

**REGIONAL FLOOD
CONTROL DISTRICT**



**CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
2004 FLOOD AWARENESS SURVEY**

FINAL REPORT

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Clark County Regional Flood Control District
2004 Awareness of Flash Flooding Survey
(N=501)

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PROJECT BACKGROUND

In support of the Clark County Regional Flood Control District's mission "to improve the protection of life and property for existing residents, future residents, and visitors from the impacts of flooding," the District relies upon a Public Information Program to educate Clark County residents and visitors on the possible occurrences, impacts, protection measures, and dangers associated with flash flooding.

An important component of the Public Information Program is evaluation. In October 1999 the District conducted its first flood awareness study to measure citizen awareness of the dangers of flash flooding in Clark County. The survey has been replicated every year since 1999 and longitudinal comparisons have been conducted.

The District hired Lucchesi Galati Architects, Inc., an architecture, organizational development, and research consulting firm, to design a telephone survey similar to those surveys previously conducted. Working cooperatively with Clark County Regional Flood Control District's Public Information Manager Betty Hollister, Lucchesi Galati designed a multiple question survey to collect data from randomly selected, English speaking Clark County residents. Data were collected on the following topics:

- Awareness of flash flooding in the Clark County area
- General knowledge of various subjects relating to flash flooding
- Sources of flash flooding education and information
- Behavioral tendencies when encountering a flooded street or road in the Clark County area
- Knowledge of the availability of flood insurance
- Demographics and program recall of respondents who have watched *The Flood Channel*
- Opinion of how well flood control is being handled in the Clark County area

Randomly selected telephone interviews were completed with 501 English speaking residents of Clark County during the months of September and October of 2004. This Final Report encapsulates the outcomes of the research project by providing the District with a summary of findings and corresponding conclusions and recommendations based on descriptive statistics as well as cross tabulated data.

RESEARCH METHODOLOGY

The UNLV Office of the Vice Provost for Educational Outreach conducted the telephone survey research using computer-assisted telephone interviewing (CATI) methodology during the period between September 26 and October 6, 2004, on various days of the week between the hours of 3:00 p.m. and 8:00 p.m. The interviews lasted between five and seven minutes and a total of 501 interviews were completed with a margin of error of +/- 4% at the 95% confidence level.

In order to obtain a representative sample of the Clark County area, numbers were purchased from Survey Sampling, Inc. (SSI). SSI has been providing scientific samples for research since 1977. A list of 3,169 numbers was obtained that included both listed and unlisted working numbers in Clark County.

CATI interviewing may be best described as a "paperless" method of administering telephone interviews. The survey questionnaire was programmed into the CATI network and interviewers were able to administer the questionnaire from individual computer stations. Respondents' answers and other interview information were entered into computerized files as the interview occurred. This method of survey administration provides enhanced sample management, more reliable and less biased survey administration, and near instantaneous generation of survey results.

Random-digit-dialing techniques were used to select respondent households with information developed using the most current telephone exchange data available. (Telephone exchanges may be thought of as the three-digit "prefix" included in any telephone number.) The sampling service maintains a database of "working blocks," where a "block" is a set of 100 contiguous numbers identified by the first two digits of the last four digits in a telephone number. For example, in the telephone number 346-7300, "73" is the block. After the blocks were verified to contain residential phone numbers, phone numbers were randomly generated from each block. This procedure allowed the inclusion of unlisted numbers and any newly listed numbers that have not been included in the most recently published telephone directories.

The interviewers made up to five attempts on each number. These attempts were made at different times of the day and different days of the week. In addition, all respondents were 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.

Household refusals were tracked and the most experienced interviewers attempted to convert these telephone numbers where a respondent had previously refused, into a completed interview. All numbers that resulted in a refusal were contacted up to two additional times for a completion.

The phone numbers were preloaded into the CATI system and the call dispositions were entered and tracked by the CATI system. This allowed the supervisors to have immediate access and tracking for the recalls and callbacks and overall enhanced call tracking capabilities. The recorded call dispositions have been provided in Table 1 on the next page.

Table 1: Disposition of Recorded Calls, 2004

Disposition of Call	N (count)	Percent of Total N
Completed	501	15.8%
Business	301	9.5%
Blocked Call	22	0.7%
Not in Service	523	16.5%
Not Eligible	32	1.0%
Partial Interview	2	0.1%
Soft Refusal	90	2.8%
Hard Refusal	361	11.4%
Fax	220	6.9%
Language Barrier	120	3.8%
Callback	26	0.8%
Answering Machine	409	12.9%
No Answer	485	15.3%
Busy	77	2.4%
Total	3169	100.0%

The research center utilizes CATI software designed by Raosoft, Inc. After the survey instrument was finalized, the questions were programmed into a form that encompasses relevant skip patterns and branches. In addition to the survey introduction, the front end of the form was programmed with project specific respondent selection and screening pages to guide the interviewer while interviewing the selected respondent. The software also has a feature that allows for the programming of “pull down” help menus to provide the interviewers with additional information, if necessary, at specific locations in the program form. This feature assures that all interviewers answer a respondent’s query from the same point of reference, provide uniform information, and minimize interviewer bias.

All interviewers were monitored by a survey manager. One field supervisor or senior researcher was present at all times during the data collection period to assure the quality and integrity of the data collection process. The phone room supervisor was able to instantaneously address any problems that might arise in the field.

The centralized phone bank setting allows for continuous supervision by supervisors and project director according to the various shifts, thus permitting continuous assessment of interviewer style, their ability to follow specific procedures and instructions, and the quality of probing techniques used for answer elaboration. In this setting, it is possible for the field supervisors to respond immediately to questions from both respondents and interviewers. The supervisors are trained in research methodology and have many years of supervisory experience in a CATI environment.

An interviewer monitoring system was in place, which required the supervisor to evaluate each interviewer’s proficiency with respect to specific interviewing skills, such as refusal, avoidance, use of unbiased probing techniques, ability to communicate in a non-judgmental way, as well as speech patterns, tone of voice, and the ability to control the pace and flow of the interview. The supervisors reviewed their assessments with the interviewers providing immediate feedback.

At the conclusion of the interviewing phase, data were cleaned and then analyzed using SPSS 12.0 software. The software is a comprehensive statistical software system that aids the data analysis process at many levels, with procedures ranging from data listings, tabulations, and descriptive to complex statistical analyses. Graphics for screening data, understanding and interpreting analyses, and communicating results are integrated with the statistical procedures.

Study Summary

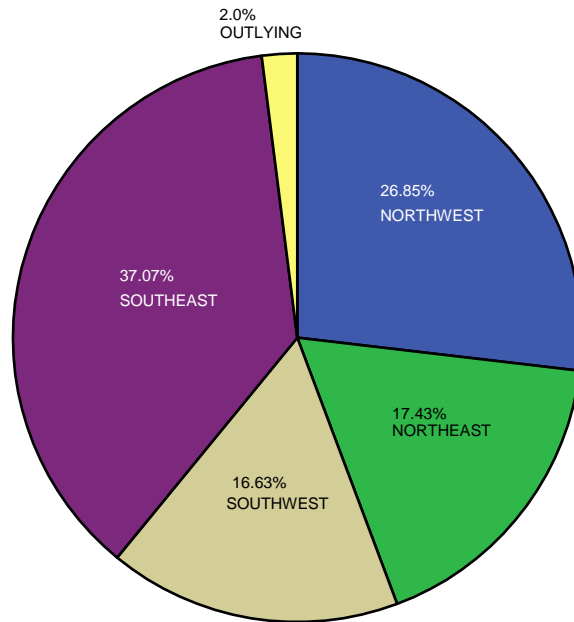
CHARACTERISTICS OF THE SAMPLE

There are five variables used to create subsets in this survey. They are “area of Clark County,” “length of time in Clark County,” “age,” “level of education,” and “gender.”

Area of Residency

As can be seen from Graph 1 below, 37.1% of respondents live in the Southeast section of Clark County. In 2003, 35.8% lived in this section. 26.85% live in the Northwest (28.2%, 2003), 17.43% live in the Northeast section (15.5%, 2003), 16.63% live in the Southwest (17.9%, 2003), and 2.0% live in outlying Clark County areas such as Mesquite, Overton, and Logandale (2.6%, 2003.)

**Graph 1: Area of Clark County Respondents Live In
2004 Flood Control District Survey**

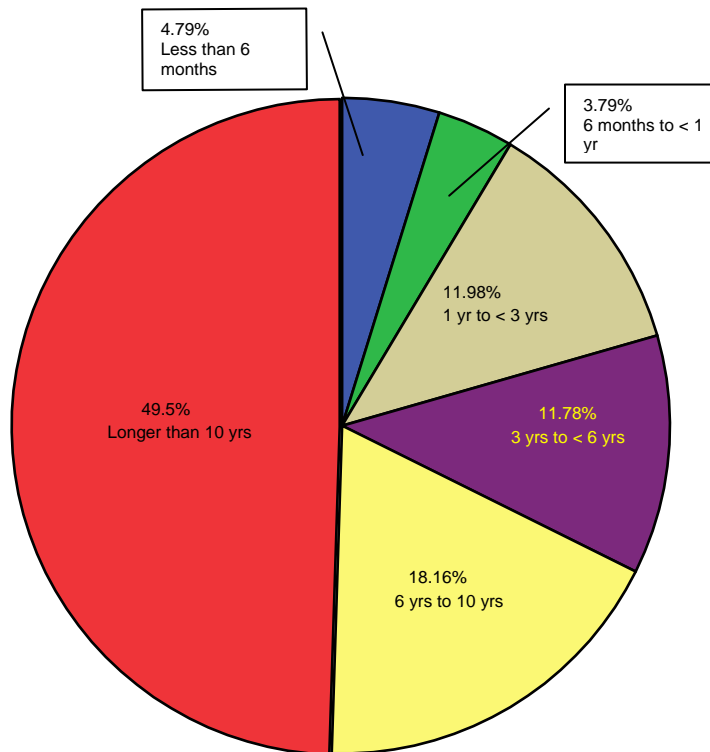


The zip code map on page 39 of this report provides the zip code frequencies in quadrant format.

