

**CITY OF MERCED**  
**Development Services**

TO: Disaster Council  
FROM: Julie Sterling, Associate Planner  
DATE: November 30, 2012  
SUBJECT: Local Hazard Mitigation Plan

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TOPICS AND ACTIONS REQUIRED:

<u>Topic</u>	<u>Disaster Council Actions</u>
1. Results/LHMP Community Survey	Information & Discussion
2. Potential Mitigation Actions	Information
3. Focused Mitigation Actions	Review and Prioritization of Appendix I

Community Survey

The planning process included participation of representatives from local government agencies and departments, stakeholder groups, and the general public. Public involvement helps to ensure that citizens understand what the community is doing on their behalf, and provides an opportunity for input on community vulnerabilities and mitigation activities that will inform the plan's content. Additionally, outreach efforts help to educate the public about hazards and risks in the community, types of activities to mitigate those risks, and how these impact them.

A Community Survey was created with 30 questions requesting public feedback and input to assist in creating a safer community. The survey was placed on the City's webpage, advertised in the media, utility billing, e-mail blasts to the Disaster Council and stakeholders, and distributed at each of the public outreach events. This resulted in 138 responses. The data collected was then analyzed and converted into a readable format (See Appendix C at Attachment A). The Disaster Council is requested to review the survey results prior to the Disaster Council December 7, 2012 Meeting. Base your prioritization of the plan's 10 mitigation strategies using this survey.

Catalog of Potential Hazard Mitigation Plan Actions

The Disaster Council and the general public were provided with Potential Hazard Mitigation Plan Actions and were requested to review the actions and provide written comments that included: 1) a numeric ranking of the ideas in each table [with 1 being the most important, 2 being the next important, and so on]; 2) comments, of each cataloged action, as appropriate; and, 3) to describe new actions.

Appendix G at Attachment B illustrates each of the Hazard Types, the proposed Mitigation Actions, and suggestions for potential mitigation actions that were received from the Disaster Council and the general public.

### Focused Catalog of Mitigation Plan Actions

From comments collected, the Technical Planning Team then analyzed the data collected, summarized and modified the results in a more focused catalog of potential hazard mitigation plan actions, narrowing the potential mitigation actions from 54 to 10 (See Appendix I at Attachment C). These 10 recommended actions are the “essence of the plan” and will be the most outward representation of the planning process for implementing the actions over the five (5) year life of the Plan. At their December 7, 2012, meeting, the Disaster Council will be requested to review, discuss, and prioritize the proposed 10 Focused Mitigation Actions.

### Prioritization Process – Chapter 4

While prioritizing Actions, the Disaster Council should take into consideration specific criteria such as the “Benefit – Cost Review” and “Prioritization Methodology” that are decision making tools to rank the importance and effectiveness of the actions (See Attachment D). The Disaster Council is requested to review Draft Section 4.3.2 (pages 4-34 through 4-36) prior to the Disaster Council Meeting on December 7, 2012. Base your prioritization of the plan’s 10 mitigation strategies using the excerpt found in Attachment D.

### Attachments

- A. Results of the LHMP Public Survey
- B. Potential Hazard Mitigation Plan Actions
- C. Focused Catalog of Potential Hazard Mitigation Plan Actions
- D. Excerpt from Draft Chapter 4 – Prioritization of Actions for Merced’s Local Hazard Mitigation Plan

## **Appendix C**

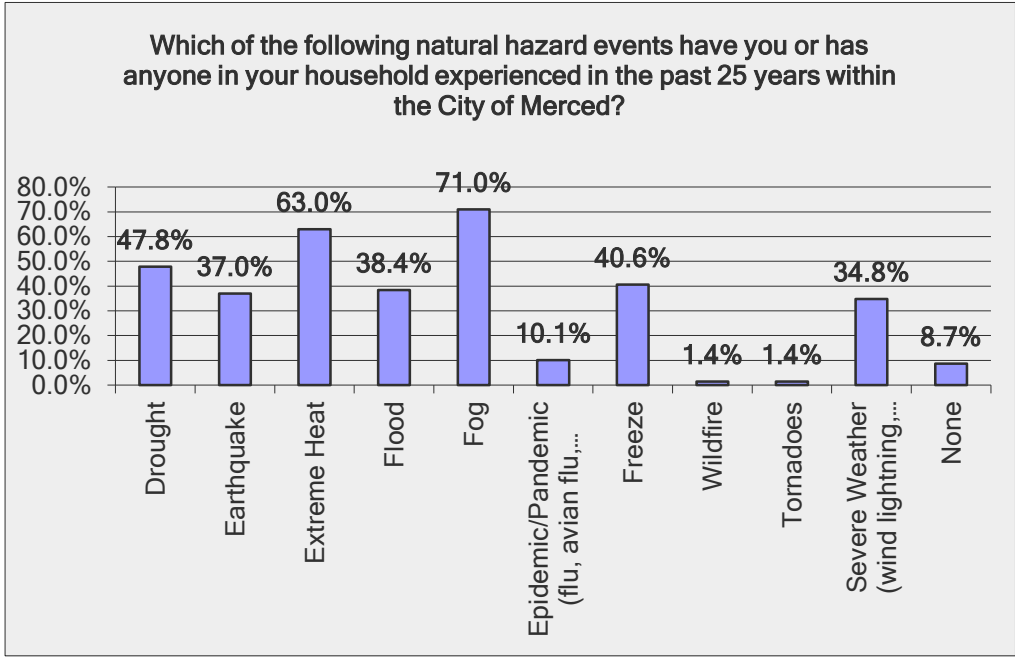
### **Community Hazards Public Survey**

The planning process included participation of representatives from local government agencies and departments, stakeholder groups, and the general public. Public involvement helps to ensure that citizens understand what the community is doing on their behalf, and provides an opportunity for input on community vulnerabilities and mitigation activities that will inform the plan's content. Additionally, outreach efforts help to educate the public about hazards and risks in the community, types of activities to mitigate those risks, and how these impact them.

A Community Survey was created with 30 questions requesting public feedback and input to assist in creating a safer community. The survey was placed on the City's webpage, advertised in the media, utility billing, e-mail blasts to the Disaster Council and stakeholders, and distributed at all public outreach events resulting in 138 responses illustrated on the following pages.

**Natural Hazard Community Awareness Survey  
Question #1**

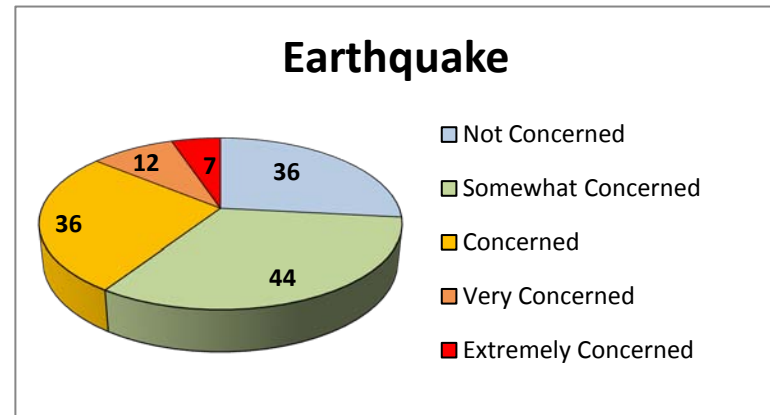
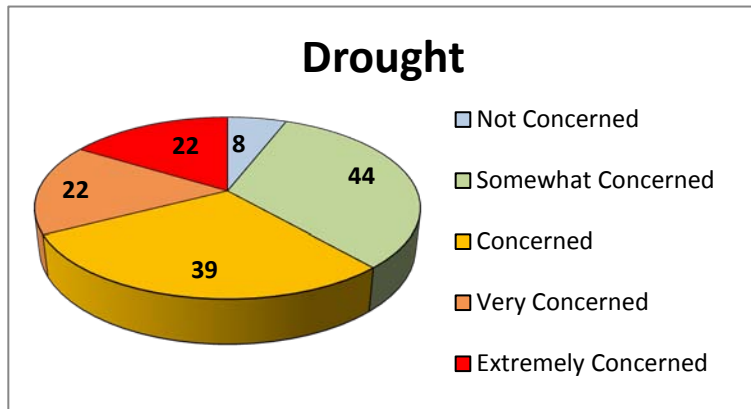
<b>Which of the following natural hazard events have you or has anyone in your household experienced in the past 25 years within the City of Merced?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Drought	47.8%	66
Earthquake	37.0%	51
Extreme Heat	63.0%	87
Flood	38.4%	53
Fog	71.0%	98
Epidemic/Pandemic (flu, avian flu, H1N1, West Nile)	10.1%	14
Freeze	40.6%	56
Wildfire	1.4%	2
Tornadoes	1.4%	2
Severe Weather (wind lightning, winter storm, etc.)	34.8%	48
None	8.7%	12
Other (please specify)		1
<b>answered question</b>		<b>138</b>
<b>skipped question</b>		<b>0</b>



<b>Other (please specify)</b>	
1	Snow

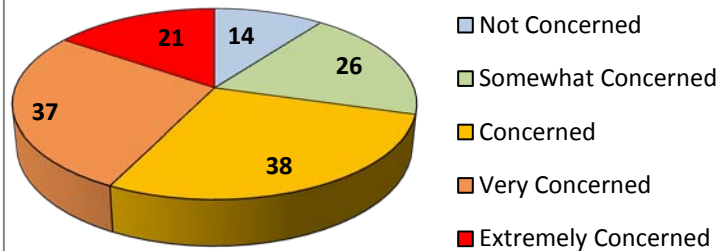
## Natural Hazard Community Awareness Survey - Question #2

How concerned are you about the following natural hazards in the City of Merced?						
Answer Options	Not Concerned	Somewhat Concerned	Concerned	Very Concerned	Extremely Concerned	Response Count
Drought	8	44	39	22	22	135
Earthquake	36	44	36	12	7	135
Extreme Heat	14	26	38	37	21	136
Flood	22	40	44	19	10	134
Structure Fire	23	35	41	20	15	133
Train Derailment	32	37	39	19	6	133
Freeze	42	41	26	16	5	130
Wildfire	65	32	24	5	4	130
Severe Weather (wind, lightning, winter storm, etc.)	27	52	37	9	5	130
Epidemic/Pandemic (flu, avian flu, H1N1, West Nile)	23	42	40	16	10	131
<i>answered question</i>						<b>137</b>
<i>skipped question</i>						<b>1</b>

