the survey in English had more correct answers than those who did not. There was some real disparity in a couple of items; for example, there are 25.5 percentage points difference in the percentage of English speakers (63%) and Spanish speakers (37.5%) who know that streets are a part of the flood control system. Likewise, there are 25.5 percentage points difference between English speakers (38%) and Spanish speakers (12.5%) who know that flood insurance is available to even those who do not live in a flood zone. However, many more Spanish speakers (62%) were aware that, if you live in a flood zone, you must buy flood insurance (compared to 33% English speakers).

TABLE 9. MORE FLOOD-RELATED ISSUES: SPANISH SPEAKERS VS. ENGLISH SPEAKERS.

Flood Related issue	Correct English Speakers	Correct Spanish Speakers
Streets are a part of the flood control system (q8)	63%	37.5%
Flood insurance is available to everyone (q9a)	64%	50%
Flood insurance will only cover the structure of a residence (q9b)	38%	12.5%
Flood insurance is only available to those who live in a flood zone (q9c)	62%	46%
Flood insurance is available to cover damage to the contents of a residence (q9d)	65%	46%
The cost of flood insurance is the same regardless of whether or not the residence is in a flood zone (q9e)	52%	46%
If you live in a flood zone, you must buy flood insurance (q9f)	33%	62%

ANSWERS TO FLOOD CONTROL QUESTIONS

OVERALL FLOOD CONTROL RATING

Twenty-five percent (25%) of Spanish-speaking respondents indicated that they think that since they have been a resident of Clark County that the way that flood control is being handled has gotten better; 66% of the English speakers indicated the same. None of the Spanish speakers indicated that they thought that flood control has gotten worse. More than half (54%) of this subset did not know how to respond to this question.

The Spanish-speaking subset clearly did not know how to respond to this question which simply asked "Overall, how would you rate the way flood control is being handled?" Seventy-one percent (71%) of respondents answered that they "don't know." Of those that did rate flood control, 21% rated it "good," 4% rated it "fair," and one respondent rated it as "poor."

CONCLUSIONS

In general, the tendencies for the survey this year indicate a slight decline in awareness; however, overall awareness remains very high. It appears that the 2004 administration of the survey produced atypical results with very large spikes in both the awareness of floods as a weather-related disaster and awareness of other flood-related issues.

When looking at the data trends, the first assumption was to focus on several of the subgroups to determine if the trend could be attributed to the answers of those respondents. The data on the Spanish-speaking respondents and the data on the residents who had lived here less than three years was analyzed separately. The responses of those subgroups do not account for the decreases found in several of the survey items.

Another factor considered was that the survey was administered the last two days (pilot test) in September and up to October 12, 2005, meaning that the survey was fielded only a few days after Hurricane Rita, the second Category 5 hurricane of the season, which directly affected the southeastern part of the United States. While residents in Las Vegas were not directly affected, the media coverage was intense—especially when reports of the damage caused by Hurricane Rita were combined with media reports about Hurricane Katrina. This extensive coverage may have had an effect on the data collection. Respondents in Las Vegas may have been thinking of floods in terms of hurricanes rather than the flash flooding that occurs here in the desert. There is no scientific evidence that this was the case nor is there any way to measure this effect with the data collected. This background information is only offered as a possible reason for the declines.

While this year's administration of the survey does show some declines, the percentage points lost in overall awareness did not fall below 2002 and 2003 levels. Overall awareness remains very high at 94% and there were several areas where there were increases in awareness or knowledge. For example, there was an increase in the number of respondents that made a good or appropriate choice when encountering a flooded street or road, and there was an increase in the number of respondents who know that "streets are a part of the flood control system" and that "flood insurance is available to everyone."