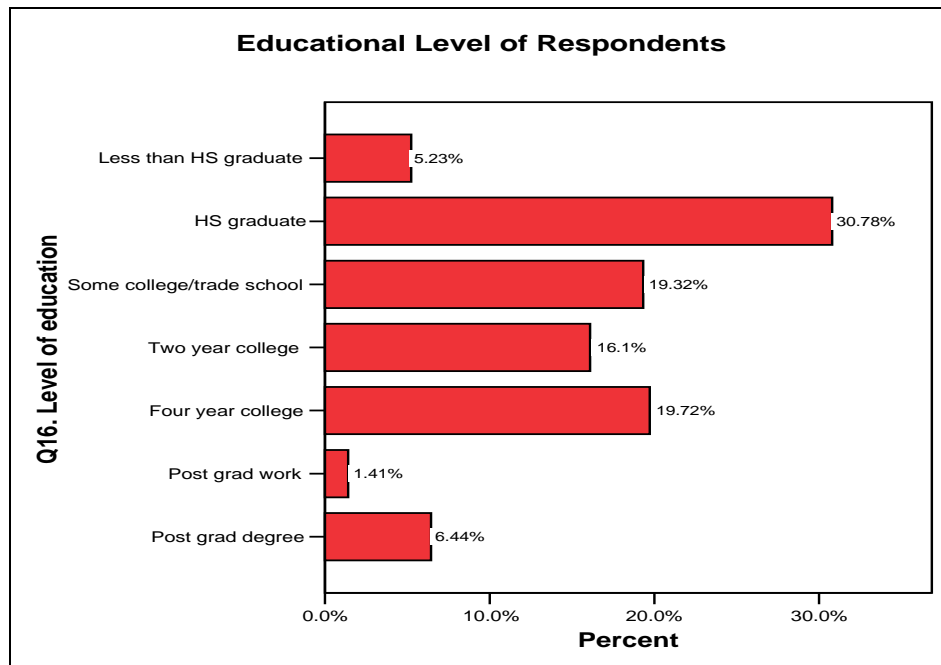
Length of Time Resided in Clark County

As can be seen from Graph 2, nearly half (49.5%) of respondents have lived in Clark County for longer than ten years (47%, 2003). This percentage is followed by 18.16% who have lived in Clark County for between six and ten years (17.6%, 2003); 11.78% have lived here between three and six years (15%, 2003); and 11.98% have lived here between one and three years (9.4%, 2003). Approximately 8.5% of residents have been here less than one year (10.4%, 2003).

Graph 2: How many years have you lived in Clark County?



Educational Level of Respondents



Nearly one-third or 31% of the sample has graduated from high school (29%, 2003). Approximately 19% of all respondents reported to have some college or trade school education (21%, 2003), and an additional 20% have earned a college degree from a four-year institution (20%, 2003). Approximately 16% are graduates from a junior or community college, while 1.5% have completed some post graduate work (4%, 2003) and over 6% have earned a graduate degree (4%, 2003).

Age and Gender

Respondents, all of whom were 18 years or older, were asked the year in which they were born. After dividing the sample into four approximately equal groups, 24% of the respondents are between the ages of 18 and 35 years old. Twenty-five percent are between the ages of 36 and 50 years old. Twenty-six percent are between 51 and 65 years old and 24% are over 65 years old. One percent of respondents did not provide age information. The median age was 51 years old. The division of gender was 59% female and 41% male.

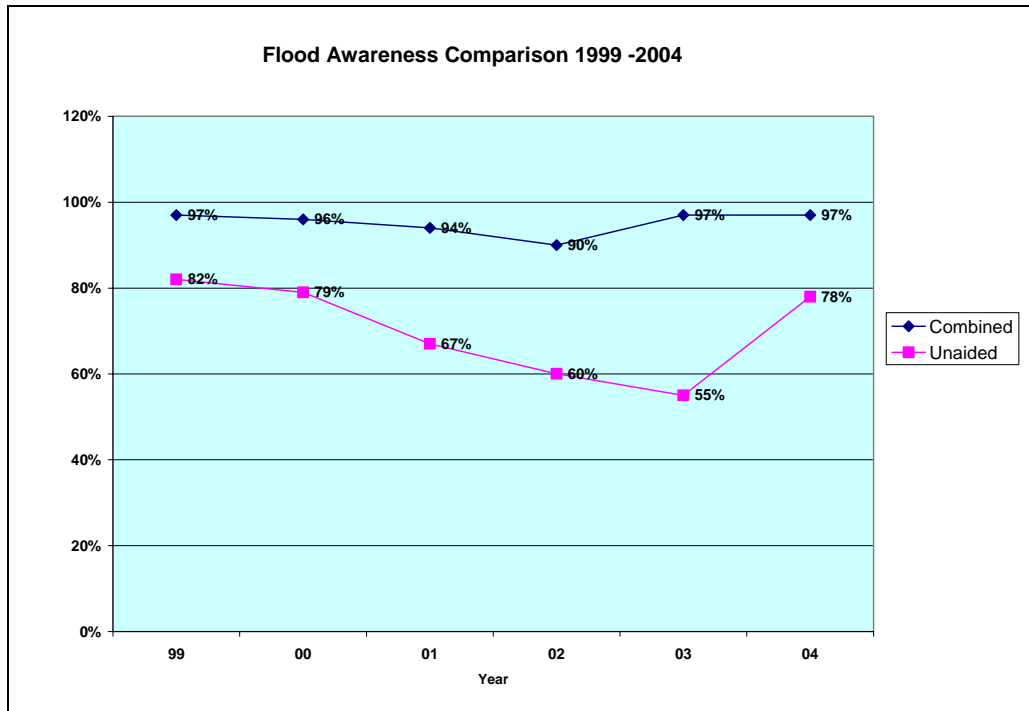
AWARENESS OF FLOODING AND WEATHER RELATED NATURAL DISASTERS

Unaided Awareness: Respondents were first asked if they were aware of any weather related natural disasters that can occur in the Clark County area. Eighty-four percent (84%) of the respondents reported they were aware that weather related natural disasters can occur in Clark County. Respondents who answered that they were aware of weather related disasters were then asked in an unprompted fashion to name the types of weather related disasters that can occur in the Valley. Ninety-three percent (93%) of respondents who reported that they were aware of weather related natural disasters were able to name “floods” or “flash floods.” This number represents 78% of the sample population, and changes the downward trend since 1999 in respondents being able to mention “floods” or “flash floods” in an unprompted situation. Only 55% of respondents who reported awareness of weather related natural disasters were able to mention “floods” or “flash floods” in the 2003 Flood Awareness Survey. Therefore, the 2004 results reflect a 23 percentage point increase in unaided awareness levels of flash flooding.

Aided Awareness: Respondents who reported that they were not aware of weather-related natural disasters (16%) and those who did not mention “floods” or “flash floods” in the prompted question were asked directly, “*Are you aware that flash flooding can occur here in the Clark County area?*” Eighty-eight percent (88%) of this sub-set reported that they 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, 97% of the sample was aware that flooding is a weather related natural disaster in the Clark County area.

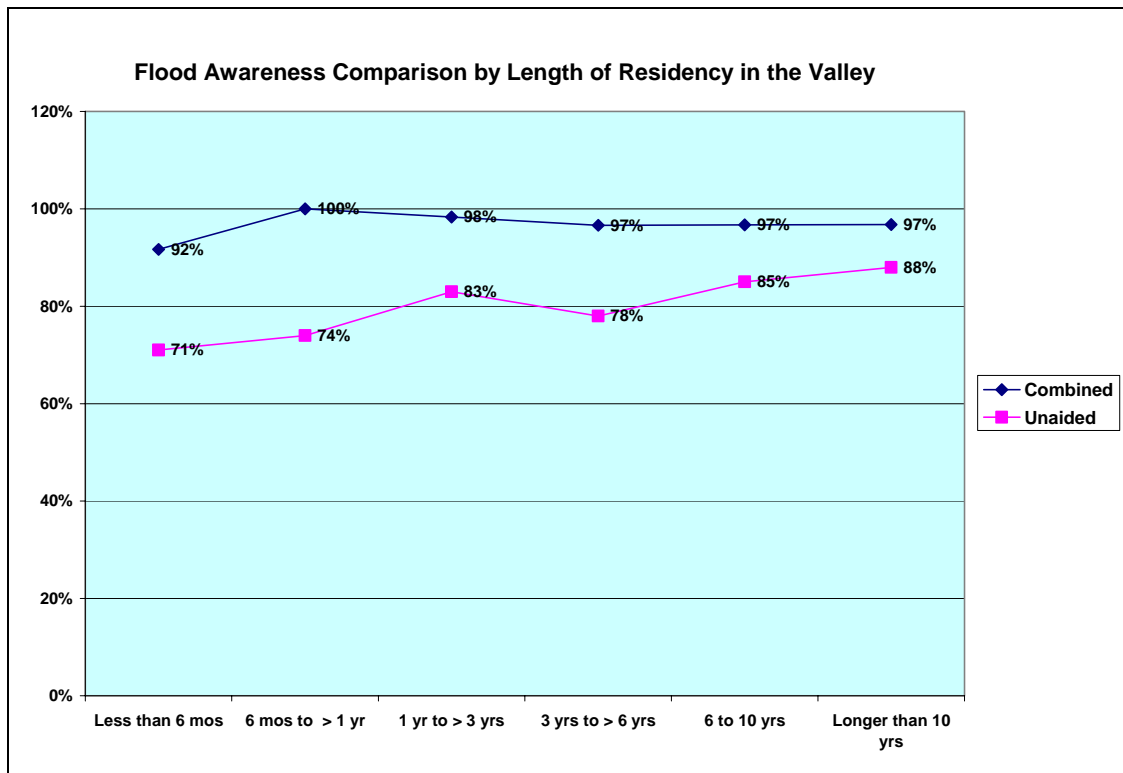
The graph on the next page depicts flood awareness levels from 1999 to 2004.