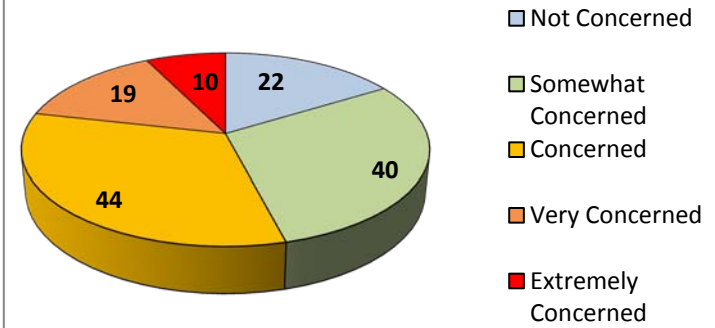


## Natural Hazard Community Awareness Survey - Question #2

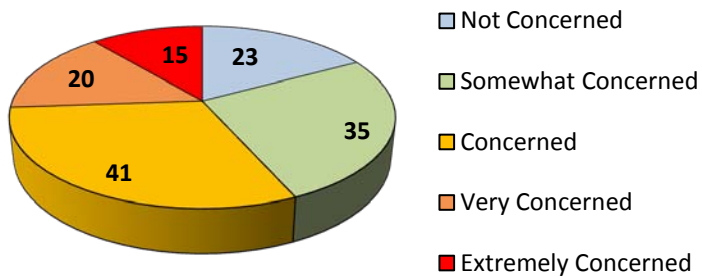
### Extreme Heat



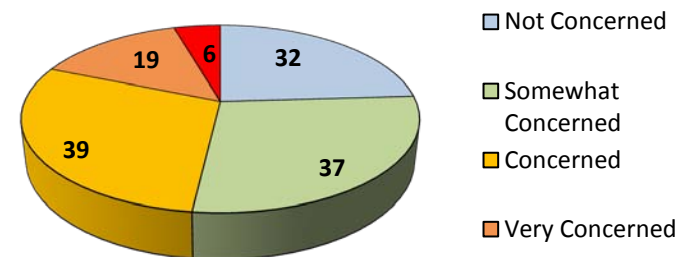
### Flood



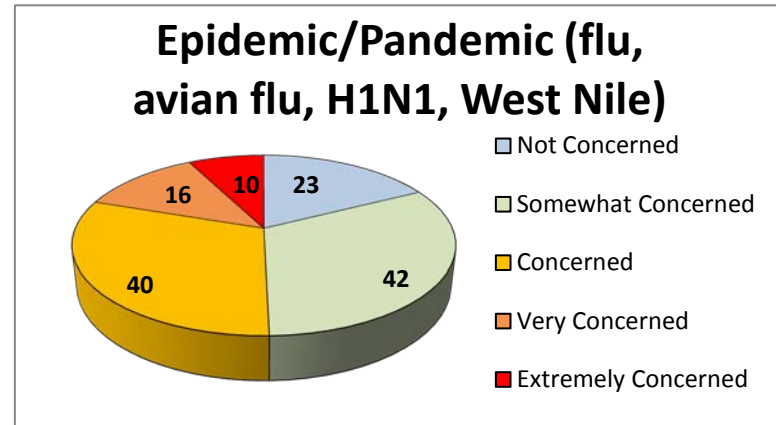
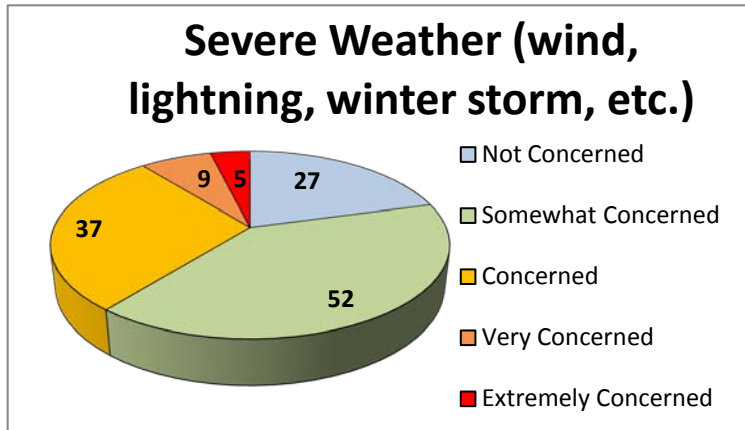
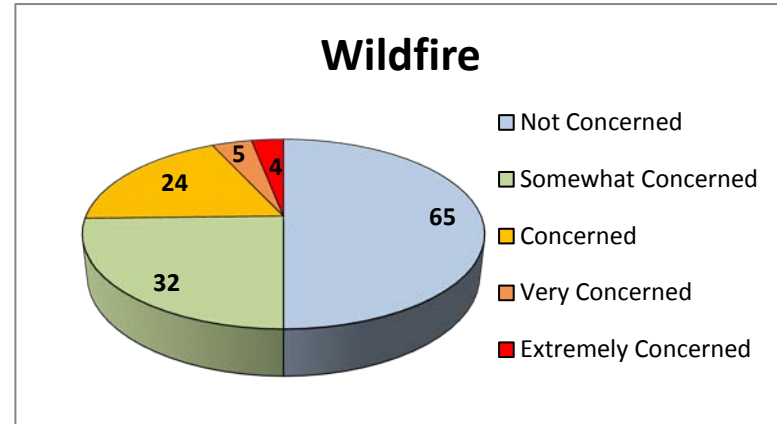
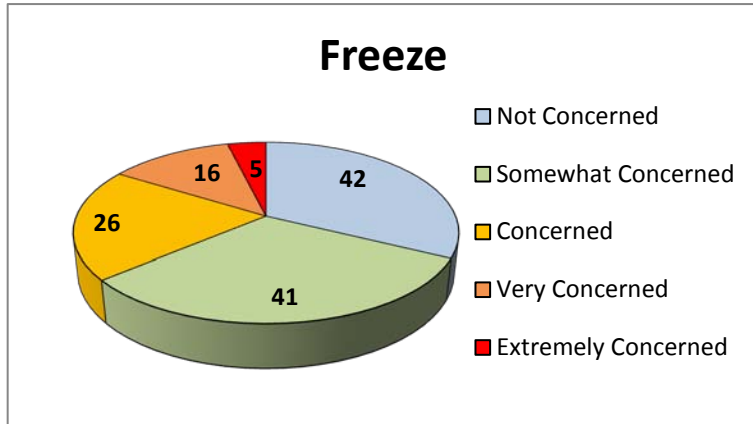
### Structure Fire



### Train Derailment

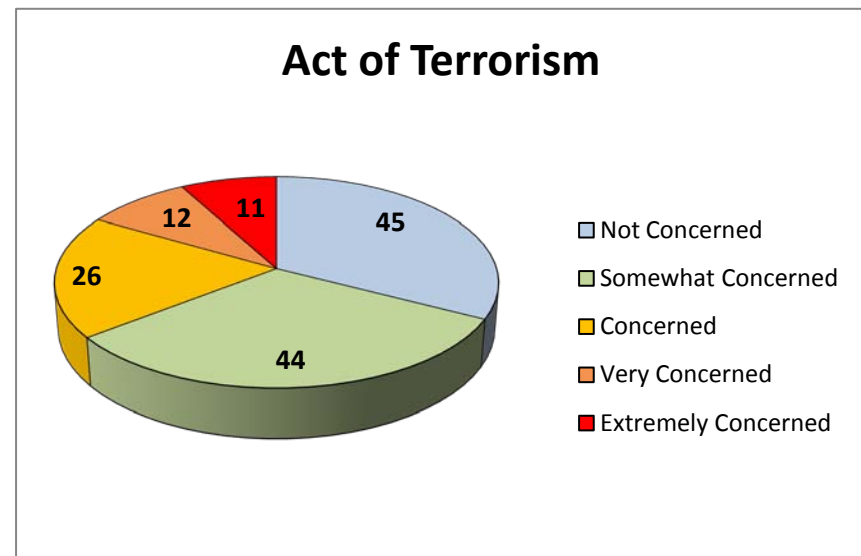
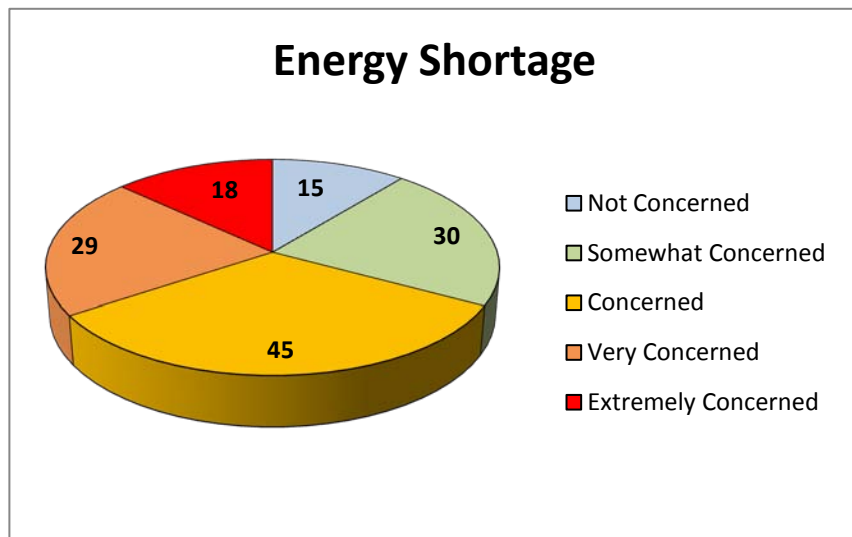


## Natural Hazard Community Awareness Survey - Question #2



### Natural Hazard Community Awareness Survey - Question #3

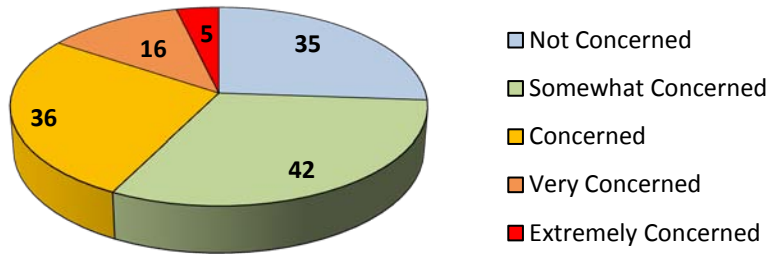
How concerned are you about the following man-made hazards in the City of Merced?						
Answer Options	Not Concerned	Somewhat Concerned	Concerned	Very Concerned	Extremely Concerned	Response Count
Energy Shortage	15	30	45	29	18	137
Act of Terrorism	45	44	26	12	11	138
Gasoline Explosion	35	42	36	16	5	134
Hazardous Materials Release	23	30	43	20	17	133
Other Human-Caused Hazard (civil unrest; data or telecommunications; explosion; infrastructure/utility failure/jail event; urban fire; technological failure; transportation incident including train and airplane; unexploded munitions; arson/commercial fire and others)	20	40	42	17	16	135
<i>answered question</i>						138
<i>skipped question</i>						0



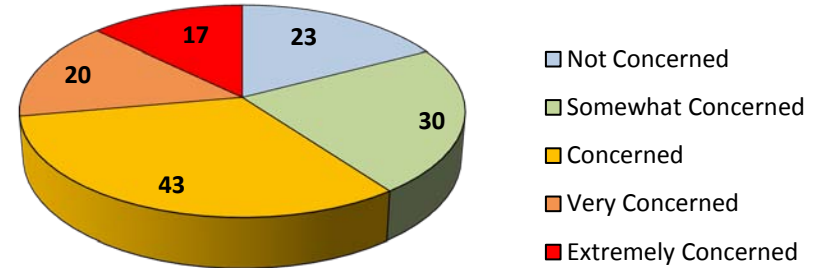


### Natural Hazard Community Awareness Survey - Question #3

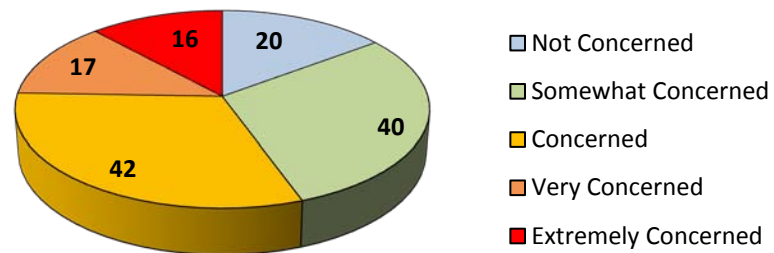
#### Gasoline Explosion



#### Hazardous Materials Release

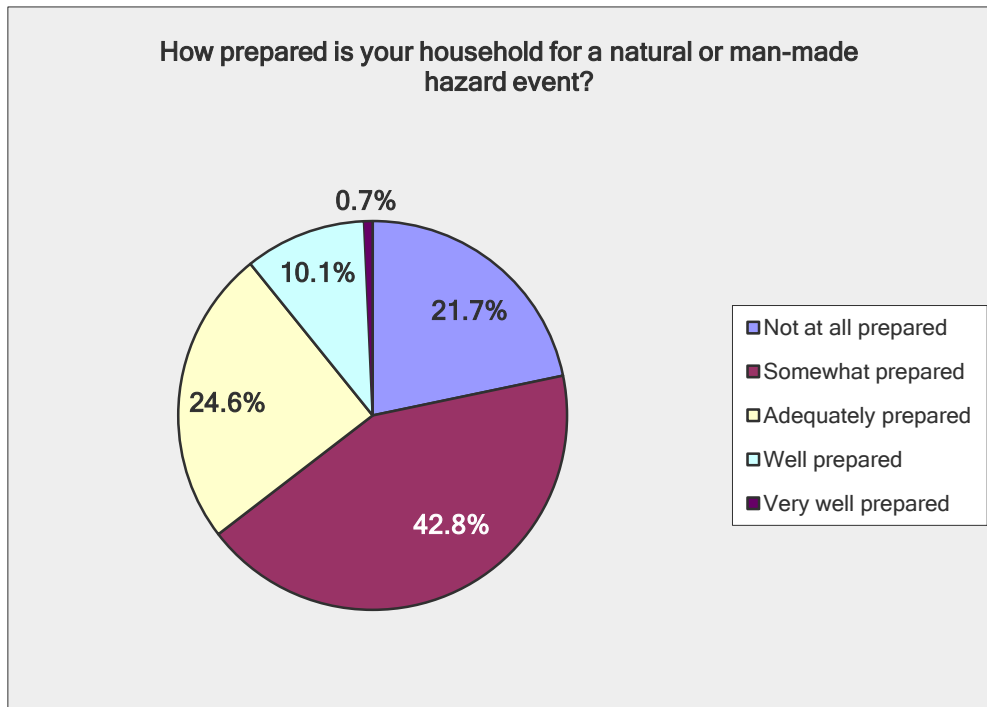


#### Other Human-Caused Hazard

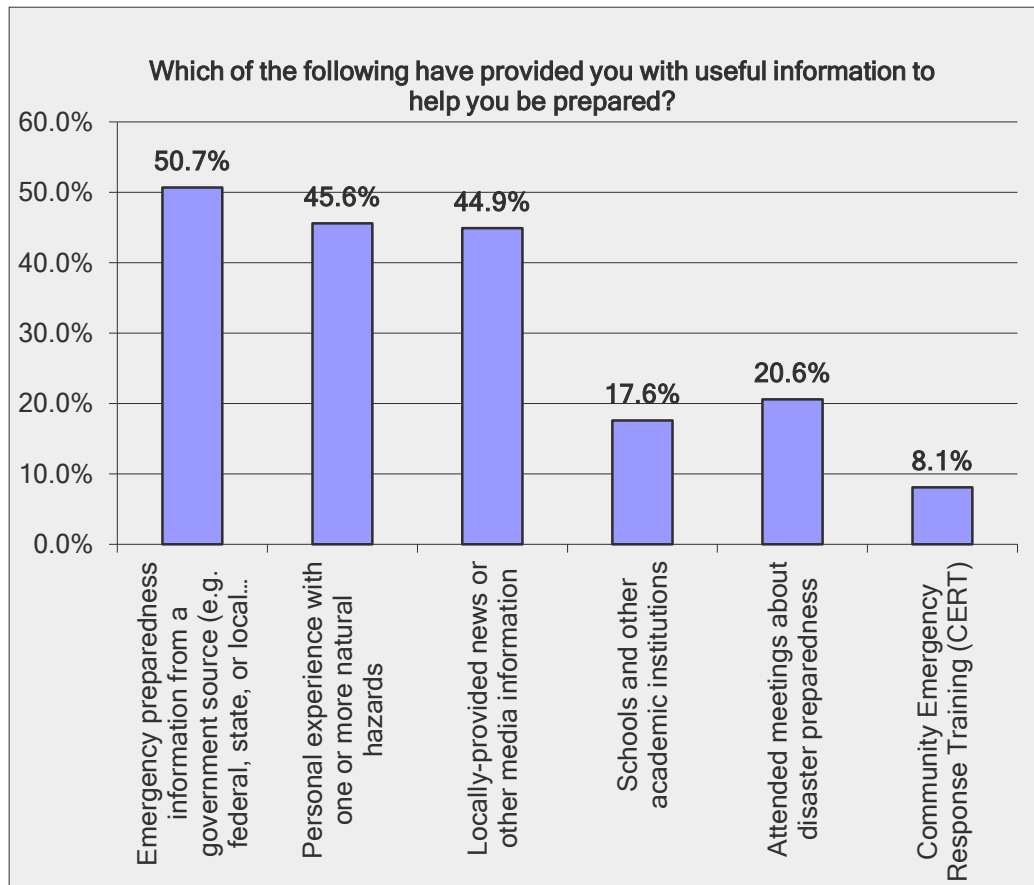


Natural Hazard Community Awareness Survey  
Question #4

How prepared is your household for a natural or man-made hazard event?		
Answer Options	Response Percent	Response Count
Not at all prepared	21.7%	30
Somewhat prepared	42.8%	59
Adequately prepared	24.6%	34
Well prepared	10.1%	14
Very well prepared	0.7%	1
<b><i>answered question</i></b>		<b>138</b>
<b><i>skipped question</i></b>		<b>0</b>