STATISTICALLY SIGNIFICANT FACTORS

Although all of the variables and subgroups provide insight into flood awareness, several of the relationships were statistically significant. These statistically significant relationships were primarily between the lengths of time that the respondent has resided in Clark County, Nevada, and several variables relating to knowledge on certain issues

regarding flooding. There is a statistically significant relationship between the length of time that a respondent has lived in the area and their "knowledge about the dangers of flash flooding," "the time of year that flash flooding occurs," "safety precautions relating to flash flooding," "ways in which flooding is being controlled in the Valley," and "the availability of flood insurance." Nineteen percent (19%) of the sample members [N = 96] have lived in Clark County three years or less. Clearly, efforts to reach the newest residents should continue. To cite what this means in percentages, newer residents are 36 percentage points less likely to know the time of year that flooding is likely to occur than residents living here 10 years or longer (51% vs. 87%). Likewise, 63% of the newest residents and 88% of the residents who have lived here the longest know about the safety precautions relating to flash flooding. This is a difference of 25 percentage points. In addition, there is a 39 percentage point difference between newest residents (38%) and those living here the longest (77%) in knowledge of how flooding is being controlled.

In reaching the newcomer subset for marketing purposes, the three main ways that they are currently receiving information about flooding is by television (78%) (an average of 76% of newcomers have cable television), friends and relatives (average 50%), and radio (average 44%).[c]

When looking at the data from newcomers who have learned about flooding from either *Welcome Home Magazine* or a postcard mailed directly from the CCRFCD, only about 11% of respondents from this subgroup reported receiving information about flooding from this delivery method. It is suggested that in future administrations of the survey that a question about whether or not the respondent owns or rents his/her residence be added. This will enable us to look at the data from homeowners verses renters to determine if awareness between the two groups is significantly different.

One major area where improvement was seen was in the number of respondents who made good or appropriate choices when encountering a flooded road in Clark County. Sixty-seven percent (67%) of respondents made a good or appropriate choice when encountering a flooded road. Last year 63% of respondents did the same. Sixty-one percent (61%) of residents are turning around and taking an alternate route when encountering a flooded road.

A new question was added this year to assess the knowledge of respondents as to whether or not the stormwater and urban runoff that travels through the flood control channels and storm drains is treated or untreated. While 64% [N = 297] of respondents

c. The average figures were obtained by combining then averaging the responses of those who have lived here "less than 6 months," "6 months to less than one year," and "one year to less than 3 years."

were aware that this runoff is untreated, only 61 respondents (21%) reported that they changed a behavior as a result of having this knowledge. This is an area where public education efforts can be directed and/or expanded. Based on the survey results, the primary message that respondents are getting is how to properly dispose of chemicals (38%).

In response to prior suggestions for improvement of the survey, the survey was administered in Spanish this year. Although only 5% of the respondents were Spanish-speaking, this year's survey provides baseline data on a large segment of the population (24%) in Clark County. While the sample size for this subset is not large enough to draw statistical conclusions, the data does provide insight into the population. Further, the data indicates that there are large disparities in the knowledge that this population has about flood-related issues as compared to other respondents. For example, there are 62 percentage points difference between the percentage of Spanish-speaking respondents (21%) and the rest of the sample (83%) who know about safety precautions related to flash flooding. This pattern repeats itself throughout the survey. Clearly materials directed to this population need to be expanded. Some message delivery sources may be Spanish television and radio and other mediums with high Spanish-speaking consumer loyalty.

In conclusion, the data collected in the 2005 Flood Awareness Survey indicates that the District's Public Information Program has had success in prompting residents to make appropriate choices when encountering a flooded street. Awareness levels in excess of 90% are extremely difficult to achieve in marketing brand awareness. Similar changes in behavior should be a focus of the District's information program regarding changing behavior with the knowledge that urban runoff is untreated. An information campaign aimed at Spanish-speaking residents is also warranted and every effort to increase responses in this subgroup should be made in further administrations of the survey. Additional outreach efforts should also be aimed at residents between the ages of 18 and 24 years of age. Finally, as the District has been doing, information should continue to focus on the newest residents in Clark County.

2131340622

Flood Awareness Survey - 2005

QA. Zip Code 89

QB. How long have you lived in Clark County?