As can be seen from the graph above, combined or total awareness (total of aided or prompted responses) remains constant and very high. The percentage of respondents able to mention “flood” or “flash flood” in a prompted situation remained constant between 2003 and 2004 and is the same percentage of respondents that was able to mention “flood” or “flash flood” in 1999, the year that the Clark County area experienced the 100 year flood.

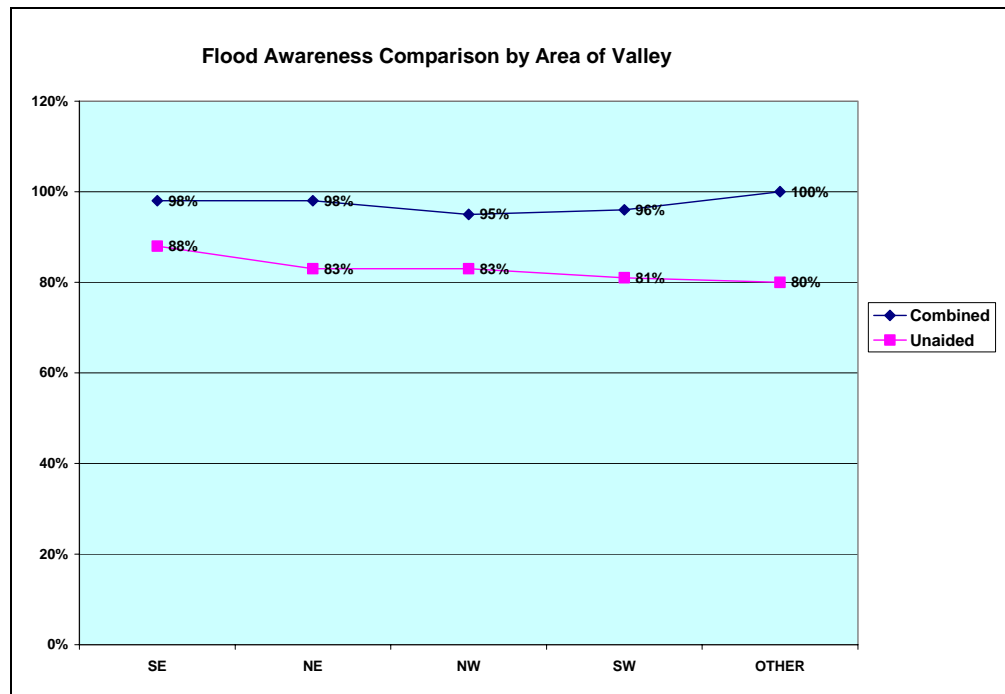
The number of respondents who were able to mention “flood” or “flash flooding” in an unaided or unprompted situation increased dramatically from 2003. There was a 23 percentage point increase in unaided, or unprompted, responses that included “flood” or “flash flooding.” An increase in awareness almost matches the awareness level for 1999 and may be due to increased rain during the year. The increase in awareness may also be due to the successful 2004 public information campaign managed by the Flood Control District which includes elements such as the new billboard advertising campaign and the public service announcement depicting dramatic rescue footage of the 2003 storm.

Awareness of Flooding Among the Sub-Samples



Length of Residency: As can be seen from the graph above, those respondents who have lived in the Clark County area from between six months and one year are the most likely to mention floods in the unaided and aided situation. This finding may be due to the Flood District's substantial outreach efforts to newcomers. Residents who have lived in the Clark County area for longer than ten years are most likely to mention floods in an unaided situation.

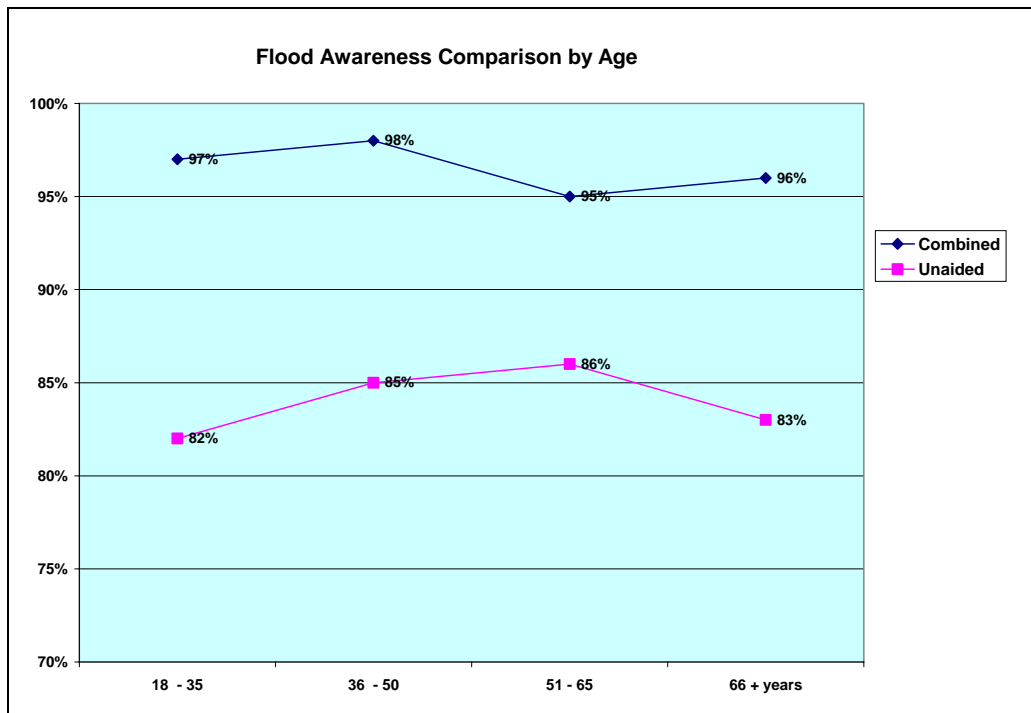
Awareness of Flooding by Comparison of Clark County Areas



Zip Codes: In every region sampled, unaided awareness levels increased dramatically from 2003 to 2004 and the 2004 combined awareness levels remained consistent with 2003 levels. The table below compares 2003 awareness levels to 2004 levels by location of respondents.

Unaided Awareness	% 2003	% 2004	% Change 2003 - 2004
Southeast	48	88	+ 40
Northeast	44	83	+ 39
Northwest	50	83	+ 33
Southwest	43	81	+ 38
Other	33	80	+ 47
Combined Awareness	% 2003	% 2004	% Change 2003 - 2004
Southeast	96	98	+ 2
Northeast	92	98	+ 6
Northwest	97	95	- 2
Southwest	98	96	- 2
Other	100	100	+/- 0

Awareness of Flooding by Comparison of Age Groups



Age: Over 90% of respondents in every age group were able to mention “flood” or “flash flood” in an aided situation. Over 80% of respondents in every age group were able to mention “flood” or “flash flood” in an unaided situation.

Other Weather Related Natural Disasters Mentioned

Respondents who answered that they were aware of weather related natural disasters in the first question of the survey (n=422) were asked unprompted, “*What types of weather related natural disasters are you aware of that can occur in the Clark County area?*” Ninety-three percent (93%) of responses were able to mentioned flood or flash floods to this question. In the following table, the types of weather related disasters mentioned by the respondents are listed.

Table: Types of Disaster Mentioned

Type of Disaster	Percent of responses
Floods/Flash Floods	93%
Dust/Sand Storms/High Winds	3%
Drought/Heat	1%
Lightning Strikes/Thunder Storms	.8%
Rain	.725%
Manmade ¹	.725%
Earthquakes	.25%
Other ²	.25%
Fires	.25%

¹ Manmade: Includes responses such as air quality, smog, chemical waste, nuclear, road hazards, terrorist attack, theft, and low roads

² Other: Includes responses as cold, hail, monsoon, mud, and snow.

As can be seen from the table above, of weather related natural disasters other than flooding, “winds, dust, and sand storms” were mentioned by 3% of respondents.

FLOOD RELATED ISSUES

In order to inform the District's Public Information Program, respondents who were aware of floods by either their prompted or unprompted responses were asked a series of questions to assess their general knowledge of flash flooding and flood related issues. Since 97% of the sample did mention "flood" or "flash flood," this series of questions was asked of that sub-sample group. Respondents were asked to "agree," "somewhat agree," "disagree," or "somewhat disagree" with six statements relating to various flood issues.¹ The following table provides the responses for the six items.

Table 2: Flood Issues

Issue	Percent Agree	Percent Disagree	Don't know
I know about the dangers of flash flooding (Question 3a)	98%	1%	1%
I know about the time of year flash flooding is most likely to occur in the Clark County area (Question 3b)	85%	7%	8%
I know about safety precautions relating to flash flooding (Question 3c)	89%	4%	7%
I know about the resources available to learn more about flash flooding (Question 3d)	52%	19%	29%
I know about ways in which flooding is being controlled in the Clark County area (Question 3e)	83%	9%	8%
I know about the availability of flood insurance (Question 3f)	75%	12%	13%

¹ 'Agree' and 'somewhat agree' responses have been combined to form an agreement scale, and 'disagree' and 'somewhat disagree' have been combined to form a disagreement scale.