Natural Hazard Community Awareness Survey  
Question 5



Natural Hazard Community Awareness Survey  
Question 5

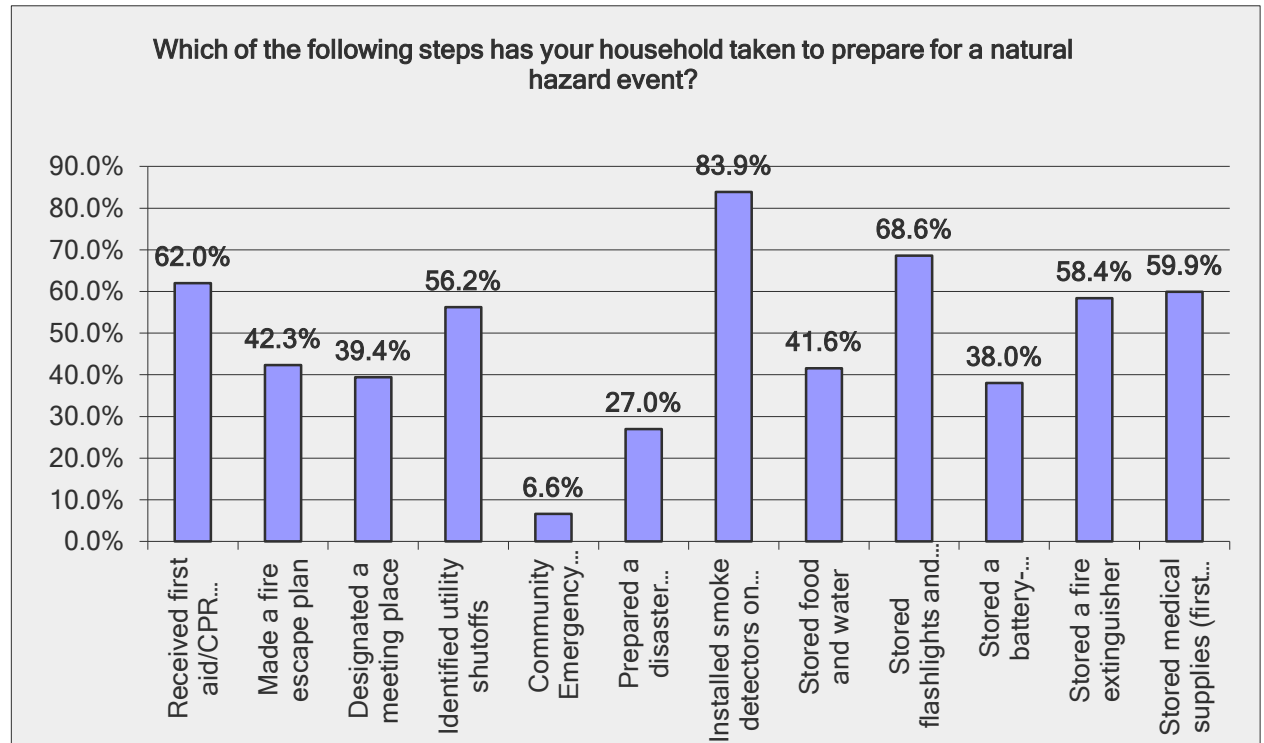
Which of the following have provided you with useful information to help you be prepared?		
Answer Options	Response Percent	Response Count
Emergency preparedness information from a government source (e.g. federal, state, or local emergency management)	50.7%	69
Personal experience with one or more natural hazards	45.6%	62
Locally-provided news or other media information	44.9%	61
Schools and other academic institutions	17.6%	24
Attended meetings about disaster preparedness	20.6%	28
Community Emergency Response Training (CERT)	8.1%	11
Other (please specify) - See Responses - Next Page		19
<b>answered question</b>		<b>136</b>
<b>skipped question</b>		<b>2</b>

<b>Other (please specify)</b>	
1	USAF: Chief, Disaster Preparedness/Air Base Survivability, Clark AB, Philippines
2	Monthly 'City of Merced' Water Bill and 'newsletter'
3	LDS Church is heavy on Preparedness
4	None
5	common sense
6	None
7	Red Cross
8	Actually none of the above. Why does this question "require an answer"? Fix your survey.
9	Retired Military - DP Training
10	Television Programs on how to be prepared for emergency situations
11	None.
12	American Red Cross
13	non-government emergency preparedness websites.
14	Red Cross, Boy Scouts
15	2nd Annual Disaster Management Initiative May 2011 NASA Ames rally
16	Church (LDS) I was also a Firefighter for Merced County
17	Boy Scouts and common sense
18	Health and Safety classes I take that are required to be a foster parent.
19	ICS -

Natural Hazard Community Awareness Survey  
Question #6

Which of the following steps has your household taken to prepare for a natural hazard event?		
Answer Options	Response Percent	Response Count
Received first aid/CPR training	62.0%	85
Made a fire escape plan	42.3%	58
Designated a meeting place	39.4%	54
Identified utility shutoffs	56.2%	77
Community Emergency Response Training (CERT)	6.6%	9
Prepared a disaster supply kit	27.0%	37
Installed smoke detectors on each level of the house	83.9%	115
Stored food and water	41.6%	57
Stored flashlights and batteries	68.6%	94
Stored a battery-powered radio	38.0%	52
Stored a fire extinguisher	58.4%	80
Stored medical supplies (first aid kit, medications)	59.9%	82
Other (please specify) "See Responses Next Page"		6
<i>answered question</i>		<b>137</b>
<i>skipped question</i>		<b>1</b>

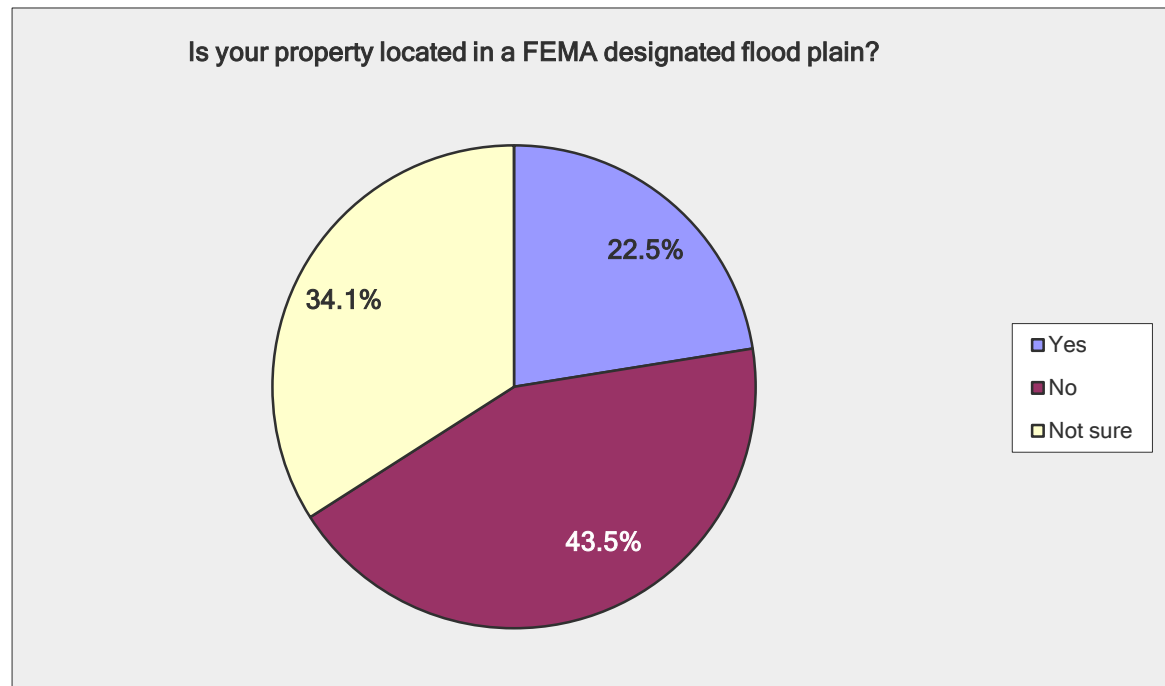
Natural Hazard Community Awareness Survey  
Question #6



Other (please specify)	
1	none
2	cash
3	YIKES! We haven't done much of anything...
4	working on a disaster supply kit
5	none
6	I have a 72 hour kit and working of one year of Food and Water storage

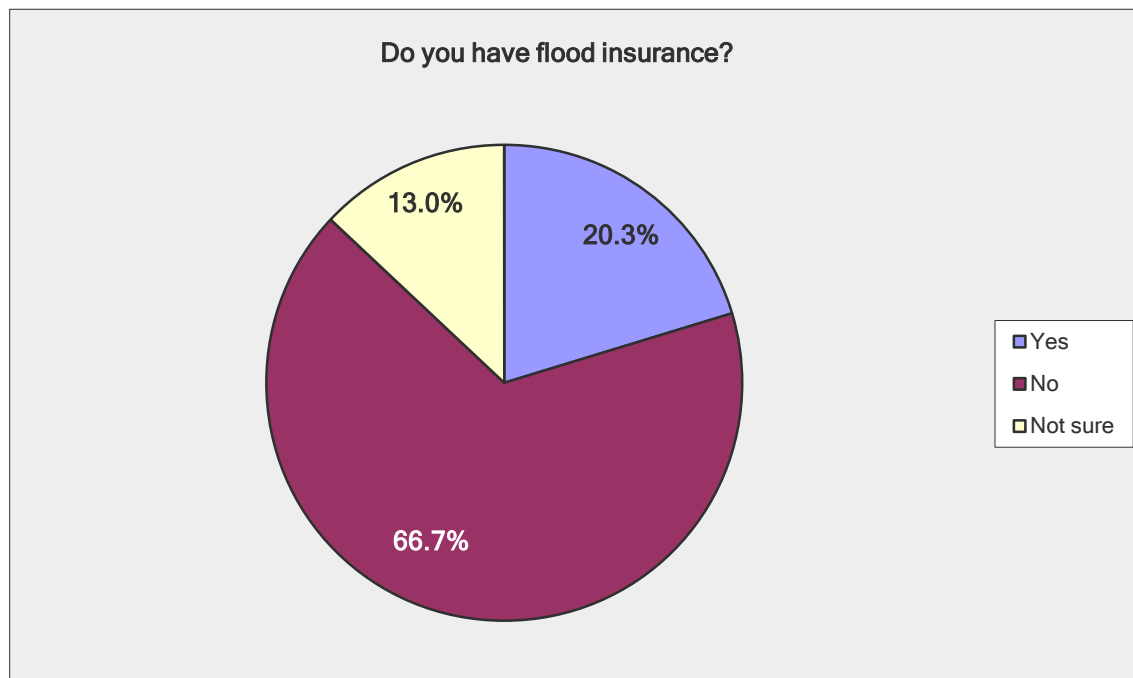
Natural Hazard Community Awareness Survey  
Question #7

Is your property located in a FEMA designated flood plain?		
Answer Options	Response Percent	Response Count
Yes	22.5%	31
No	43.5%	60
Not sure	34.1%	47
<i>answered question</i>		<b>138</b>
<i>skipped question</i>		<b>0</b>



Natural Hazard Community Awareness Survey  
Question #8

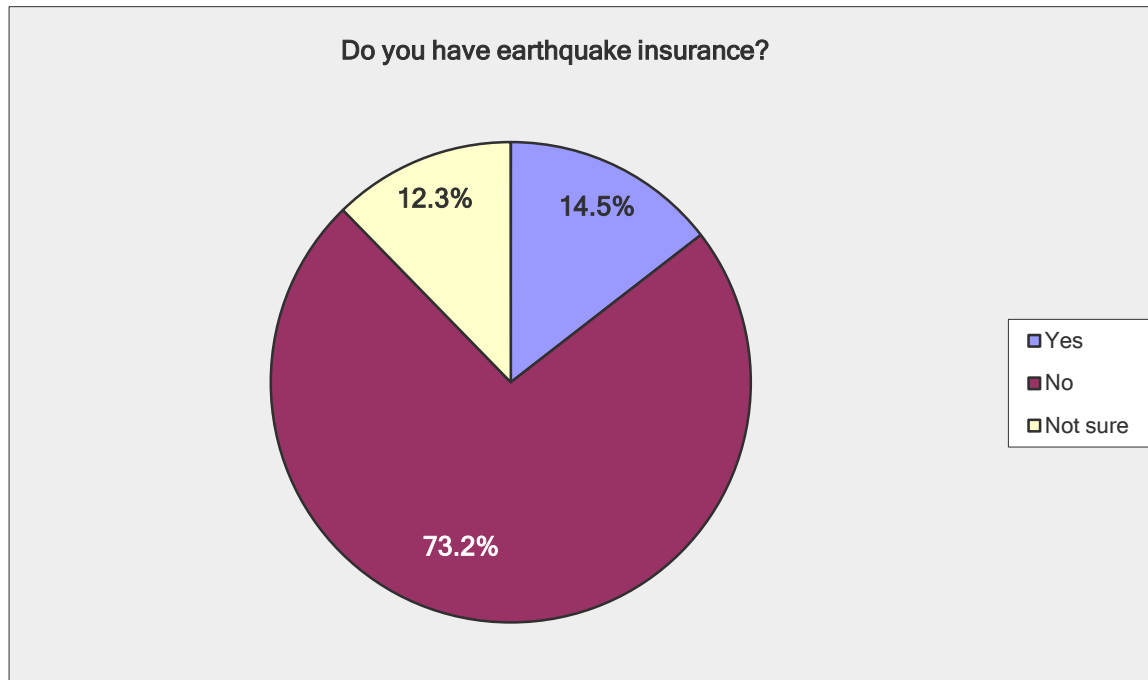
Do you have flood insurance?		
Answer Options	Response Percent	Response Count
Yes	20.3%	28
No	66.7%	92
Not sure	13.0%	18
<i>answered question</i>		<b>138</b>
<i>skipped question</i>		<b>0</b>





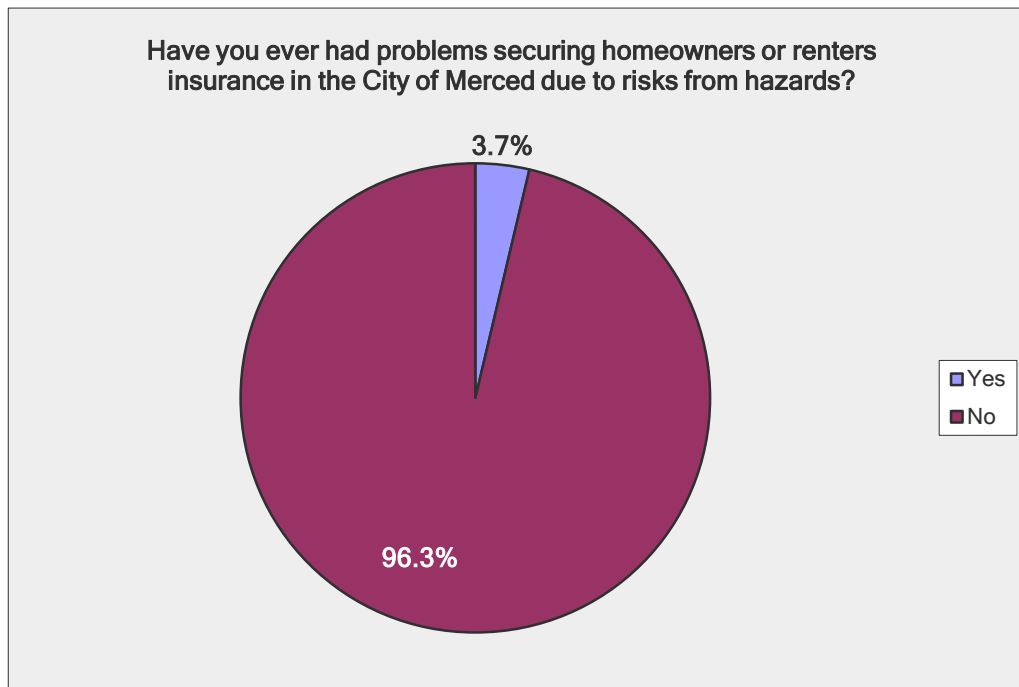
Natural Hazard Community Awareness Survey  
Question #9