- O Less than 6 mos
- O 6 mos to > 1 yr
- O 1 yr to > 3 yrs
- O 3 yrs to > 6 yrs
- O 6 to 10 yrs
- O Longer than 10 yrs
- O Refuse

Q1. Are you aware of any weather related dangers that can occur in the Las Vegas Valley?

- O Yes [GO TO Q1a.]
- O No [GO TO Q2]
- O Don't Know [GO TO Q2]
- O Refuse [GO TO Q2]

Q1a. What types of weather related dangers are you aware of that occur in the Las Vegas Valley?

[INTERVIEWER: IF RESPONDENT SAID "FLASH FLOODS" OR "FLOODING" GO TO Q3. IF RESPONDENT DID NOT SAY "FLASH FLOODS" OR "FLOODING" GO TO Q2

Q2. Are you aware that flash flooding can occure here in the Las Vegas Valley? O Yes O No O Don't Know O Refuse

INTERVIEWERS: EVERYONE ANSWERS Q3

	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Don't Know	Refuse
Q3a. I know about the dangers of flash flooding.	O 1	O 2	O 3	O 4	O 8	O 9
Q3b. I know about the time of year flash flooding is most likely to occur in the Las Vegas Valley.	O 1	O 2	O 3	O 4	O 8	O 9
Q3c. I know about safety precautions relating to flash flooding.	O 1	O 2	O 3	O 4	O 8	O 9
Q3d. I know about resources available to learn more about flash flooding.	O 1	O 2	O 3	O 4	O 8	O 9
Q3e. I know about ways in which flooding is being controlled in the Las Vegas Valley.	O 1	O 2	O 3	O 4	O 8	O 9
Q3f. I know about the availability of flood insurance.	O 1	O 2	O 3	O 4	O 8	O 9

From the list I'm going to read, please tell me either a "YES" or "NO" if you have learned about flash flooding from that source.

Q4a. Brochure	O Yes	O No	O Don't Know	O Refuse
Q4b. Billboard	O Yes	O No	O Don't Know	O Refuse
Q4c. Television	O Yes	O No	O Don't Know	O Refuse
Q4d. Radio	O Yes	O No	O Don't Know	O Refuse
Q4e. Newspaper	O Yes	O No	O Don't Know	O Refuse
Q4f. *Welcome Home* Magazine	O Yes	O No	O Don't Know	O Refuse
Q4g. Postcard from Clark County Regional Flood Control District	O Yes	O No	O Don't Know	O Refuse

Q4h. Clark County Regional Flood Control District Website O Yes O No O Don't Know O Refuse

Q4i. Friends and/or relatives O Yes O No O Don't Know O Refuse

Q4J. Your school age children O Yes O No O Don't Know O Refuse

Q4ja. Do your school age children attend public elementary school (grades K - 5)? O Yes O No O Don't Know O Refuse

Q4jb Did your child bring information about flood awareness home from school within the past year? O Yes O No O Don't Know O Refuse

Q4jc What did you do with the information? (Select All that apply)

O Read it / found it useful O Threw it away / found it useful O Gave it away / did not find it useful

O Read it / did not find it useful O Threw is away / did not find it useful O Gave it away / did find it useful

Q4l. Do you have cable television?

- O Yes [GO TO Q4La.]
- O No [GO TO Q5]
- O Don't Know [GO TO Q5]
- O Refuse [GO TO Q5]

Q4La. Have you ever watched "The Flood Channel" on Cable channels 2 0r 4?

- O Yes [GO TO QLb.]
- O No [GO TO Q5]
- O Don't Know [GO TO Q5]
- O Refuse [GO TO Q5]

Q4Lb. What do you remember most from watching the program?