(Q3A)

I know about the dangers of flash flooding.

Ninety-eight percent of respondents agree that they know about the dangers of flash flooding in both the 2003 and 2004 survey results. There is more variation in the data by age for 2004 compared to the 2003 data. For 2004, 100% of respondents 51 years and older, 98% of 36 to 50 year old respondents, and 92% of respondents 18 to 35 years old reported that they know about the dangers of flash flooding.

When looking at the responses from the different quadrants of Clark County, all (100%) of respondents in the Outlying areas reported knowing about the dangers of flash flooding. The Northeastern quadrant of Clark County had the lowest percentage of respondents (95%) reporting knowledge about the dangers of flash flooding. The Southeast (97%), Northwest (98%) and Southwest (99%) had very similar reports from respondents about knowing the dangers of flash flooding.

Almost all respondents (97-100%) who have lived in the Clark County area for at least a year reported being aware of the dangers of flash flooding. Most respondents (99.7%) who have lived in the Clark County area longer than 10 years are aware of the dangers of flash flooding (n=246). Awareness drops to less than 85% for respondents who have lived in the Clark County area for between six months and one year (n=16); but is surprisingly higher (91%) for respondents who have lived in the Valley less than six months (n=23).

Ninety-seven percent of all male respondents reported being aware of the dangers of flash flooding, while 98% of female respondents reported the same.

One-hundred percent of respondents with four year college degrees and beyond indicated that they are aware of the dangers of flash flooding; however, 71% of respondents who reported that they were not aware of the dangers of flash flooding had a high school education or less. Twenty-eight percent of respondents who reported that they were not aware of the dangers of flash flooding had some college, or trade school training, or a two year college degree.

(Q3B)

I know about the time of year flash flooding is most likely to occur in the Clark County area.

Like 2003, in 2004 84% of respondents reported that they are aware of the time for year that flash flooding is most likely to occur in the Clark County area. There was not much variation in the data when looking at the results by the age of the respondents.

Residents who live in the Northeastern section of the Clark County area are least likely to know the time of year that flooding is most likely to occur (79%.) In 2003, residents who lived in the Southwest section were least likely to know the time of year that flooding is most likely to occur (79%). Those residents who live in the Outlying areas around the Clark County area are the most likely to know the time of year that flooding is most likely to occur (100%). Responses from the other areas of the Clark County were: Southeast, 85%; Northwest, 85%; and Southwest, 88%.

In the 2003 Flood Awareness Survey, data showed that the longer a respondent has lived in the Clark County area, the more likely he/she is to be aware of the time of year that flash flooding is most likely to occur. In the 2004 Flood Awareness Survey, this pattern continues with 48% of residents who have lived in the Clark County area for less than six months reporting they are aware of the time of year to expect flash flooding; 64% of respondents who have lived in the area for six months to one year reported the same; and 86% or more of residents with tenure of over six years reported they know what time of year that flash flooding is most likely to occur. There is an exception to the pattern for the residents who have lived in the Clark County area for between three and six years. This group is slightly less likely (79%) to be aware of the time of year that flash flooding is most likely to occur than residents who have lived in the area between one and three years (85%.)

(Q3C)

I know about the safety precautions relating to flash flooding.

Eighty-nine percent (89%) of respondents agreed that they know about safety precautions relating to flash flooding. People between the ages of 51 years old and 64 years old (95%) are the most likely to know about safety precautions relating to flash flooding.

People in the Southeast (95%) and Outlying (100%) areas of the Clark County area are most likely to report that they know about safety precautions relating to flash flooding. Other areas show little difference in reporting levels for knowing about safety precautions related to flash flooding (88% in the Northwest, Southwest, and Northeast areas.)

Unlike 2003, there is no statistically significant relationship in the 2004 data between the length of time a respondent has been in the Clark County area and agreement that the respondent knows about safety precautions related to flash flooding.

More women (91%) than men (88%) agree that they know about safety precautions relating to flash flooding.

When looking at respondents educational level, responses about knowledge of safety precautions relating to flash flooding show that those with less than a high school education and those people with post-graduate work but not a degree are least likely to know about safety precautions relating to flash flooding. High school graduates (90%) and people with four-year college degrees (92%) are the most likely to know about safety precautions relating to flash flooding.

(Q3D)

I know about the resources available to learn more about flash flooding.

Fifty-one percent (51%) of respondents indicated that they know about the resources available to learn more about flash flooding.

The relationship between age and agreement about knowing about available resources to learn more about flash flooding appears to be a statistically significant one (chi-square = 16.19; $p < .05$.) In 2004, 42% of respondents older than 65 years agreed they know about resources available to learn more about flash flooding. Since this group believes they already know what needs to be known about flash flooding, it is reasonable that they would not seek resources to learn more about flash flooding. People between the ages of 36 years and 50 years old are most likely to agree that they know about resources available to learn more about flash flooding (58%.) This group may realize that they do not have sufficient knowledge about flash flooding, or members of this group may be more interested in knowing about flash flooding than other age groups.

When the 2004 responses to this question are looked at in relation to the area of the Clark County area that respondents live in, the relationship between knowledge about resources and area does not appear to be statistically significant.

The longer a respondent has lived in the Clark County area, the more likely the respondent is to agree that he/she knows about resources available to learn more about flash flooding. In 2003, only 37% of residents who have lived in the Clark County are less than six months reported knowing about resources available to learn more about flash flooding. In 2004, this percentage improved to over 47%. Increases in the numbers of respondents who report knowledge about resources are also found in other 2004 tenure groups as compared to the 2003 tenure groups.

(Q3E)

I know about the ways flooding is being controlled in the Clark County area.

There is a statistically significant relationship between age of respondent and agreement about knowledge of how flooding is controlled in the Clark County area in the 2004 data (chi-square = 11.69; $p < .01$.) More respondents in 2004 (over 90%) compared to 2003 (77%) agreed that they know about ways flooding is being controlled in the Clark County area. Ninety percent (90%) of respondents over 66 years old reported knowing ways flooding is controlled while 95% of respondents between 51 years old and 66 years old reported the same. The groups least likely to know about ways flooding is controlled in the Clark County area are respondents between 18 years old and 34 years old (82%) and respondents 35 years old to 50 years old (89%).

Another statistically significant relationship is seen between how long a respondent has lived in the Clark County area and knowledge of how flooding is controlled (chi-square = 20.60, $p < .01$.) The respondents most likely to agree that they know about ways flooding is being controlled have lived in the Clark County area longer than 10 years (94%), followed by respondents who have lived in the area for between six and ten years (91%); respondents who have lived in the area for between three and six years (91%); and those who have lived in the area for between one and three years (87%). The respondents least likely to agree that they know how flooding is being controlled in the Valley are people who have lived in the area six months to one year (75%) and those who have lived in the area less than six months (65%).

(Q3F)

I know about the availability of flood insurance.

Eighty-six percent of respondents in 2004 reported that they know about the availability of flood insurance which is a 13% increase since 2003.

As with other issues in this section, those who have resided here the longest were most likely to agree with the statement about flood insurance, and a statistically significant relationship was found between tenure among respondents and agreement about knowing about the availability of flood insurance (chi-square = 15.73, $p < .01$.)

SOURCES OF INFORMATION

In the next section of the survey, respondents were asked to answer “yes” or “no” to a list that was read to them of possible sources for obtaining information about floods. The following table presents the responses in ranked order, with number one being the most frequently cited source for flood information, and number eleven being the least cited source for flood information.

Table 3: Rank Order of Sources for Obtaining Flood Information

2004 Rank	Source	% 2002	% 2003	% 2004	% Change 2002 - 2003	% Change 2003 - 2004	% Overall Change 2002 - 2004
1	Television	91	88	93	- 3	+ 5	+ 2
2	Newspapers	54	58	64	+ 4	+ 6	+10
3	Radio	39	59	57	+20	- 2	+18
4	Billboards	49	48	53	- 1	+ 5	+ 4
5	Friends/Relatives	48	47	52	- 1	+ 5	+ 4
6	Brochures	16	25	26	+ 9	+ 1	+10
7	Direct Mail/Postcard	n/a	n/a	24	n/a	n/a	n/a
8	Government Website	n/a	13	18	n/a	+ 5	n/a
9	Bus Stop Shelter Ads	14	22	n/a	+ 8	n/a	n/a
10	School Age Children	11	20	15	+ 9	- 5	+ 4
11	Magazines	7	18	5	+11	- 13	- 2

In 2003, television was the most cited source for flood information (88% of respondents) and this trend continued in 2004 with 93% of respondents citing television as a source for flood information. Compared to 2003 data, fewer respondents in 2004 reported radio as a source of flood information; however, radio had the greatest overall historical increase (18%) among all sources from 2002 to 2004 as a source of flood information. Five percent fewer respondents reported school age children and magazines as sources of flood information in 2004 when compared to 2003. Direct mailings and postcards were added in 2004 as categories of sources for flood information; there is not yet historical data to compare. Billboards, and friends and relatives, continue to parallel each other's change historically with both categories of sources increasing since 2003 by 5% among respondents as a source of flood information. The Clark County Regional Flood Control District's website as a source of flood information was 5% higher among respondents in 2004 than in 2003. Bus stop shelter ads were not included in the 2004 survey.

(Q4)
Cable Television

In order to assess the number of respondents who have viewed *The Flood Channel*, which is shown on cable channels 2 or 4, respondents were first asked if they had cable television. Those who reported having cable television were then asked if they had every watched *The Flood Channel*. Four-hundred and thirteen, or 83%, of the total 501 respondents surveyed in 2004 reported that they have cable television (73%, 2003). Two-hundred and thirty respondents, or 56% of the respondents with cable television, reported that they have watched *The Flood Channel*. The 2004 percentage represents a +8% change in viewership when compared to the 2003 level (48%, 2003). The respondents who had watched *The Flood Channel* were then asked (unprompted) what they remember most from watching *The Flood Channel*.