Do you have earthquake insurance?		
Answer Options	Response Percent	Response Count
Yes	14.5%	20
No	73.2%	101
Not sure	12.3%	17
<i>answered question</i>		<b>138</b>
<i>skipped question</i>		<b>0</b>



Natural Hazard Community Awareness Survey  
Question #10

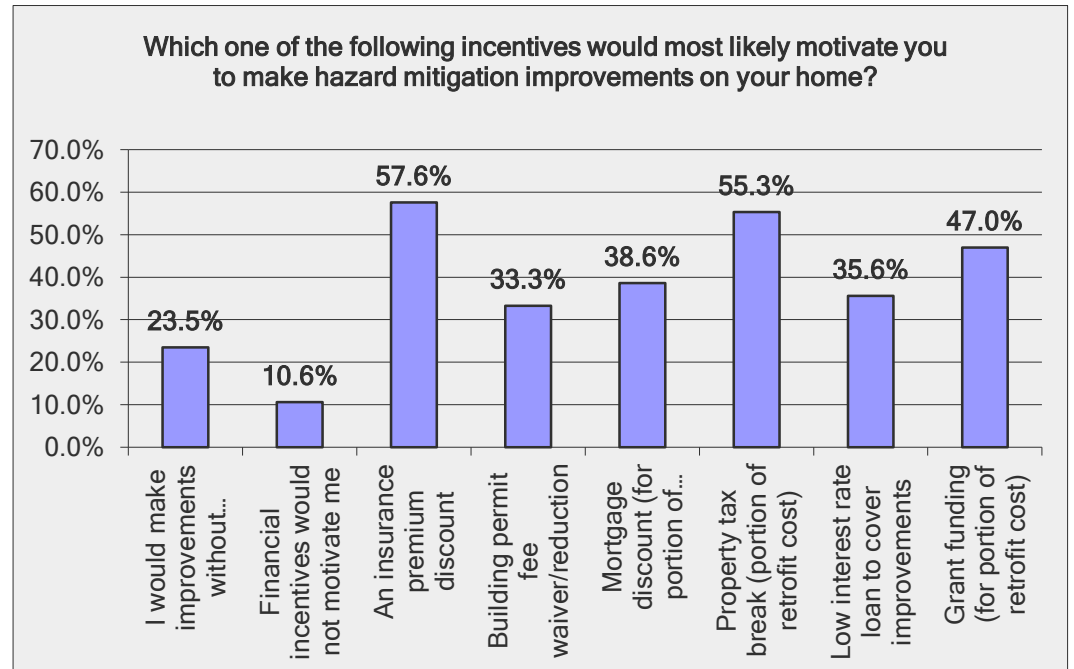
Have you ever had problems securing homeowners or renters insurance in the City of Merced due to risks from hazards?		
Answer Options	Response Percent	Response Count
Yes	3.7%	5
No	96.3%	131
If yes, what caused the difficulty? "See Responses Below"		4
		<i>answered question</i> 136
		<i>skipped question</i> 2



If yes, what hazard caused the difficulty?	
1	Have not applied
2	I rent
3	Fire & Theft
4	Flood, earthquake

## Natural Hazard Community Awareness Survey Question #11

Which one of the following incentives would most likely motivate you to make hazard mitigation improvements on your home?		
Answer Options	Response Percent	Response Count
I would make improvements without incentives	23.5%	31
Financial incentives would not motivate me	10.6%	14
An insurance premium discount	57.6%	76
Building permit fee waiver/reduction	33.3%	44
Mortgage discount (for portion of retrofit cost)	38.6%	51
Property tax break (portion of retrofit cost)	55.3%	73
Low interest rate loan to cover improvements	35.6%	47
Grant funding (for portion of retrofit cost)	47.0%	62
Other (please specify) "See Responses Next Page"		9
<i>answered question</i>		<b>132</b>
<i>skipped question</i>		<b>6</b>

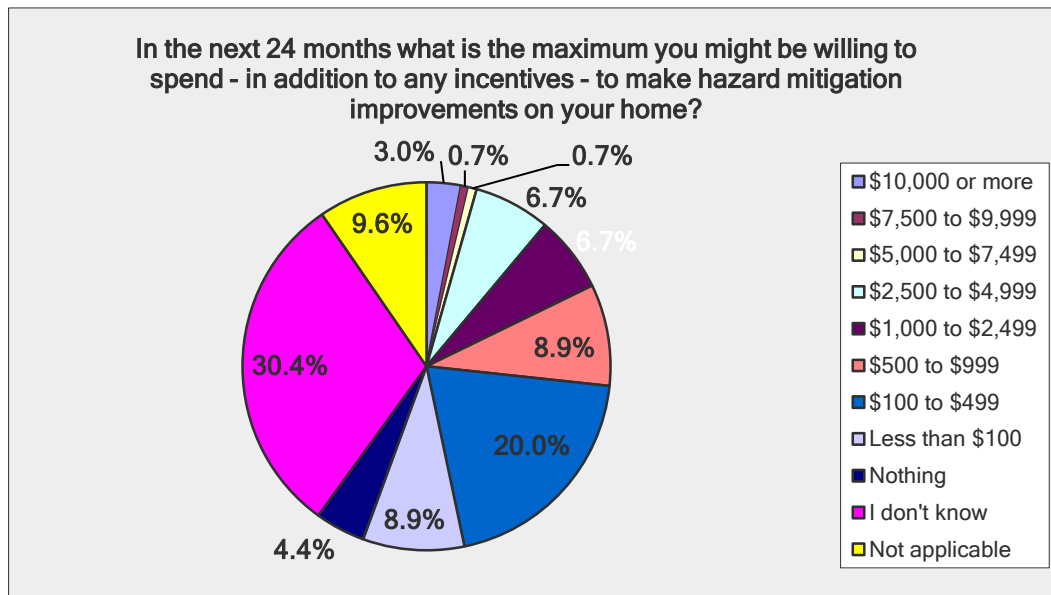


Natural Hazard Community Awareness Survey  
Question #11

Other (please specify)	
1	I rent
2	Need financial assistance to make improvements and store supplies
3	NONE: Gov't Incentives = Handouts = Creating Dependency
4	We rent - up to landlord to provide
5	I'm a renter- so I'm not sure if this applies.
6	I do not own a house
7	What do you mean by "hazard mitigation improvements on my home"? Do you have suggestions?
8	What kind of improvements can be done at an individual property? This doesn't make sense. I don't think government should be spending (much) money for this.
9	however I rent

Natural Hazard Community Awareness Survey  
Question #12

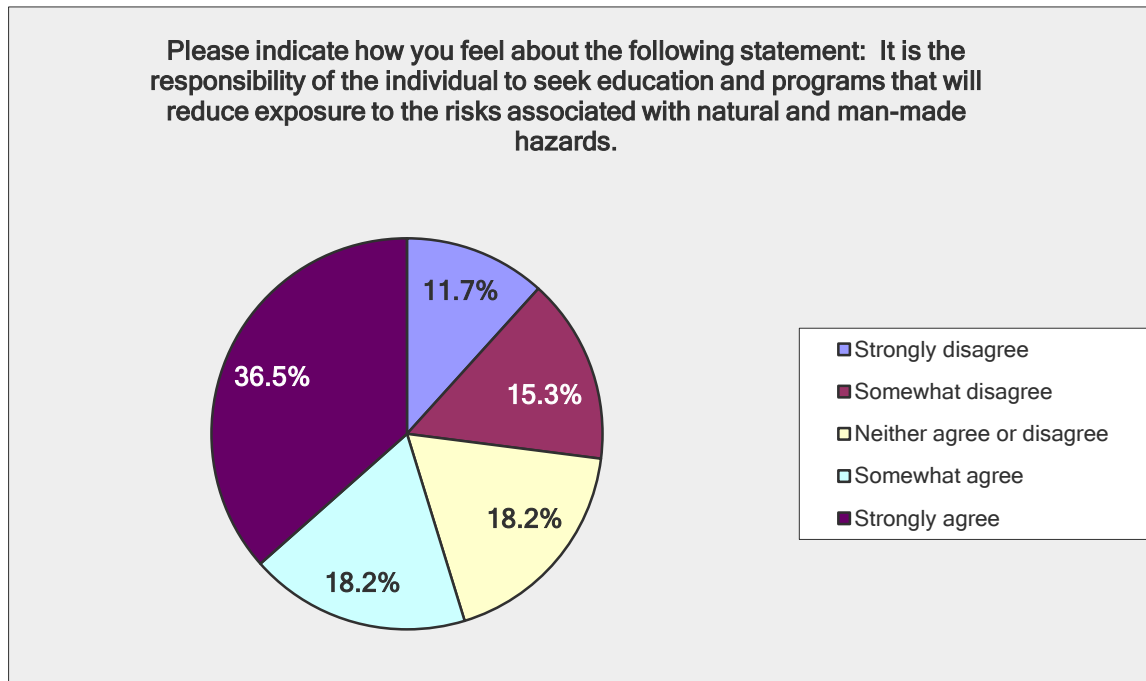
In the next 24 months what is the maximum you might be willing to spend - in addition to any incentives - to make hazard mitigation improvements on your home?		
Answer Options	Response Percent	Response Count
\$10,000 or more	3.0%	4
\$7,500 to \$9,999	0.7%	1
\$5,000 to \$7,499	0.7%	1
\$2,500 to \$4,999	6.7%	9
\$1,000 to \$2,499	6.7%	9
\$500 to \$999	8.9%	12
\$100 to \$499	20.0%	27
Less than \$100	8.9%	12
Nothing	4.4%	6
I don't know	30.4%	41
Not applicable	9.6%	13
<i>answered question</i>		<b>135</b>



Natural Hazard Community Awareness Survey  
Question #13

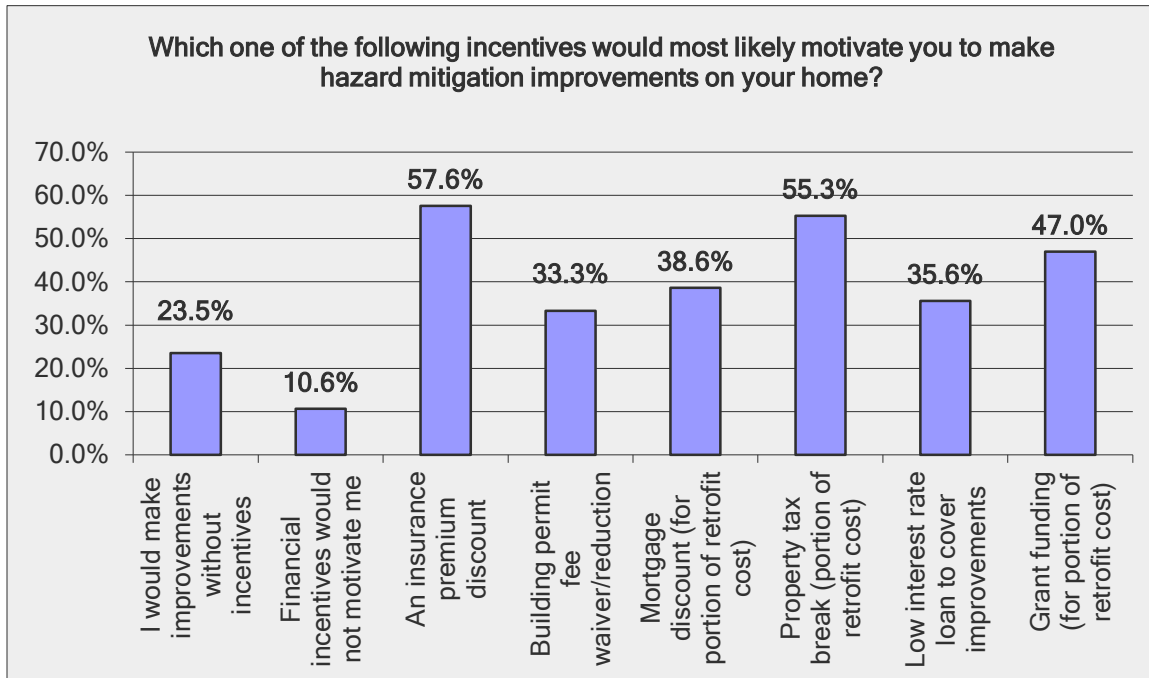
Please indicate how you feel about the following statement: It is the responsibility of the individual to seek education and programs that will reduce exposure to the risks associated with natural and man-made hazards.