- O Dangers of flash flooding
- O Time of year flooding occurs
- O Safety precautions
- O Where to learn more about flash flooding
- O Ways flooding is controlled in Clark County
- O Availibility of flood insurance
- O Other
- O Don't Know
- O Refuse

[INTERVIEWER: DO NOT READ RESPONSES, USE THESE CATEGORIES FOR CODING ONLY]

[INTERVIEWER: READ THIS DEFINITION BEFORE ASKING Q5.

[For the next two questions, a flooded street or road is defined as one where water covers the street from curb to curb, and you can's see the pavement.]

Q5. Have you ever encountered a flooded street or road as either a driver or a passenger of a vehicle while on a road in Clark County?

- O Yes [GO TO Q6]
- O No [GO TO Q8]
- O Don't Know
- O Refuse

0220340629

Q6. Thinking back to the last time you came to a flooded street in Clark County, which of the following statements best describes what you or the driver did?

- O Turned back and took an alternate route **[GO TO Q8]**
- O Waited for the water to go down & then drove through it **[GO TO Q8]**
- O Drove through it and made it **[GO TO Q7]**
- O Drove through it and got stuck **[GO TO Q7]**
- O Don't remember **[GO TO Q8]**
- O Other **[GO TO Q8]**
- O Refuse **[GO TO Q8]**

Q7. Why did you drive through it?

- O I was in a hurry
- O Didn't think it was unsafe to do so
- O Thought it would be fun
- O Drove through it and got stuck
- O Didn't know any better
- O Other
- O Don't know
- O Refuse

Q8. Which of the following statements is true?

- O Streets are a part of the flood control system
- O Streets are not a part of the flood control system
- O Don't Know
- O Refuse

Q9. How much do you agree or disagree with the following statements about flood insaurance.

	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Don't Know	Refuse
Q9a. Flood insurance is available to everyone.	O 1	O 2	O 3	O 4	O 8	O 9
Q9b. Flood insurance will only cover damage to the structure of a residence.	O 1	O 2	O 3	O 4	O 8	O 9
Q9c. Flood insurance is only available to those who live in a flood zone.	O 1	O 2	O 3	O 4	O 8	O 9
Q9d. Flood insurance is available to cover damage to the contents of a residence.	O 1	O 2	O 3	O 4	O 8	O 9
Q9e. The cost of flood insurance is the same regardless of whether or not the residence is in a flood zone.	O 1	O 2	O 3	O 4	O 8	O 9
Q9f. If you live in a flood zone you must buy flood insurance.	O 1	O 2	O 3	O 4	O 8	O 9

1460340626

Q10a. Which of the following statements is true?

O The stormwater and urban runoff that travels through the flood control channels and stormdrains is treated

O The stormwater and urban runoff that travels through the flood control channels and stormdrains is untreated

O Don't Know

O Refuse

Q10b. If respondent answers "UNTREATED" ask, as a result of knowing that the urban runoff and stormwater are untreated, have you changed any behaviors that would help protect the environment, specifically, Lake Mead?

O Yes O No O Don't Know O Refuse

Q10c. If yes, what have you done?

Q10. Do you know how to find out if you live in a flood zone? O Yes O No O Don't Know O Refuse

Q11. Do you live in a flood zone? O Yes O No O Don't Know O Refuse

Q12. Do you have flood insurance? O Yes O No O Don't Know O Refuse

Q13. Since the time you became a resident of Clark County, do you think the way flood control is being handled in our valley has gotten better, gotten worse, or stayed about the same?

O Gotten better

O Gotten worse

O Stayed about the same

O Don't Know

O Refuse

Q14. Overall, how would your rate the way flood control is being handled in the Clark County, would you say . . . ?

O Excellent O Poor

O Good O Don't Know

O Fair O Refuse

Q15. Could you please tell me in what year you were born 19_____

Q16. What is the highest level of education that you have completed?