Table 5: Rank Order – Remembered Most from Watching Flood Channel

Rank	What was Remembered	%	Number ²
1	Dangers of flash flooding	26%	60
2	Safety precautions	25%	56
3	Other ¹	22%	50
4	Don't know	20%	48
5	Ways floods are controlled	4%	9
6	Where to learn more about flash flooding	2%	4
7	Time of year flash flooding likely to occur	1%	2

1- "Other" category includes such responses as rescues, community service, and boring

2- One respondent is excluded because of missing data, possibly due to non-response.

As can be seen in the table above, more than 50% of respondents remember the dangers of flash flooding and safety precautions about flash flooding presented on *The Flood Channel*. It may be important to note that in 2004, dangers of flash flooding and safety precautions were important elements of the District's public information program.

Demographic Profile of the Flood Channel Viewers:

The longer a person has resided in the Clark County area, the more likely she or he is to have ever watched *The Flood Channel*. Nearly half (49%) of respondents who have lived in the Clark County area longer than ten years have reported watching *The Flood Channel*. The percentage drops to 18% for those who have lived here between six and ten years and to 12% for those who have lived in the Valley between three and six years or between one and three years. Viewership by respondents who have lived in the area for less than one year is very small, but more respondents who have lived in the area for less than six months (4.8%) reported viewing *The Flood Channel* than respondents who have lived in the area between six months and one year (3.9%).

Most of the viewers (71%) have graduated from either a trade or high school.

(Q5 – Q7)

Experience with Flooded Roads

All respondents were asked if they had ever encountered a flooded street or road as either a driver or passenger of a vehicle while on a road in the Clark County area. In order to assure that all respondents were answering from the same point of reference, a definition of a flooded street was read to them (A flooded street or road was defined as “one where water covers the street from curb to curb and you cannot see the pavement.”) In 2004, 77% of respondents reported that they had encountered a flooded road in the Clark County area. This figure is much higher than the percentages reported in 2002 (65%) and 2003 (66 %.)

Respondents who had encountered a flooded street or road were asked to respond to four statements and choose the one that best described how the encounter was handled. Interviewers read the following four statements:

- (1) “I turned back and took an alternative route.”
- (2) “I waited for the water to go down and then drove through it.”
- (3) “I drove through it and made it.”
- (4) “I drove through it and got stuck.”

Responses 1 and 2 are considered a good or appropriate choice to the encounter, and responses 3 and 4 are considered a poor or inappropriate choice to the encounter.

Good/Appropriate Choices:

Of total responses to the flooded road question, 63% of respondents made a good or appropriate choice when encountering a flood street or road, 57% of respondents “turned back and took an alternative route,” and 6% “waited for the water to go down and then drove through it.”

Poor/Inappropriate Choices:

The remaining 33% of responses consisted of 119 respondents (about 31%) who reported they “drove through and made it” and seven respondents (about 2%) reported they “drove through and got stuck” during an encounter with a flooded road or street in the Clark County area. Only those respondents who made poor choices to the encounter (33%) were asked a follow-up question.

During the follow-up question, interviewers were instructed not to read categories, but rather to categorize responses. Among the 33% of respondents who made a poor choice when encountering a flooded road, various reasons for proceeding through the water were given by the respondents. The reason given most often in 2004 for driving through a flooded street or road was that respondent did not think it was unsafe to do so (69% of those who had driven through flood water.) Approximately 7% of respondents reported “being in a hurry” as a reason for driving through a flooded area on a street or road. Other responses included “thought it would be fun.”

“Drove through it and made it”

In 2004, more respondents who “drove through it and made it” can be generally described as women between the ages of 18 and 35 years old who have a high school education or some college or trade school training. They typically live in either the Southeast or the Northwest sections of the Clark County area, and have lived in the area for longer than six years.

“Drove through it and got stuck”

Seven respondents in 2004 reported driving through flood water on a street or road and getting stuck. At the time of the survey, four (57%) of these respondents resided in the Northwest section; two (29%) lived in the Northeast section; and one (14%) lived in the Southwest section of the Clark County area.

Half the respondents who reported “drove through it and got stuck” have lived in the Clark County area for over ten years and half have lived in the area for between six and ten years.

Most of the respondents (4 of them) who “drove through and got stuck” were over 66 years old (50 %.) Reports from individuals 18 to 35 years old; 36 to 50 years old; and 51 to 65 years old (about 17% each) showed the remaining three respondents who “drove through and got stuck” are fairly evenly distributed across age groups.

Four of the respondents who reported “drove through and got stuck” are high school graduates (43%); two have post-graduate degrees (29%); one has a four-year college degree (14%) and one refused to answer the question about educational achievement (14%.)

Four, or 57%, of the respondents who reported they “drove through and got stuck” are men; three, or 43%, are women.

Eighty-six percent of respondents who got stuck when they drove through flood water on a street or road reported that they “didn't think it was unsafe to do so” as the primary reason for proceeding through a flooded street or road.

(Q8)

Are streets a part of the flood control system?

All respondents (N=501) were asked which of the following statements is true: “streets are a part of the flood control system” and “streets are not a part of the flood control system.” Four-hundred and ninety-nine (499) respondents answered this question. Overall, over half of the respondents (56%) reported the statement “streets are a part of the flood control system” is true; approximately 24% of respondents reported the statement “streets are not part of the flood control system” as true; and around 20% reported that they do not know which statement is true.

	% 2003	% 2004	% Change 2003 - 2004
Streets are a part of the flood control system	59	56	-3

(Q9)

Availability of Flood Insurance

All respondents (N=501) were asked which of the following statements is true: “flood insurance is available to all residents of the Clark County area” and “flood insurance is not available to all residents of the Clark County area.” Four-hundred and eight-five (485) respondents answered this question. Overall, over half of the respondents (57%) reported the statement “flood insurance is available to all residents of the Clark County area” is true; 14% of respondents reported the statement “flood insurance is not available to all residents of the Clark County area” as true; and approximately 30% reported that they do not know which statement was true.

	% 2003	% 2004	% Change 2003 - 2004
Flood insurance is available to all residents of the Clark County area	43%	57%	+14%
Flood insurance is not available to all residents of the Clark County area	31%	14%	+17%
I don't know if flood insurance is available to all residents of the Clark County area	26%	30%	-4

(Q10)

Do you know how to find out if you live in a flood zone?

Fifty-seven percent (57%) of respondents indicated they know how to find out if they live in a flood zone. Forty-nine (49%) percent of the respondents who answered this question have lived in the Las Vegas area for longer than ten years. The older a respondent, the more likely the respondent knows how to find out if he or she lives in a flood zone.

(Q11)

Do you live in a flood zone?

Ten percent (10%) of respondents (48 persons) indicated that they live in a flood zone. Of these 48 respondents, 31% live in the Northwest; 15% percent live in the Northeast; 27% live in the Southwest; and 27% percent live in the Southeast. There were no respondents from the Outlying areas of the Valley who reported they lived in a flood zone.

(Q12)

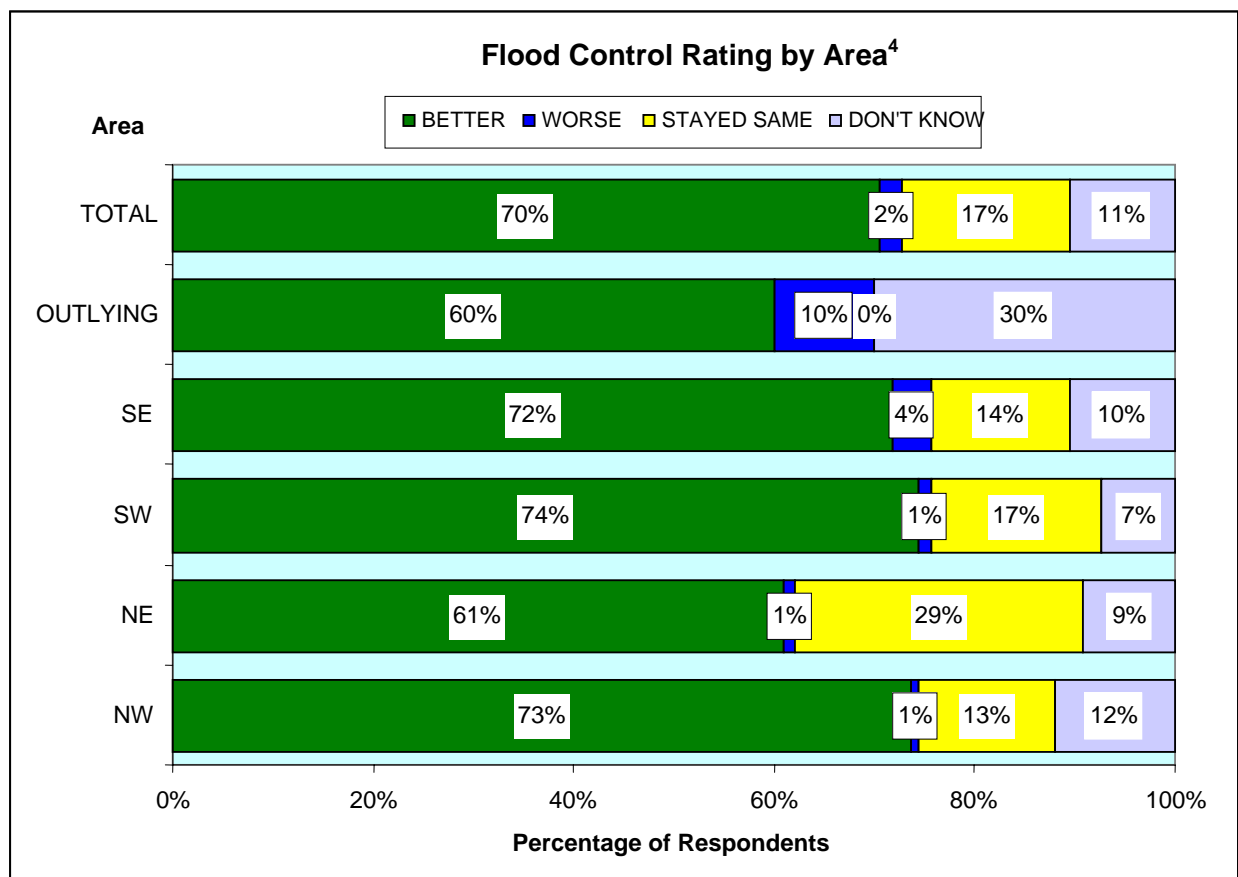
Do you have flood insurance?