Answer Options	Response Percent	Response Count
Strongly disagree	11.7%	16
Somewhat disagree	15.3%	21
Neither agree or disagree	18.2%	25
Somewhat agree	18.2%	25
Strongly agree	36.5%	50
<i>answered question</i>		<b>137</b>
<i>skipped question</i>		<b>1</b>



Natural Hazard Community Awareness Survey  
Question #14

Which one of the following incentives would most likely motivate you to make hazard mitigation improvements on your home?		
Answer Options	Response Percent	Response Count
I would make improvements without incentives	23.5%	31
Financial incentives would not motivate me	10.6%	14
An insurance premium discount	57.6%	76
Building permit fee waiver/reduction	33.3%	44
Mortgage discount (for portion of retrofit cost)	38.6%	51
Property tax break (portion of retrofit cost)	55.3%	73
Low interest rate loan to cover improvements	35.6%	47
Grant funding (for portion of retrofit cost)	47.0%	62
Other (please specify) "See Responses Next Page"		9
<i>answered question</i>		<b>132</b>
<i>skipped question</i>		<b>6</b>



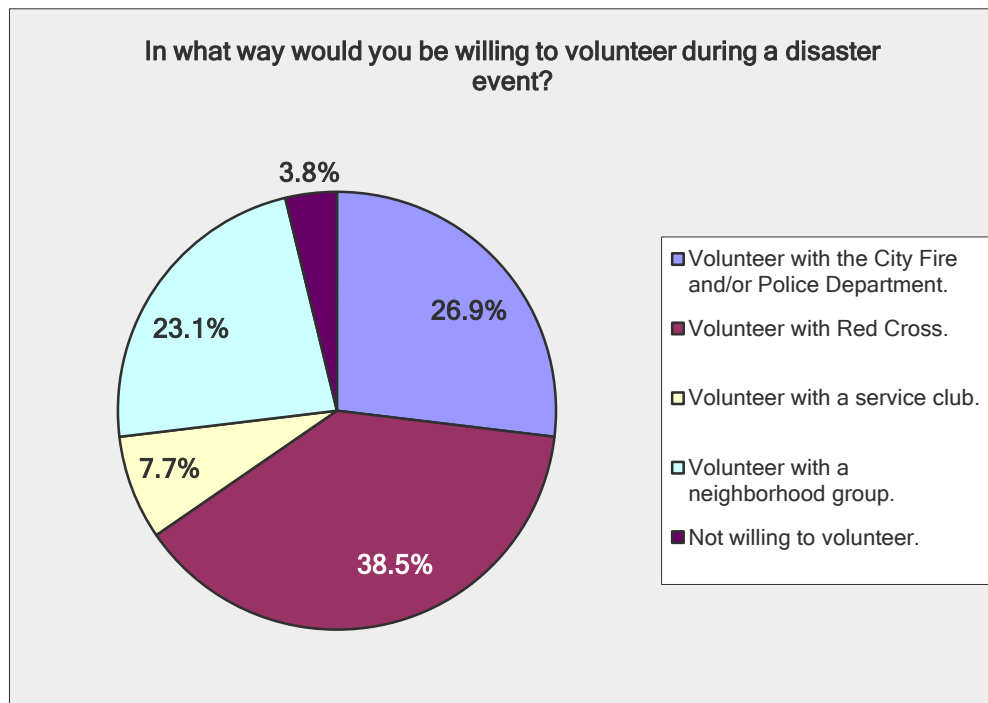
Natural Hazard Community Awareness Survey  
Question #14

Other (please specify)	
1	I rent
2	Need financial assistance to make improvements and store supplies
3	NONE: Gov't Incentives = Handouts = Creating Dependency
4	We rent - up to landlord to provide
5	I'm a renter- so I'm not sure if this applies.
6	I do not own a house
7	What do you mean by "hazard mitigation improvements on my home"? Do you have suggestions?
8	What kind of improvements can be done at an individual property? This doesn't make sense. I don't think government should be spending (much) money for this.
9	however I rent



Natural Hazard Community Awareness Survey  
Question #15

In what way would you be willing to volunteer during a disaster event?		
Answer Options	Response Percent	Response Count
Volunteer with the City Fire and/or Police Department.	26.9%	7
Volunteer with Red Cross.	38.5%	10
Volunteer with a service club.	7.7%	2
Volunteer with a neighborhood group.	23.1%	6
Not willing to volunteer.	3.8%	1
Other (please specify) "See Responses Next Page"		9
<i>answered question</i>		<b>26</b>
<i>skipped question</i>		<b>112</b>

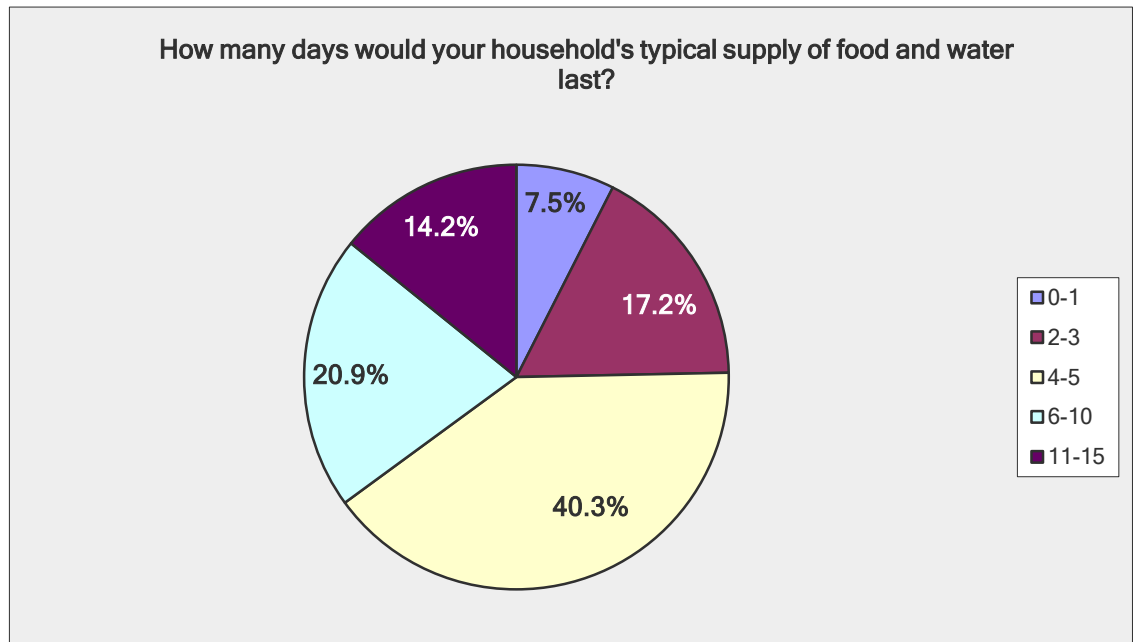


Natural Hazard Community Awareness Survey  
Question #15

Other (please specify)	
1	I'm too old to do it
2	Volunteer with Red Cross also marked.
3	Also, volunteer with a neighborhood group was marked.
4	Also volunteer with a neighborhood group
5	Volunteer with a service club was also marked.
6	Volunteer w/Red Cross was marked, too.
7	Volunteer with a neighborhood group, also marked
8	I will volunteer with the first 4 entities above.
9	Volunteer with local church organization

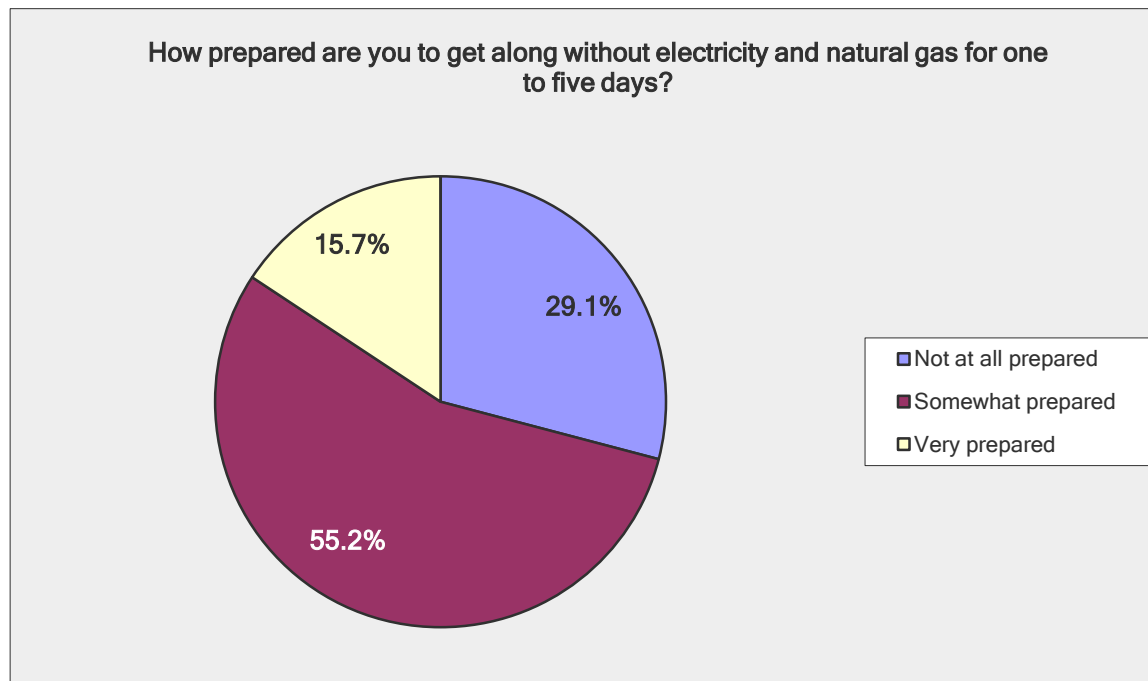
Natural Hazard Community Awareness Survey  
Question #16

How many days would your household's typical supply of food and water last?		
Answer Options	Response Percent	Response Count
0-1	7.5%	10
2-3	17.2%	23
4-5	40.3%	54
6-10	20.9%	28
11-15	14.2%	19
<i>answered question</i>		134
<i>skipped question</i>		4



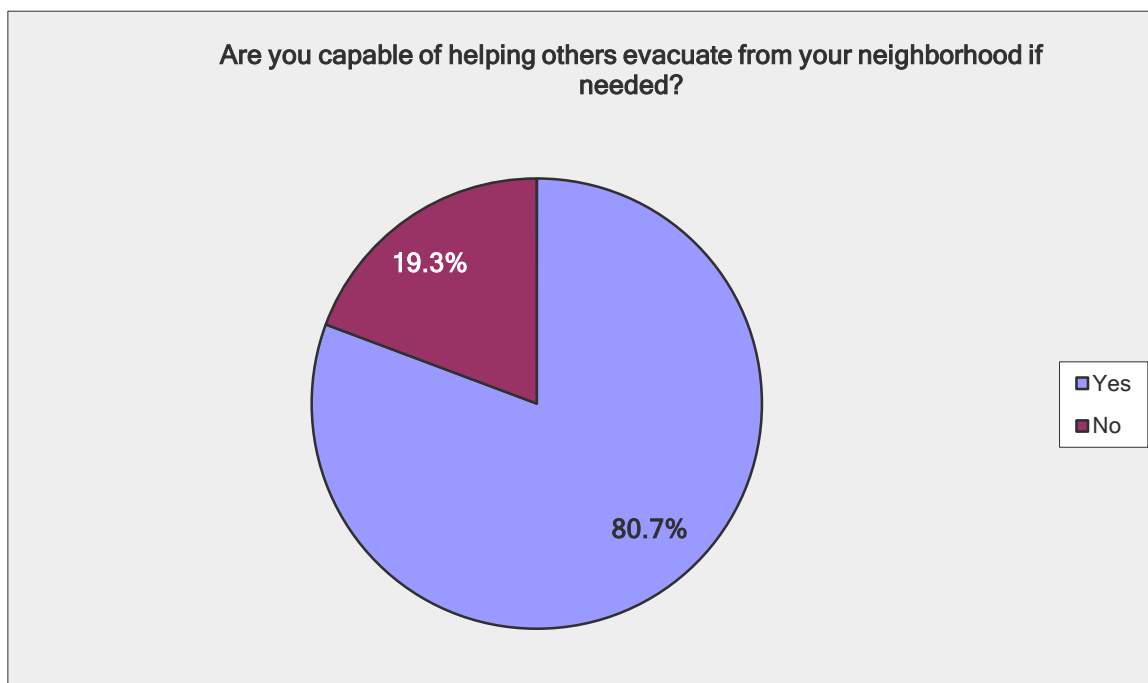
## Natural Hazard Community Awareness Survey Question #17

How prepared are you to get along without electricity and natural gas for one to five days?		
Answer Options	Response Percent	Response Count
Not at all prepared	29.1%	39
Somewhat prepared	55.2%	74
Very prepared	15.7%	21
<i>answered question</i>		<b>134</b>
<i>skipped question</i>		<b>4</b>



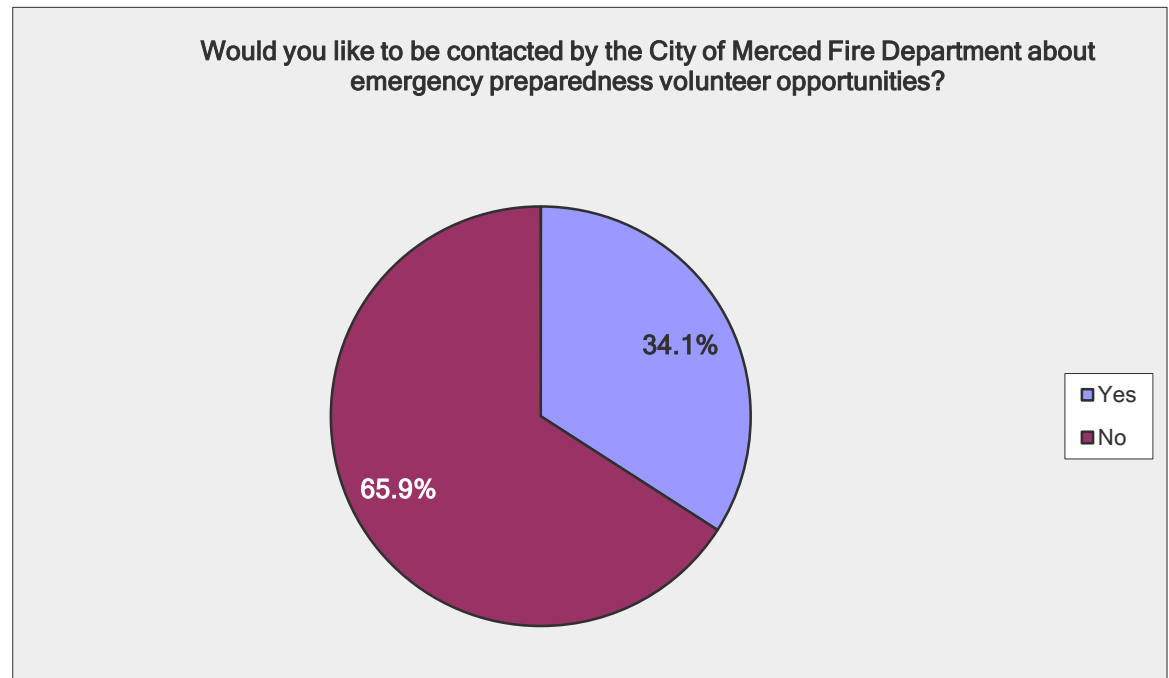
Natural Hazard Community Awareness Survey  
Question #18