O Less than HS graduate O Post grad work

O HS graduate O Post grad degree

O Some college/trade school O Don't know

O Two year college O Refuse

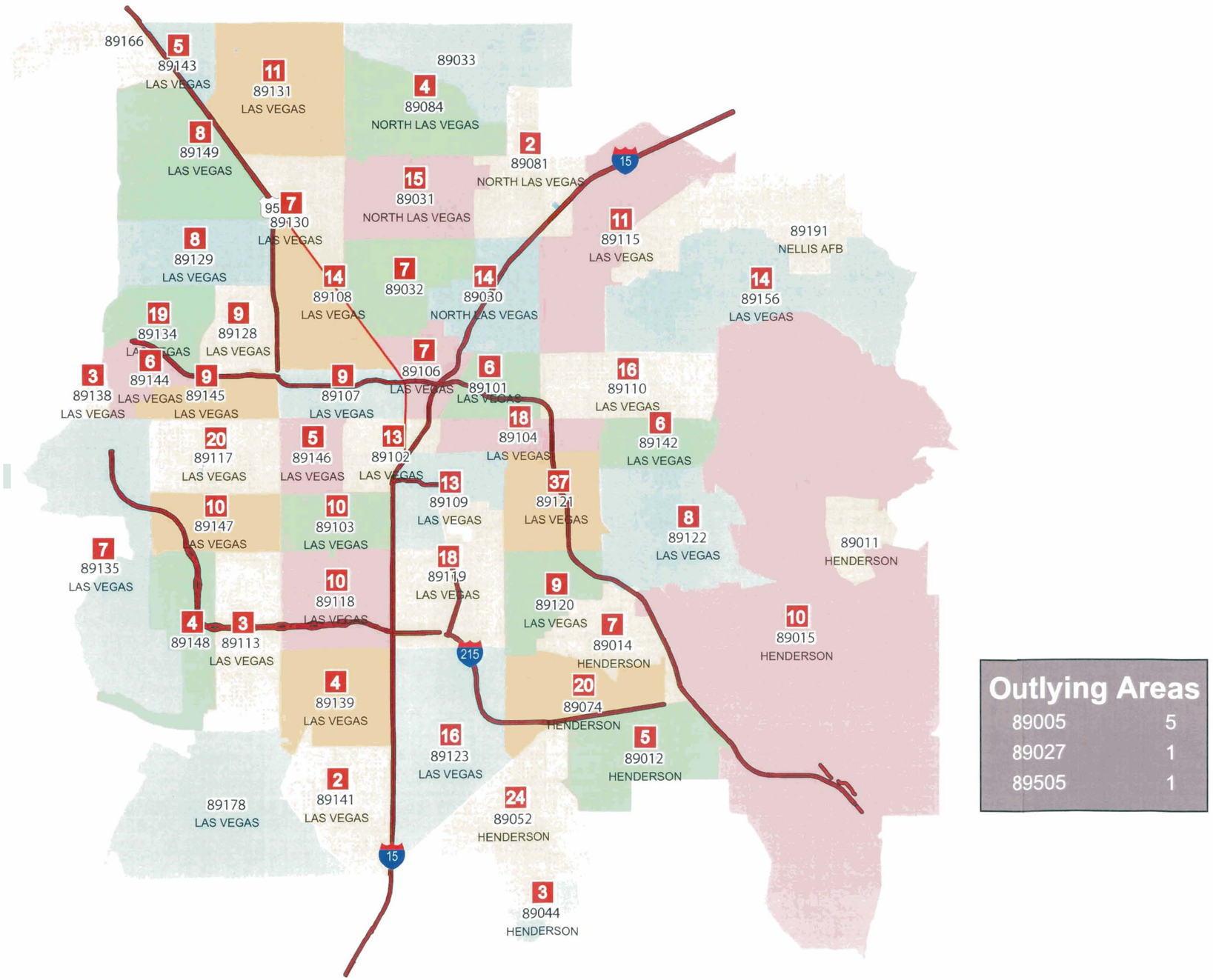
O Four year college

Q17. Please record gender.

O Male O Female

Clark County Regional Flood Control District

2005 Flood Awareness Survey



Outlying Areas	
89005	5
89027	1
89505	1