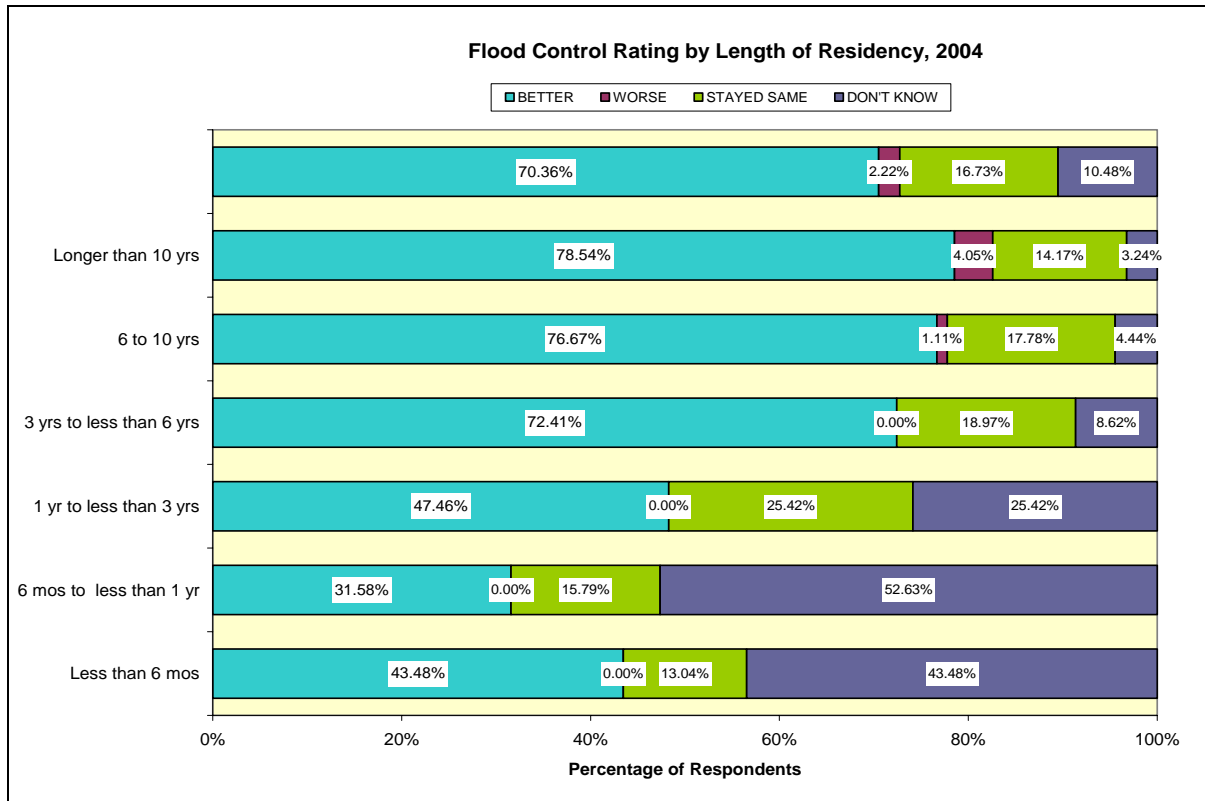
Flood insurance is a mandatory requirement for those living in designated flood zones. Approximately 10% of respondents (47 persons) reported that they have flood insurance. Of the forty-eight persons who claimed to live in a flood zone in Q11 above, fifteen (32%) of the 48 respondents have flood insurance while 28 (58%) do not have insurance, and five respondents (10%) do not know whether they have flood insurance or not. This finding may be an area for future surveys to explore. The reasons for persons living in flood zones without insurance should be determined, especially since flood insurance is mandatory. For example, perhaps respondents are living in apartment buildings and landlords are responsible for providing flood insurance; or flood insurance costs are prohibitive to some residents.

(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?

Seventy percent (70%) of respondents reported that the way flood control is being handled in our valley has gotten better since the time they became residents of Clark County. Seventeen percent (17%) of respondents feel that the way flood control is being handled is about the same since they have become residents. Eleven percent (11%) of respondents reported that they do not know if the way flood control is being handled has gotten better, gotten worse, or stayed the same since they became residents. A mere two percent (2%) of respondents feel that the way flood control is being handled in the Valley has gotten worse since they became residents of Clark County.





As shown in the graph above, respondents who have lived in the Clark County area for three or more years are likely to say that the way flood control is handled has gotten better since they have become residents. When looking at respondents' answers about flood control handling by the length of time the respondent has lived in the Clark County area, around seventy-nine percent of respondents who have lived in the Valley for longer than ten years said that flood control handling has gotten better since they first became residents of the Valley; however, this group is also the one most likely to have reports (4%) of flood control handling becoming worse since they started their residency in the Valley.

Respondents who have lived in the Clark County area for less than three years are more likely to report that they do not know whether flood handling has gotten better, gotten worse, or stayed the same since they have become residents.

CONCLUSIONS

Based on the research objectives for this study and the findings of the analyses, Lucchesi, Galati offers the following conclusions to the Clark County Regional Flood Control District:

- **Awareness Levels:** As observed since 1999, there is a high level of awareness (when combining unaided and aided scores) among English-speaking Clark County residents regarding the dangers of flash flooding in Clark County. Moreover, 2004 data show that unaided awareness levels among Clark County residents increased by 23 percentage points in 2004, or from 55% to 78%. The increase in unaided awareness levels is a strong indicator that the District's public information program is reaching its target audience (citizens who were previously unaware of the dangers of flash flooding).
- **General Knowledge of Flooding:** The 2003 survey delved further than previous surveys to ascertain respondents' general knowledge of flooding. In 2003, 81% of those surveyed knew when the flash flood season begins or ends and in this year's survey 84% of those surveyed indicated knowing the time of year flash flooding occurs in Clark County. In 2003 and 2004, 10% of respondents were unfamiliar with safety precautions relating to flash flooding. In 2003, 23% of the respondents were unfamiliar with the ways in which the District controls flooding but in 2004 only 18% of the respondents were unfamiliar with flood control methods. In 2003, 27% of the respondents knew little about the availability of flood insurance and in 2004 this percentage changed to 25%. It is apparent from the changes in data from 2003 to 2004 that the District's public information campaign has made a positive impact in educating citizens about the time of year flash floods occur, ways in which the District controls flooding, as well as the availability of insurance to all residents.
- **Newcomer Knowledge of Flooding:** Last year, we were particularly concerned with the overall lack of flood awareness and flood knowledge displayed by newcomers to Clark County (those residents who have lived here less than one year which represented 10% of the 2003 sample and represents 10% of the 2004 sample, respectively.) The 2003 findings indicated that the District needed to place more emphasis on reaching this newcomer sub-set. Data collected in 2004 show that the District has been successful in educating the newcomer sub-set. Unaided awareness levels among newcomers increased from 43% in 2003 to nearly 90% in 2004. To the extent that the District can continue to reach the newcomer audience, we believe that knowledge about flash flooding safety precautions, flash flooding season, resources available to learn about flash flooding, and other important flood-related knowledge is likely to increase in forthcoming years.
- **The Flood Channel:** The 2004 data indicate that there is strong support for *The Flood Channel* because nearly 60% of respondents report to have watched the program. We recommend the continuation of the program with program emphasis being placed on information and education regarding flash flood season, insurance availability, what to do when encountering a flooded street, elements of the flood control system (including streets), and sources of information about flood control.

- Overall opinion of Flood Control: Nearly two-thirds of those interviewed reported that flood control has “gotten better” since they moved to Clark County. This finding indicates that the District’s on-going flood control efforts are recognized and appreciated by the citizens of Clark County.
- Website: Eighteen percent (18%) of respondents indicate that they know information about flash flooding is available through a governmentally-hosted website. Continuing to develop and promote the District’s website would provide the District with the opportunity to reach many residents through the Internet in the future. To the extent that the District can use conventional media sources to improve residents’ awareness of the District’s web page and the types of information available to residents through the Internet, the District may be able to strengthen the communication link between the District and residents. Promotion of the District’s web page may also enable the District to obtain feedback from subgroups of Clark County residents, such as younger residents, who may not take advantage of conventional avenues of learning about the dangers of flash flooding.
- Study Limitation: A major limitation of the study is reflected in the fact that we surveyed only English-speaking Clark County residents. According to Census 2000 data, nearly 22% of the population of Clark County considers themselves of Hispanic descent. Of those, nearly 80% are immigrants to the United States. According to recent research conducted in Clark County by Dr. Mary Riddel and Dr. Keith Schwer (N=598; “The Impact of the Nonnative Hispanic Community on the Economy of Clark County”), 21% cannot understand, speak, or read English, 48% have some limited understanding of English, 13% can speak and understand English, but cannot read English, and 16% can speak, understand, and read English. In only .6% of the cases is English considered to be their first language. To get a more robust and accurate picture of flood awareness and knowledge within Clark County, we suggest that the 2005 Flood Awareness Survey be bilingual or specific survey research be conducted within the Spanish-speaking subpopulation of Clark County. 2004 call dispositions indicated that 4% of the total calls made reach a person who spoke only Spanish.
- Continuing Education: Clark County is one of the fastest growing areas in the United States, and the District is obviously aware that issues related to population growth should continue to be given utmost consideration when planning their annual public information campaign. Continue to target newcomers, school-age children, Spanish speaking citizens, and residents who have less than a high school education.