Are you capable of helping others evacuate from your neighborhood if needed?		
Answer Options	Response Percent	Response Count
Yes	80.7%	109
No	19.3%	26
<i>answered question</i>		135
<i>skipped question</i>		3



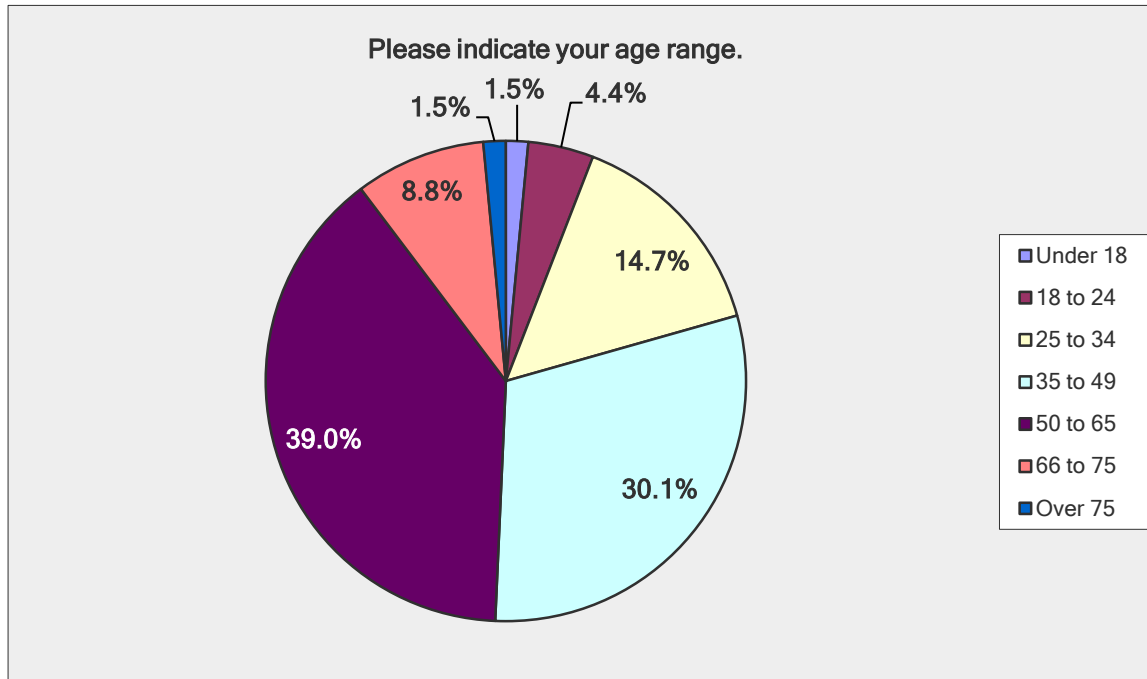
Natural Hazard Community Awareness Survey  
Question #19

Would you like to be contacted by the City of Merced Fire Department about emergency preparedness volunteer opportunities?		
Answer Options	Response Percent	Response Count
Yes	34.1%	46
No	65.9%	89
<i>answered question</i>		135
<i>skipped question</i>		3



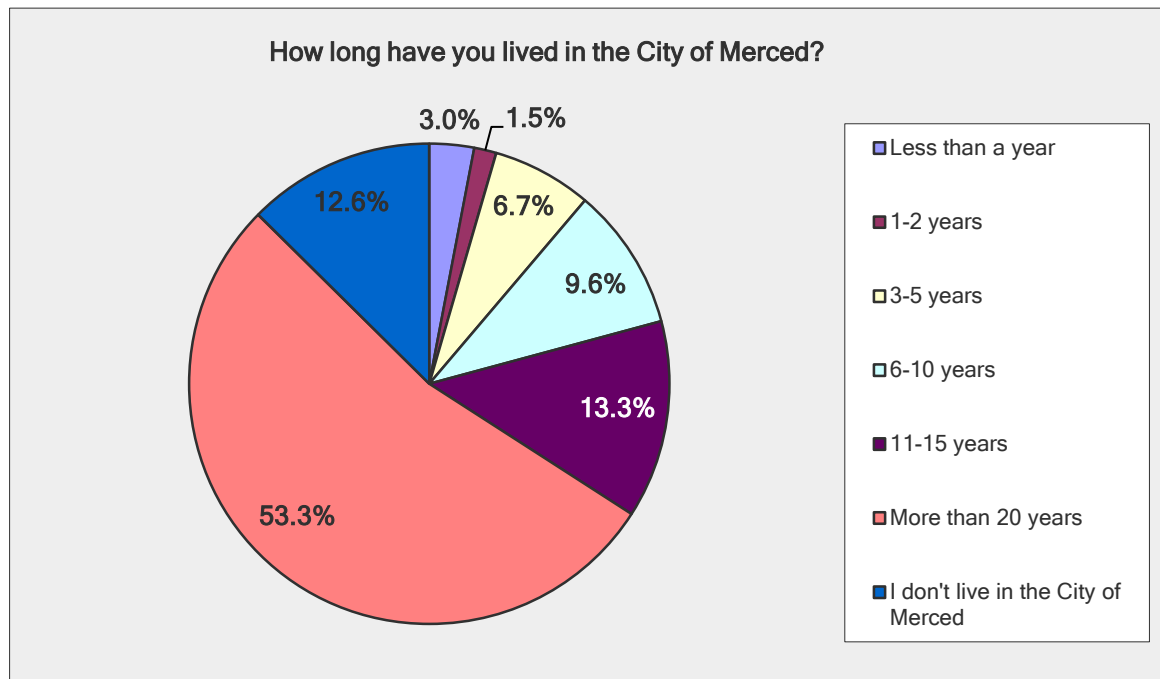
Natural Hazard Community Awareness Survey  
Question #20

Please indicate your age range.		
Answer Options	Response Percent	Response Count
Under 18	1.5%	2
18 to 24	4.4%	6
25 to 34	14.7%	20
35 to 49	30.1%	41
50 to 65	39.0%	53
66 to 75	8.8%	12
Over 75	1.5%	2
<i>answered question</i>		<b>136</b>
<i>skipped question</i>		<b>2</b>



Natural Hazard Community Awareness Survey  
Question #21

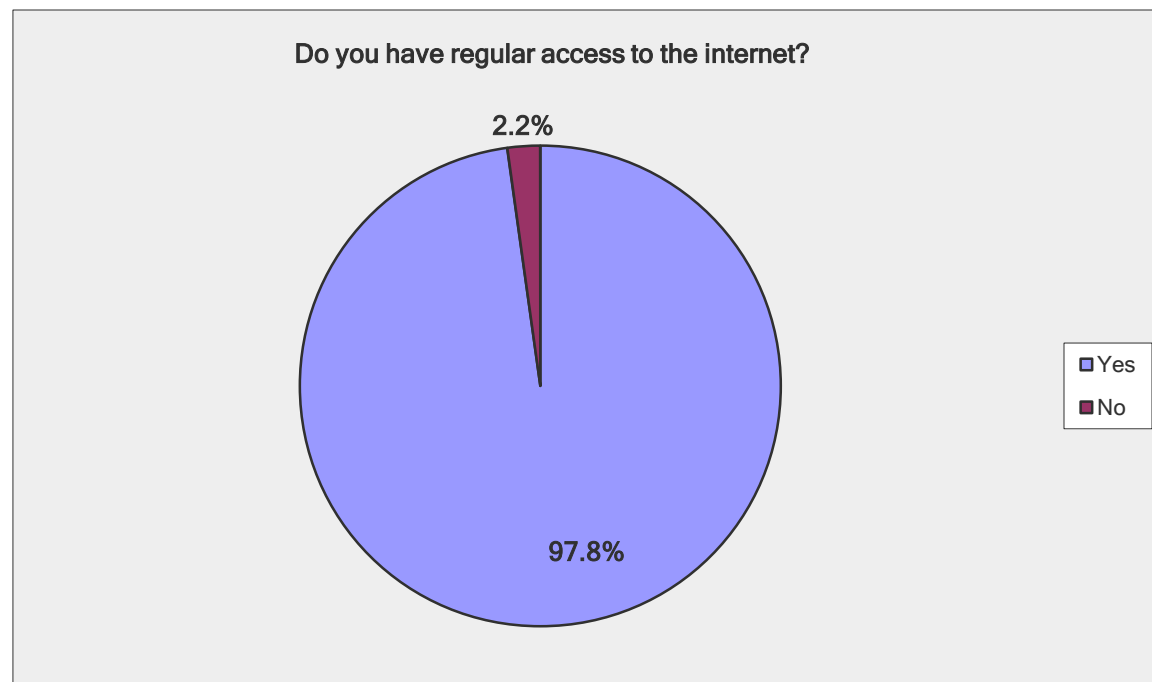
How long have you lived in the City of Merced?		
Answer Options	Response Percent	Response Count
Less than a year	3.0%	4
1-2 years	1.5%	2
3-5 years	6.7%	9
6-10 years	9.6%	13
11-15 years	13.3%	18
More than 20 years	53.3%	72
I don't live in the City of Merced	12.6%	17
<i>answered question</i>		135
<i>skipped question</i>		3





Natural Hazard Community Awareness Survey  
Question #22

Do you have regular access to the internet?		
Answer Options	Response Percent	Response Count
Yes	97.8%	133
No	2.2%	3
<i>answered question</i>		136
<i>skipped question</i>		2



Natural Hazard Community Awareness Survey  
Question #23

Are there any other issues regarding the reduction of risk or loss associated with hazards or disasters in the community that are important to you?	
Answer Options	Response Count
	34
<i>answered question</i>	<b>34</b>
<i>skipped question</i>	<b>104</b>

	Response Text
1	City parks playground equipment; some parks have slides/equipment that could cause burns due to excessive heat exposure of equipment in the sun.
2	No
3	None
4	Water contamination
5	No
6	Water and electricity in an emergency
7	..
8	Internet source for those who don't watch TV, listen to local radio, or subscribe to the local newspapers.
9	Not everyone is aware of disaster preparedness or the need for it. Perhaps having neighborhood sponsored education on such an issue will create awareness. For the poorer neighborhoods, having a minimum free kit for families will help and be an incentive for families to attend such informational meetings about this topic.
10	Did we cover transportation for the elderly? Your survey is designed for homeowners which makes it hard to answer some questions.
11	I am responding as a head of Child Welfare Attendance & Safety for the Merced Union High School District and as a citizen. Preparedness for gang-related violence in the community spilling over into the school setting is a high concern. I would like to see this addressed in the mitigation plan.
12	no
13	Can't presently think of any.

**Natural Hazard Community Awareness Survey**  
**Question #23**

14	Empty unsightly structures pose a threat to homeless and fire.
15	HOMELESS PERSONS GATHERING AROUND COMMERCIAL PROPERTIES IN THE ALLEY AS WELL AS DARK CORNER OF PROPERTIES DUE TO NO LIGHTING AND NOT ENOUGH LIGHTING. LOT OF GARBAGE AND ILLEGAL DRUG USES THAT MAY CAUSE FIRE
16	The City needs to clean up the weeds before a fire breaks out
17	No
18	Assessing danger of Lake Yosemite dam failure in the case of an earthquake
19	I somewhat disagree with the statement in #13 because the public is not always aware of what hazards they may be vulnerable to, such as gas pipelines, flood potential from dams, industrial hazards, etc. It is the responsibility of those creating or knowing about those hazards to inform the public, enforced by government entities making sure that they do this.
20	waste of taxpayer's fund for surveys and action plans like this one
21	Don't allow buildings in floodplains. Don't allow insurance for buildings in floodplains. Simple.
22	no
23	No Gov't regulations should apply to only Gov't or public property not private property. Also there is enough police and fire personnel responders. Our town has too many above ground wires and wires underground not sufficiently marked.
24	Learning about any man-made hazards
25	People with the correct information are better able to help themselves. Keep getting the word out on what steps are needed to protect the people of Merced. Use billboards to get the word out it works (keep it short and simple with few words).
26	not that I can think of at the moment
27	Telephone and cable lines that hang over housing on the west side is extremely dangerous. Is are the city's plans for laying above ground wiring underground?
28	THE CITY SHOULD HAVE A NUMBER OF STREETS, MARKED AS EMERGENCY EVACUATION ROUTES
29	Yes, the helicopters going to Mercy fly right over my house, from the south. Can't they approach from the north so they fly in over fields?

**Natural Hazard Community Awareness Survey**  
**Question #23**

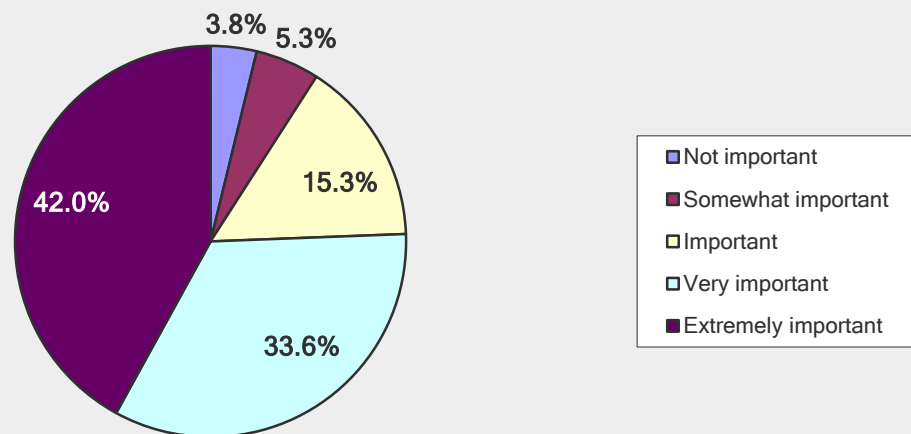
30	Do we have solar powered generators like Concentrated Solar mirrors?
31	evac options for leaving the city if necessary. Locations on city emergency shelters
32	What kind of plan does the city have for an influx of refugees from the coastal areas. A couple of hundred folks showed up in Los Banos fleeing the supposed tsunami a few months back and no one had a clue as to what to do with them. could easily happen here.
33	Illegal roadside dumping.
34	n/a

## Natural Hazard Community Awareness Survey Question #24

Prevention: Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.

Answer Options	Response Percent	Response Count
Not important	3.8%	5
Somewhat important	5.3%	7
Important	15.3%	20
Very important	33.6%	44
Extremely important	42.0%	55
<i>answered question</i>		<b>131</b>
<i>skipped question</i>		<b>7</b>

Prevention: Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.

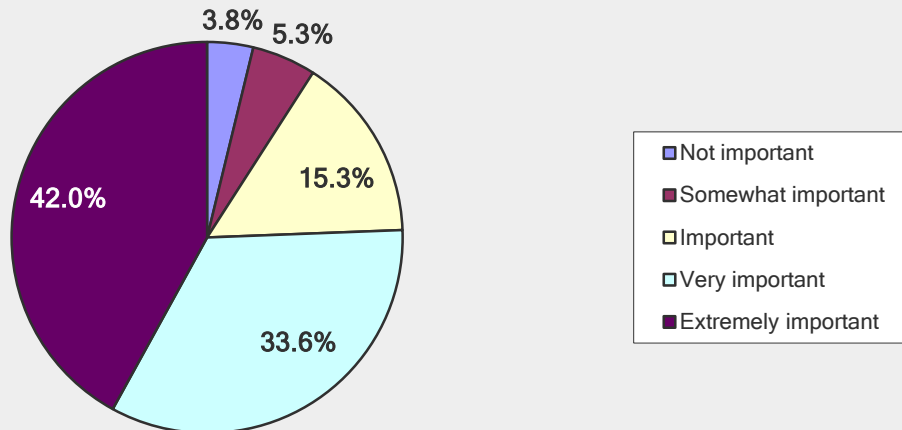


Natural Hazard Community Awareness Survey  
Question #25

**Prevention: Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.**

Answer Options	Response Percent	Response Count
Not important	3.8%	5
Somewhat important	5.3%	7
Important	15.3%	20
Very important	33.6%	44
Extremely important	42.0%	55
<i>answered question</i>		<b>131</b>
<i>skipped question</i>		<b>7</b>

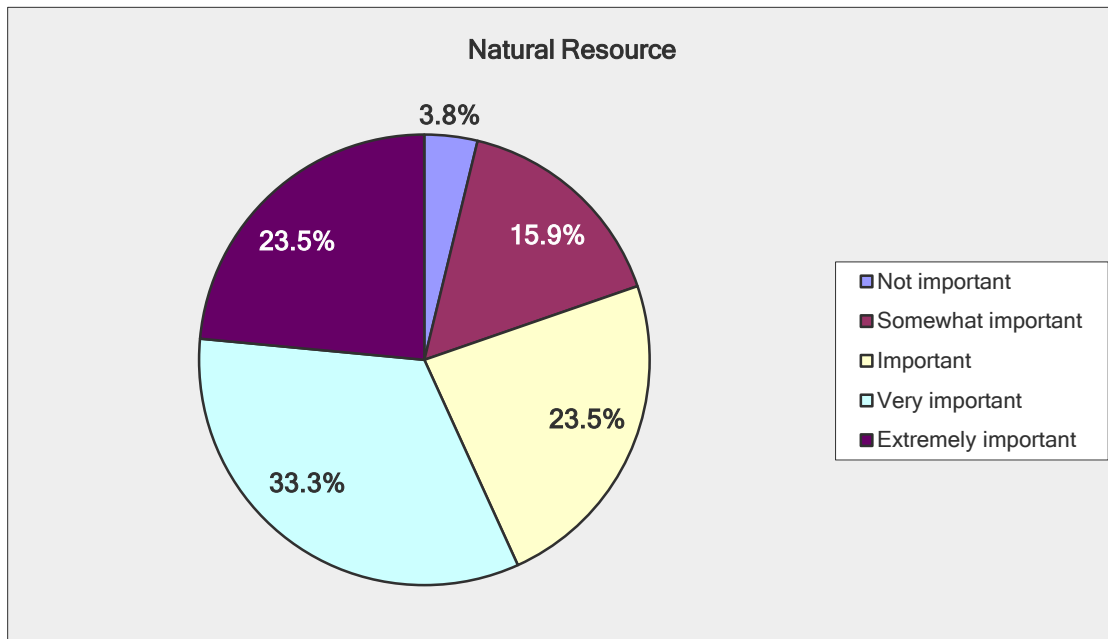
**Prevention: Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.**



Natural Hazard Community Awareness Survey  
Question #26

**Natural Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.

Answer Options	Response Percent	Response Count
Not important	3.8%	5
Somewhat important	15.9%	21
Important	23.5%	31
Very important	33.3%	44
Extremely important	23.5%	31
<i>answered question</i>		<b>132</b>
<i>skipped question</i>		<b>6</b>

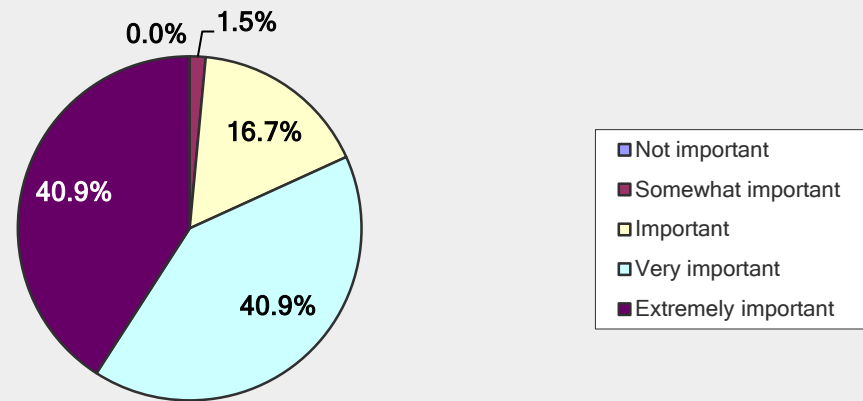


**Natural Hazard Community Awareness Survey**  
**Question #27**

**Emergency Services: Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.**

Answer Options	Response Percent	Response Count
Not important	0.0%	0
Somewhat important	1.5%	2
Important	16.7%	22
Very important	40.9%	54
Extremely important	40.9%	54
<i>answered question</i>		<b>132</b>
<i>skipped question</i>		<b>6</b>

**Emergency Services: Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical emergency facilities or systems.**

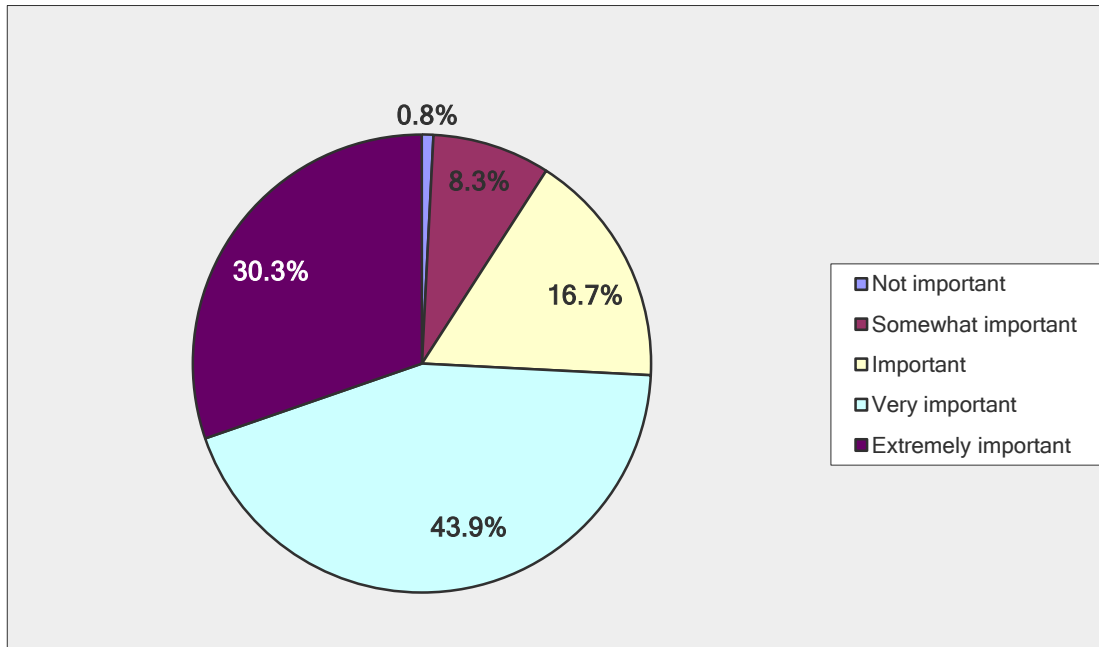




Natural Hazard Community Awareness Survey  
Question #28

Public Education and Awareness: Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.

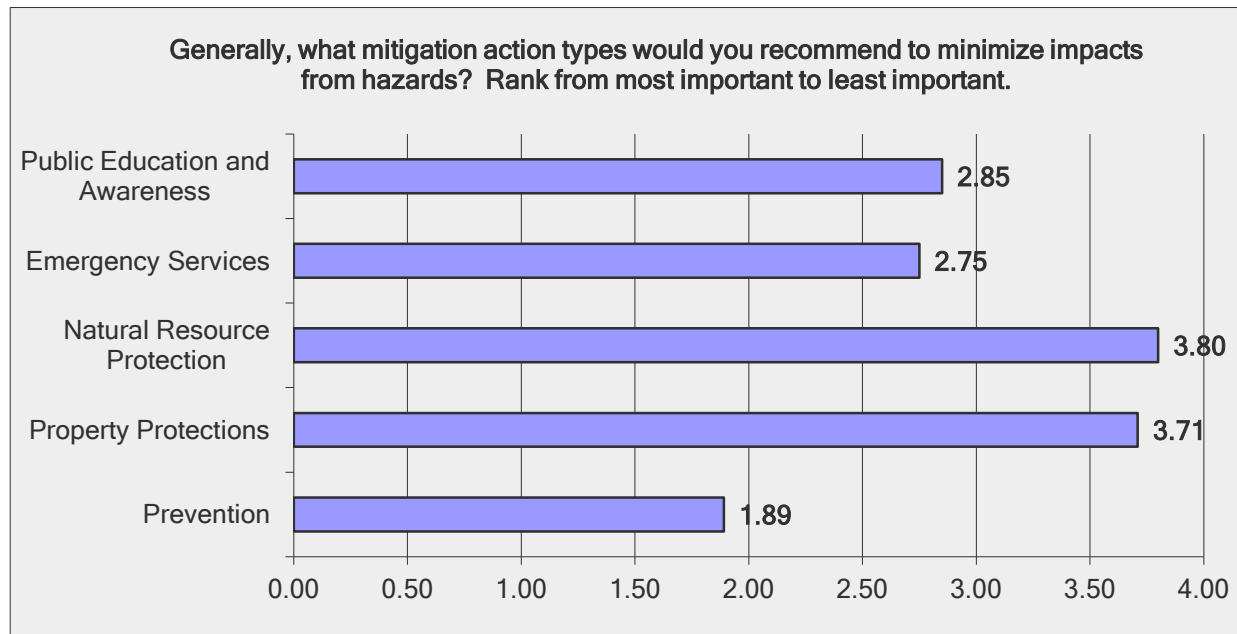
Answer Options	Response Percent	Response Count
Not important	0.8%	1
Somewhat important	8.3%	11
Important	16.7%	22
Very important	43.9%	58
Extremely important	30.3%	40
<i>answered question</i>		<b>132</b>
<i>skipped question</i>		<b>6</b>



## Natural Hazard Community Awareness Survey Question #29

Generally, what mitigation action types would you recommend to minimize impacts from hazards? Rank from most important to least important.

Answer Options	1	2	3	4	5	Rating Average	Response Count
Prevention	35	12	11	4	3	1.89	65
Property Protections	3	11	7	25	19	3.71	65
Natural Resource Protection	4	7	13	15	26	3.80	65
Emergency Services	11	16	20	14	4	2.75	65
Public Education and Awareness	12	19	14	7	13	2.85	65
<i>answered question</i>							<b>65</b>
<i>skipped question</i>							<b>73</b>



Natural Hazard Community Awareness Survey  
Question #30

What specific action would you suggest to property owners, renters, or local governments to reduce impacts from future hazard events? These can be big or small, and occur before, during, or after a hazard event.

Answer Options	Response Count
	22
<i>answered question</i>	22
<i>skipped question</i>	116

Options	Response Text
1	Education
2	Always practice emergency procedures so you are prepared.
3	Just be aware, and have a plan. Knowledge is the key.
4	Reassessing buildings after 10 years
5	Not sure. Maybe making people aware.
6	Better community awareness
7	To have water available. Electricity/Medical
8	With public awareness & education, home owners/renters can prepare & protect themselves as much as possible
9	The farmers, agricultural entities, suppliers, etc that deal with transportation with or handling of hazardous chemicals or dangerous mechanical equipment.
10	As an owner, I would like to have a check off list of things I can do that is low cost or no cost that will prevent major damage to the house and security of mind for my family's safety.
11	I'm elderly and my husband is disabled. I no longer drive. We would need help in event of prolonged power loss or worse.
12	Contact your child's school to find out about their plans in case they occur during school hours.