2004 Flood Awareness Survey

Hello, my name is [YOUR NAME]. I am not associated with any political campaign. I am with the UNLV, Division of Educational Outreach. We are conducting our annual research study on behalf of a Clark County public agency. We are neither selling anything, nor are we asking for any donations. All of your responses will remain confidential, and your responses are valuable to our research.

May I please speak with a Clark County resident in your household who is at least 18 years of age or older and has celebrated the most recent birthday in your household?

[IF RESPONDENT ASKS, THE SURVEY WILL TAKE APPROXIMATELY FIVE MINUTES DEPENDING ON HIS OR HER RESPONSES.]

[IF RESPONDENT ASKS, THE NAME OF THE AGENCY WILL BE REVEALED AT THE END OF THE SURVEY.]

QA. Zip Code

89



QB. How long have you lived in Clark County?

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

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

- ☐ Yes [GO TO Q1a.]
☐ No [GO TO Q2]
☐ Don't Know [GO TO Q2]
☐ 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 occur here in the Las Vegas Valley? ☐ Yes ☐ No ☐ Don't Know ☐ Refuse

INTERVIEWERS: EVERYONE ANSWERS Q3

Now, I'm going to read some statements relating to flash flooding. For each statement, please tell me if you "agree", "somewhat agree", "somewhat disagree" or "disagree" with the statement. Remember there are no right or wrong answers.

	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Don't Know	Refuse
Q3a. I know about the dangers of flash flooding.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 8	<input type="radio"/> 9
Q3b. I know about the time of year flash flooding is most likely to occur in the Las Vegas Valley.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 8	<input type="radio"/> 9
Q3c. I know about safety precautions relating to flash flooding.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 8	<input type="radio"/> 9
Q3d. I know about resources available to learn more about flash flooding.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 8	<input type="radio"/> 9
Q3e. I know about ways in which flooding is being controlled in the Las Vegas Valley.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 8	<input type="radio"/> 9
Q3f. I know about the availability of flood insurance.	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 8	<input type="radio"/> 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 _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4b. Billboard _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4c. Television _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4d. Radio _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4e. Newspaper _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4f. *Welcome Home* Magazine _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4g. Your school age children _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4h. Other friends and/or relatives _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4i. Clark County Regional Flood Control District Website _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4j. Direct mailing to new residents _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse
Q4k. Postcard from Clark County Regional Flood Control District _____ ☐ Yes ☐ No ☐ Don't Know ☐ Refuse

Q4l. Do you have cable television?

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



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

- ☐ Yes [GO TO Q4Lb.]
☐ No [GO TO Q5]
☐ Don't Know [GO TO Q5]
☐ Refuse [GO TO Q5]



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

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

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



[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't 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?

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

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?

[INTERVIEWER: READ 1 - 4 ONLY]

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



Q7. Why did you drive through it?

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

[INTERVIEWER: DO
NOT READ
RESPONSES, uSE
FOR CODING]

Q8. Which of the following statements is true?

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



Q9. Regarding flood insurance which of these statements is true?

- ☐ Flood insurance is available to everyone
- ☐ Streets are not a part of the flood control system
- ☐ Don't Know
- ☐ Refuse

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

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

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

- ☐ Gotten better
- ☐ Gotten worse
- ☐ Stayed about the same
- ☐ Don't Know
- ☐ Refuse

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

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Don't Know
- ☐ Refuse

There are just a few more background questions for statistical purposes only

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

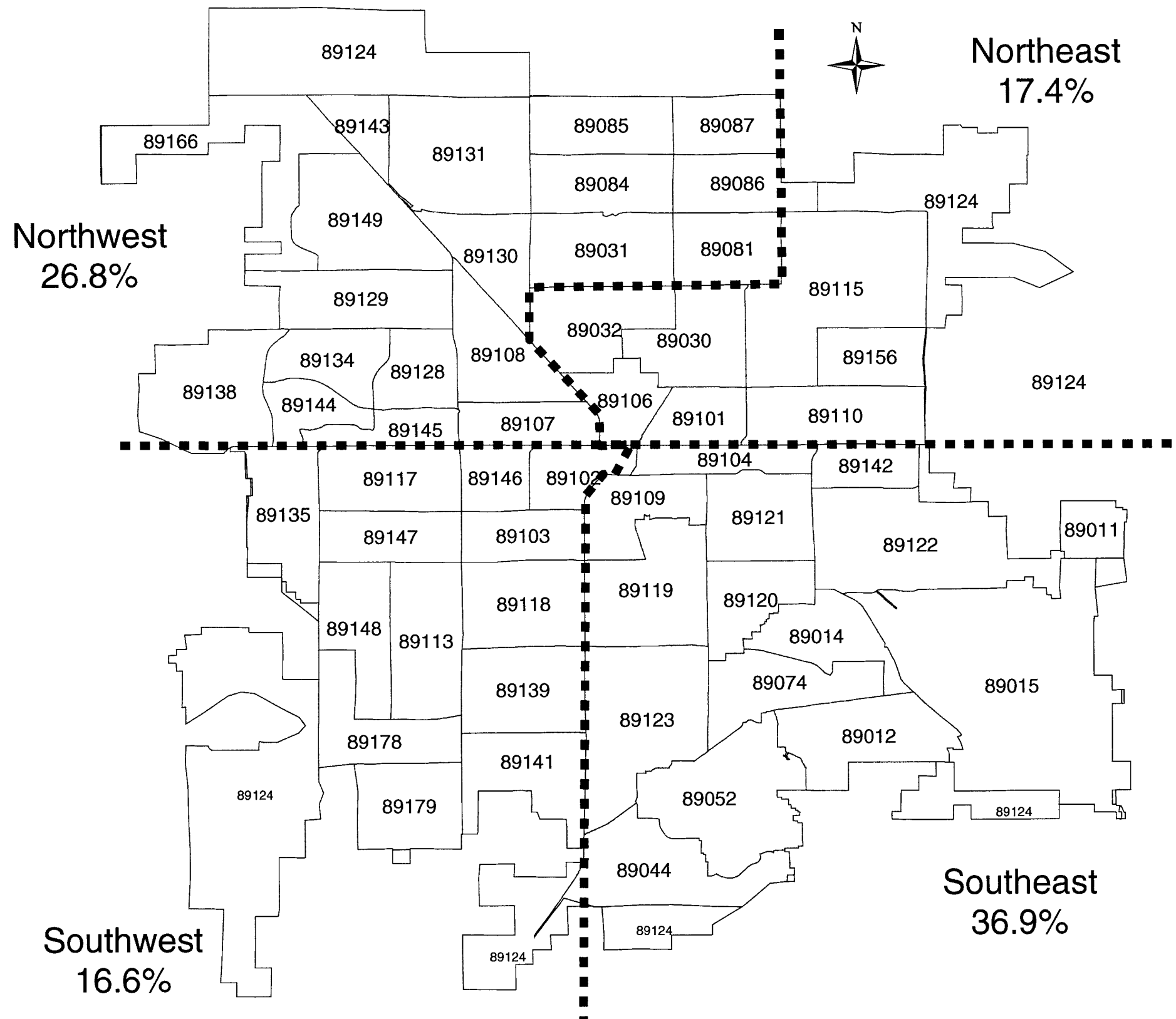
Q16. What is the highest level of education that you have completed?

- ☐ Less than HS graduate
- ☐ HS graduate
- ☐ Some college/trade school
- ☐ Two year college
- ☐ Four year college
- ☐ Post grad work
- ☐ Post grad degree
- ☐ Don't know
- ☐ Refuse

Q17. Please record gender.

- ☐ Male
- ☐ Female

Clark County Regional Flood Control District 2004 Flood Awareness Survey



Response Distribution by Zip Code Flood Control Survey, 2004 (N=501)

Zip			Zip		
Code	Count	Percent	Code	Count	Percent
89005	10	2.0	89119	8	1.6
89012	8	1.6	89120	5	0.9
89014	11	2.2	89121	23	4.6
89015	30	6.0	89122	11	2.2
89030	13	2.6	89123	25	5.0
89031	24	4.8	89124	2	0.4
89032	15	3.0	89128	9	1.8
89052	23	4.6	89129	19	3.8
89074	13	2.6	89130	9	1.8
89084	1	0.2	89131	12	2.4
89101	5	0.9	89134	9	1.8
89102	2	0.4	89135	5	0.9
89103	9	1.8	89139	8	1.6
89104	11	2.2	89141	4	0.8
89106	6	1.2	89142	7	1.4
89107	9	1.8	89143	4	0.8
89108	19	3.8	89144	9	1.8
89109	6	1.2	89145	5	0.9
89110	20	4.0	89146	4	0.8
89113	11	2.2	89147	15	3.0
89115	19	3.8	89148	7	1.4
89117	16	3.2	89149	6	1.2
89118	6	1.2	89156	7	1.4

Outlying Areas
2.0%

Survey Purpose

An important component of the Clark County Regional Flood Control District's Public Information Program is evaluation. In October 1999, the District conducted its first flood awareness study to measure citizen awareness of the dangers of flash flooding in Clark County. The survey has been replicated every year since 1999 and longitudinal comparisons have been conducted.

Lucchesi Galati Architects designed a multiple question survey and it was administered by telephone to 501 randomly selected, English speaking Clark County residents during the month of October 2004. The survey collected data on the following topics:

- Awareness of flash flooding in the Las Vegas Valley.
- General knowledge of various subjects relating to flash flooding.
- Sources of flash flooding education and information.
- Behavioral tendencies when encountering a flooded street or road in the Las Vegas Valley.
- Knowledge of the availability of flood insurance.
- Demographics and program recall of respondents who have watched *The Flood Channel*.
- Opinion of how well flood control is being handled in the Las Vegas Valley.



Clark County Regional Flood Control District 2004 Flood Awareness Survey

SUMMARY SHEET

CHARACTERISTICS OF THE SAMPLE

Demographic information collected from the 501 survey respondents included location of their residence (by zip code), length of time living in Clark County, age, level of education, and gender. These data are representative of Clark County and generally coincide with the U.S. Census Bureau demographic profile of Clark County and Clark County Comprehensive Planning statistics, respectively. According to Clark County Comprehensive Planning, the total population of Clark County is almost 1.7 million. The margin of error for the study is +/- 4%.

Education

- 5 % Less than high school
- 31 % High school graduate
- 19 % Some college or trade
- 16 % Two year college degree
- 20 % Four year college degree
- 1 % Post graduate work
- 7 % Post graduate degree
- 0 % Don't know
- 1 % Refused to answer

Gender

- 41 % Male
- 59 % Female

Length of time living in Clark County

- 5 % Less than 6 months
- 4 % 6 months to less than 1 year
- 12 % 1 year to less than 3 years
- 11 % 3 years to less than 6 years
- 18 % 6 years to less than 10 years
- 50 % Longer than 10 years

Age of Respondent

- 24 % 18 - 35 years old
- 25 % 36-50 years old
- 26 % 51-65 years old
- 24 % 65+ years old
- 1 % Refused to answer

GENERAL KNOWLEDGE OF VARIOUS SUBJECTS RELATING TO FLASH FLOODING (DK=DON'T KNOW)

Issue	Agree	Disagree	DK
I know about the dangers of flash flooding	98%	1 %	1 %
I know about the time of year flash flooding is most likely to occur in the Las Vegas Valley	85%	7 %	8 %
I know about the safety precautions relating to flash flooding	89%	4 %	7 %
I know about the resources available to learn more about flash flooding	52%	19%	29%
I know about ways in which flooding is being controlled in the Las Vegas Valley	83%	9 %	8 %
I know about the availability of flood insurance	75%	12%	13%

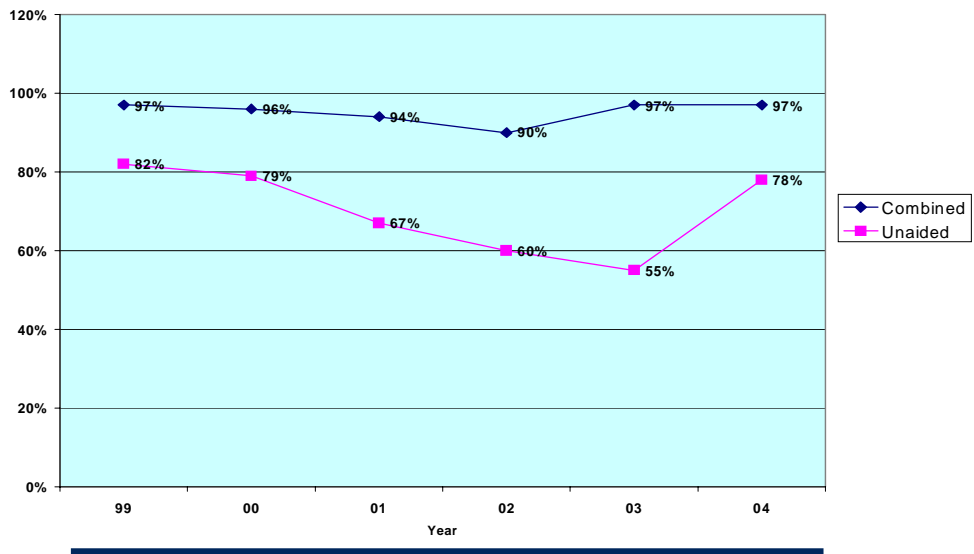
Future Steps

- As observed since 1999, there is a high level of awareness (when combining unaided and aided scores) among English-speaking Clark County residents regarding the dangers of flash flooding in Clark County. Moreover, 2004 data show that unaided awareness levels among Clark County residents increased by 23 percentage points in 2004, or from 55% to 78%. The increase in unaided awareness levels is a strong indicator that the District's public information program is reaching its target audience, which is the citizens who were previously unaware of the dangers of flash flooding.
- Data collected in 2004 show that the District has been successful in educating residents who have lived here less than one year. Unaided awareness levels among newcomers increased from 43% in 2003 to nearly 90% in 2004. To the extent that the District can continue to reach the newcomer audience, we believe that knowledge about flash flooding safety precautions, flash flooding season, resources available to learn about flash flooding, and other important flood-related knowledge, is likely to increase in forthcoming years.



AWARENESS OF FLOODING IN CLARK COUNTY

When looking at the total number of respondents in both the prompted ("Are you aware that flash flooding can occur here in the Clark County area?") and unprompted questions ("What types of weather related natural disasters are you aware of that occur in the Clark County area?"), 97% of the sample was aware of flooding as a weather related natural disaster in the Clark County area. The chart below displays data collected from 1999 to 2004 relating to flood awareness among Clark County residents. Note the significant increase in the 2004 unaided awareness level.



PROGRAM RECALL OF RESPONDENTS WHO HAVE WATCHED THE FLOOD CHANNEL

According to Cox Communications and Nielson Media Research, approximately 601,700 households or 74% of total households in Las Vegas have access to cable television. Eighty-three percent (83%) of the sample reported to have cable television. Of this number, 56% reported to have watched *The Flood Channel*. This percentage represents a 8% increase in viewership when compared to the 2003 level (48% in 2003). The chart below shows the items most frequently mentioned when asked, "What do you remember the most from watching *The Flood Channel*?"

Rank	What was Remembered	%
1	Dangers of flash flooding	26%
2	Safety precautions	25%
3	Other ¹	22%
4	Don't know	20%
5	Ways floods are controlled	4%
6	Where to learn more about flash flooding	2%
7	Time of year flash flooding likely to occur	1%

- 1- "Other" category includes such responses as rescues, community service, and boring
- 2- One respondent is excluded because of missing data, possibly due to non-response.

Future Steps

- Clark County is one of the fastest growing areas in the United States, and the District is obviously aware that issues related to population growth should continue to be given utmost consideration when planning their annual public information campaign. Continue to target newcomers, school-age children, Spanish speaking citizens, and residents who have less than a high school education.
- Continue airing *The Flood Channel* with program emphasis on information and education regarding flash flood season, insurance availability, what to do when encountering a flooded street, elements of the flood control system, and sources of information about flood control.
- Of the 48 respondents who said they live in a flood zone, only 15 reported to have flood insurance, indicating more education is needed on the subject of flood insurance.



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OPINION OF HOW WELL FLOOD CONTROL IS BEING HANDLED IN THE LAS VEGAS VALLEY

Seventy percent (70%) of respondents reported that the way flood control is being handled in our valley has gotten better since the time they became residents of Clark County. Seventeen percent (17%) of respondents feel that the way flood control is being handled is about the same since they have become residents. Eleven percent (11%) of respondents reported that they do not know if the way flood control is being handled has gotten better, gotten worse, or stayed the same since they became residents.

SOURCES OF FLASH FLOODING EDUCATION/INFORMATION

Survey respondents were asked to answer "yes" or "no" to a list that was read to them of possible sources for obtaining information about floods. The following table presents the responses in rank order.

2004 Rank	Source	% 2002	% 2003	% 2004	% Change 2002 - 2003	% Change 2003 - 2004	% Overall Change 2002 - 2004
1	Television	91	88	93	- 3	+ 5	+ 2
2	Newspapers	54	58	64	+ 4	+ 6	+10
3	Radio	39	59	57	+20	- 2	+18
4	Billboards	49	48	53	- 1	+ 5	+ 4
5	Friends/Relatives	48	47	52	- 1	+ 5	+ 4
6	Brochures	16	25	26	+ 9	+ 1	+10
7	Direct Mail/Postcard	n/a	n/a	24	n/a	n/a	n/a
8	Government Website	n/a	13	18	n/a	+ 5	n/a
9	Bus Stop Shelter Ads	14	22	n/a	+ 8	n/a	n/a
10	School Age Children	11	20	15	+ 9	- 5	+ 4
11	Magazines	7	18	5	+11	- 13	- 2

KNOWLEDGE OF AVAILABILITY OF FLOOD INSURANCE

All respondents were asked which of the following statements is true: "flood insurance is available to all residents of the Clark County area" and "flood insurance is not available to all residents of the Clark County area." Four-hundred and eight-five (485) respondents answered this question. Overall, over half of the respondents (57%) reported the statement "flood insurance is available to all residents of the Clark County area" is true, 14% of respondents reported the statement "flood insurance is not available to all residents of the Clark County area" as true, and approximately 30% reported that they did not know which statement was true.

BEHAVIOR WHEN ENCOUNTERING A FLOODED STREET

Of those respondents who had encountered a flooded street in Clark County, 63% of respondents made a good or appropriate choice because they either "turned back and took an alternative route," or they "waited for the water to go down and then drove through it."