**Natural Hazard Community Awareness Survey**  
**Question #30**

13	<p>#28 is difficult to prioritize, since the City of Merced clearly has no history of or desire to actually enforce the codes already on the books! While Code Enforcement officers are quite capable, they are not given the authority or support to actually do their jobs in an effective manner. Therefore it is hard to decide on the proper priorities, given the fact the City does not utilize the tools it does have in a manner to protect its citizens - that includes continual failure to effectively ENFORCE existing codes, failure to issue citations to repeat offenders and failure to utilize the Administrative Citation process that is on the books now. So, I wouldn't see much point in adopting more codes that won't be enforced. The City Manager and Department head Mr. Gonzalves obviously don't want to actually enforce codes, so what is the point of even having them?!? Their refusal to provide simple code enforcement services in an effective manner puts people at risk and their lack of political will to actually do their jobs is itself a real hazard to the citizens of this community.</p>
14	<p>Don't build in areas that flood. Make them parks and nature preserves.</p>
15	<p>Review and Updating of Hazards Plan for the city.</p>
16	<p>keep structures current on looking good and working order.</p>
17	<p>Do not allow contractors to build in flood zones, danger zones or any areas that may produce a future risk.</p>
18	<p>Be aware of the public announcement and proper information needed from government agencies.</p>
19	<p>Don't build where it floods. Remove buildings from flooding areas and open the flood channels back up with more parks.</p>
20	<p>Be aware of the potential dangers where you live.</p>
21	<p>Sand bags in case of flooding, materials in case of train derailment</p>
22	<p>Remind people they have fresh water in their hot water tanks that can be used in an emergency.</p>

## Appendix G

### Catalog of Potential Hazard Mitigation Plan Actions

Hazard Type: Extreme Temperature										
No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural	
4	Maintain, establish, and enhance heating and cooling centers to serve the current and future population.		✗	✗					✗	
2	Prepare an "Excessive Heat Response Plan," including such items as: 1) identification of vulnerable populations; and, 2) conducting pre-season public information campaigns.				✗		✗			
3	Evaluate and improve heat advisory and warning methodology.						✗			
5	Work with PG&E and MID to require that electricity and water are not shut off for nonpayment during heat events.		✗	✗	✗		✗			
2	Identify vulnerable residents in Merced and community groups working with vulnerable populations (e.g. hospitals, schools, Meals on Wheels) and ensure heat emergency outreach & education programs work with them						✗			
4	Assess transportation options for residents (especially vulnerable populations) to reach cooling zones and improve access and awareness where possible, or provide rebates or incentives at cooling centers.						✗		✗	
	<b>Comments:</b>									

Hazard Type: Fog

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
1	Continue to work with weather forecasting and public safety agencies to provide warning and protective information to schools, residents, travelers, and visitors about the severe valley fog conditions.						✘		
2	Install Automated Fog Warning System.								✘
	<b>Comments:</b>								

Hazard Type: Storm-Related Hazard

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
2	Conduct a detailed vulnerability assessment in the future in order to accurately identify the extent of damages to vulnerable buildings, infrastructure, and critical facilities.			✘					
1	Pursue program of conversion of overhead utilities to underground service that serve critical facilities or other sensitive sites to reduce exposure to hazards.								✘
	<b>Comments:</b>								

### Hazard Type: Earthquakes

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
4	Develop inventories of historic buildings, governmental buildings, industrial buildings, unreinforced buildings, etc. to speed and target post-disaster response inspections and recovery efforts.			✘					✘
4	Implement programs to retrofit or upgrade unreinforced masonry buildings.			✘	✘				✘
2	Include retrofitting and replacement of critical system elements in capital improvement program (CIP)			✘	✘				✘
2	Perform building-specific, structural seismic vulnerability assessment of City-owned critical facilities constructed prior to 1980 (including infrastructure).			✘					✘
3	Seismically retrofit or replace County ramps and bridges that are categorized as structurally deficient by Caltrans and are necessary for first responders to use during an emergency.			✘	✘				✘
	<b>Comments:</b>								



**Hazard Type: Wildfire**

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
2	Become a "Firewise" community.				✘		✘		
1	Identify high fire hazard interface areas, then create and maintain defensible space around structures and infrastructure through site and building design requirements, such as the use of fire-retardant building materials.		✘	✘	✘				✘
3	Purchase a minimum 4,000-gallon water tender with wildfire fighting capability.								✘
	<b>Comments:</b>								

Hazard Type: Flooding (page 1)

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
3	Prepare an Update to the City's Storm-water Drainage Master Plan.	✗			✗				
3	Require a master drainage plan as part of the approval process for all specific plans and large development projects. The plan's intent is to ensure that the overall rate of runoff from a project does not exceed predevelopment levels.	✗			✗				
4	List Specific Flood Control Projects Needed: _____	✗			✗				
6	Acquire, relocate, elevate, and/or flood-proof critical facilities located within the 100-year floodplain.	✗		✗	✗				
6	Reinforce City ramps, bridges, and roads from flooding through protection activities which may include elevating the road and installing culverts beneath the road or building a bridge across the area that experiences regular flooding.	✗			✗				
5	Increase participation in the NFIP by entering the Community Rating System program which through enhanced floodplain management activities would allow property owners to receive a discount on their flood insurance.	✗							
4	Provide storm-water drainage improvements to reduce frequent flooding, such as storm-water drains, basins, trunk lines, auxiliary pipes, and interconnections.	✗			✗				

Hazard Type: Flooding, (page 2)

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
5	Update the EOP to address emergency evacuation routes relative to flood and dam failure hazards.	✗			✗				
6	Review public warning procedures and methods to improve the citywide flood surveillance and early warning system.	✗			✗		✗		
	<b>Comments:</b>								

Hazard Type: Public Education

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
2	Develop and implement education and outreach programs to increase public awareness of the risks associated with natural, human-caused, and technological hazards.						✘		
3	Institute a Disaster Preparedness Education Program for the Public.						✘		
3	Develop Community Emergency Response Teams (CERT) of residents and businesses to aid first responders and volunteers.						✘		
3	Identify and develop a series of initiatives, incentives, programs, and procedures to assist residents, property owners, and businesses to prepare for and recover after a natural disaster.						✘		
	<b>Comments:</b>								





**Hazard Type: Prevent Future hazard Related Losses of Life and Property**

No.	Action	NFIP	New	Existing	Prevention	Property Protection	Public Education	Resource Protection	Structural
3	Support management and land use planning practices with hazard mitigation to protect life.				✘				
3	Discourage inappropriate development in hazard areas.		✘		✘				
3	Encourage property protection measures for all structures located in hazard areas.			✘	✘				
4	Preserve, rehabilitate, and enhance natural systems to serve hazard mitigation functions.							✘	
3	Assess suitability (vulnerability to hazards and provision of services) of select public education buildings and sites as places for people to go to during emergency situations.			✘					✘
4	Develop Functional Assessment Service Team (FAST) to appropriately shelter and respond to the needs of people with disabilities and older adults.				✘				
	<b>Comments:</b>								

## Potential List Of Mitigation Strategies

The Disaster Council and the general public were asked to review, modify, and/or add to the above Mitigation Action Items. The following suggestions for potential actions were received from Disaster Council members and through public outreach venues:

### Hazard Type: Extreme Temperature

Work with and establish a place of refuge for those who are without power, ( i.e. school districts.)

*Recommended Word change for the fourth Action (above) to read: “Work with PG&E and MID to ~~require~~ensure that electricity and water are not shut off for nonpayment during heat events.”*

Recommend adding a new column to the right entitled, “Emergency Services”.

The Bus is providing free transportation to and from cooling centers this year.

Access to Cooling Center is the biggest hurdle. Young and old do not have the means to reach cooling centers.

Not shutting the power off is the most important.

Multiply the sites for cooling centers.

The 2<sup>nd</sup> and the 5<sup>th</sup> Action Items is basically the same thing.

Question as to why “New” Building/Infrastructure is being proposed (see column)? Why not just retro-fit existing buildings? Not supportive of new building/infrastructure (refer Rater #12).

The 5<sup>th</sup> and 6<sup>th</sup> Action Items (respectively) are inter-related to the 2<sup>nd</sup> Action Item and need to be a coordinated effort.

Regarding the 6<sup>th</sup> (or last) Action Item (above), who are the rebates for?

Shouldn't Action Item #4 regarding PG&E/MID's shutting off electricity and water include both extreme heat and “cold” events?

### Hazard Type: Fog



Provide tips for driving, walking, biking, etc., in the fog both in the City and freeway.

Technology is the key here, mass communication both electronically and community base; Social media and electronic billboards!

Recommend deleting the 2<sup>nd</sup> Action Item (does not feel it's necessary or appropriate in the City).

Provide educational information through high schools, DMV, law enforcement, and media efforts regarding vehicle safety tips while driving in fog.

### Hazard Type: Storm-Related Hazard

Designate one of the High Schools or Schools as an Emergency Operations Center (EOC) during storms.

Informational material to inform people of what to do, not to do, protocols, etc. during a severe storm.

***Recommended addition to second Action (above) to read:*** "Pursue program of conversion of overhead utilities to underground service that serve critical facilities or other sensitive sites to reduce exposure to hazards **where possible.**"

I'm concerned about where critical facilities are located. The Police Department is between two railroad tracks and located next to Bear Creek – flooding. We need a facility that is protected from natural and man-made disasters.

### Hazard Type: Earthquakes

Include schools and hospitals in retrofit plan.

Implement/enforce that all future constructions be earthquake proof – including homes.

Identify vulnerable residents in Merced and community groups working with vulnerable populations and ensure earthquake preparation and emergency outreach and education programs work with them.

Prepare an earthquake response plan.

Delete the word, "County" and replace it with the word "City" for Action Item #5 above.

Recommend that the 2<sup>nd</sup> and 5<sup>th</sup> Action Items be deleted since the Cost eliminates these two Actions from reality.

### Hazard Type: Wildfire

Work with Health & Asthma Coalition/organization to devise informational material on health/asthma impact or implications.

***Recommend explanation language to Action one (above)*** - [Better define what becoming a “Firewise” community means for the community]

Two Raters requested an explanation of “Firewise” community (not sure what this is).

Recommend deletion of Action Item 3 above as we are not in the County.

Question: Does the Fire Department think they need the water tender? If so, it should be their priority input.

Continue with weed abatement efforts with fines for those who are noncompliant.

### Hazard Type: Flooding

***Recommend removal of the second and third Actions (above) as follows:***

~~Require a master drainage plan as part of the approval process for all specific plans and large development projects. The plan’s intent is to ensure that the overall rate of runoff from a project does not exceed predevelopment levels.~~

List Specific Flood Control Projects Needed: \_\_\_\_\_

Add to third Action as Needed (above): Haystack Dam Alternative on Black Rascal Creek

Implement a “Regional” flood plain management program.

Identify vulnerable residents in Merced and community groups working with vulnerable populations and ensure flood emergency outreach and education programs work with them.

Prepare a “flooding plan” and include such items as: 1) Identification of vulnerable populations, and 2) conducting pre-season public information campaigns.

Recommend deletion of the 2<sup>nd</sup> Action Item (i.e., Require a master drainage plan as part of the approval process.....)

Add the following to Action #3 – List Specific Flood Control Projects, Needed –

Bear Creek MID/ West Town / Black Rascal (do an assessment in these areas to find out what the needs are).

Implement a Master Storm Water Fee for all uses with infrastructure needs.

Capacity of our floodways and Correct Pinch Points for flood (i.e., do you fix the pinch points or limit the flow)?

The 3<sup>rd</sup> and 7<sup>th</sup> Action Items (respectively) are inter-related or are sub-sets of an overall action – the 1<sup>st</sup> Action Item. The key is to approach them in a coordinated effort. This also pertains to the last two Actions (listed on Page 2 of the Flooding Hazard Type) with the 7<sup>th</sup> Action Item being a subset of the 6<sup>th</sup> Action.

Need to provide better warning signs on flooded streets.

Stressed the importance of the 9<sup>th</sup> (or last) Action Item (above).

More sandbag locations are recommended; and, the need for a better job of informing citizens where to get sandbags.

Need to do a better job of dealing with flooded streets and a better job with responding.

More sandbag locations needed.

The drainage systems need to be checked as they clog up with leaves and cause water to flood. City workers should focus more on areas that are more likely to flood during heavy storms. More warnings should be given to county residents.

### Hazard Type: Public Education

Run Incident Command System (ICS) Training utilizing Merced Union High School District (MUHSD) Emergency Management Team.

Educate community on general evacuation routes/means/options for evacuation.

Use technology for education programs; Social media/electronic billboards.

CAER – Community Awareness & Emergency Response

“Working Together for a Safe & Informed Public”

The 1<sup>st</sup> Action Item is the “Activity” needed to fulfill the 2<sup>nd</sup> Action Item. And, the 3<sup>rd</sup> Action is part of the activities needed to accomplish the 4<sup>th</sup> Action Item.

### Hazard Type: Emergency Management Capability (Part 1, Emergency Operations)

Establish one or more of the High Schools as an Emergency Operations Center (EOC) to serve during emergencies.

Identify central emergency shelter locations and inform public.

Establish an emergency or info hotline where people can call in for updates on the situation or to connect families that are separated.

The 7<sup>th</sup> and 2<sup>nd</sup> Action Items (respectively) are subsets of Action #4. The 8<sup>th</sup> and 3<sup>rd</sup> Action items (respectively) are subsets of the 1<sup>st</sup> Action Item. Since the Action Items are inter-related, they need to be approached in a coordinated effort.

### Hazard Type: Emergency Management Capability (Part 2, Resiliency)

For the 2<sup>nd</sup> Action Item (above) consider deleting “out-of-area” as local contractors may be able to respond. Maybe have 2 or 3 lists based on distance (i.e., 0-20 miles, 20-50 miles, over 50 miles).

Has the City of Merced decided on an Emergency Alarm System/EAS (i.e., Reverse 911, Everbridge)?

The 9<sup>th</sup>, 4<sup>th</sup>, and 3<sup>rd</sup> Actions (respectively) are inter-related or subsets of the 7<sup>th</sup> Action Item. Also, the 5<sup>th</sup> Action is inter-related or a subset to the 8<sup>th</sup> Action Item. As such, the key is to approach these Actions in a coordinated effort.

### Hazard Type: Prevent Future hazard Related Losses of Life and Property

Two Raters recommend adding a new column to the right entitled, "Emergency Services".

# Appendix I

## Focused Catalog of Hazard Mitigation Plan Actions

1. Prepare an *Energy Assurance Plan* that includes: 1) the identification and assessment of power-backup capabilities for all City's critical infrastructure (for example, pumps, data centers, dispatch) and buildings utilized for essential services (such as health-safety, water, sewer, waste and transportation); 2) coordination of energy resources among public and private partners; and, 3) establishment of a program and schedule to implement recommended power upgrades and coordination programs.
2. Create a *Disaster Preparedness Program* that educates populations (residents, property owners, and businesses) that are vulnerable to Merced's natural hazards about: 1) shelter sites; 2) disaster advisory and warning systems; and, 3) "before, during and after" resources from community entities (e.g. hospitals, schools, public works), to prepare for natural disasters. Develop and deploy methods that assure access to this information and to these resources.
3. Support Merced County efforts to construct the Haystack Alternative of Black Rascal Creek.
4. Develop and enhance storm-water drainage improvements to reduce frequent flooding. Projects may involve canals, storm-water drains, basins, trunk lines, auxiliary pipes, and interconnections. For example, increase the current stormwater diversion (at Fahrens Creek, south of Yosemite Avenue) of 50 cubic feet per second (cfs) to 200 cfs, so that storage capacity is not wasted during larger flooding events.
5. Update the City's Storm-water Drainage Master Plan.
6. Prepare a *Natural Area Fire Prevention Plan* for those areas of Merced to be developed adjacent to natural open space areas (as opposed to agricultural fields or private property) in order to determine the best approach to address and provide a coordinated plan for conflicting needs (for example, air quality, natural resource protection, and property rights). Methods would include acceptable site designs, building designs, and weed abatement.
7. Perform building-specific, structural seismic vulnerability assessment of City-owned critical facilities (buildings and infrastructure) constructed prior to 1980, and take actions to upgrade or retrofit as needed.
8. Retrofit or upgrade unreinforced masonry buildings in Downtown Merced, or other buildings in the Plan area.

9. Pursue program of conversion of overhead utilities to underground service that serve critical facilities or other sensitive sites to reduce exposure to hazards, where possible.
10. Prepare a *Shelter and Emergency-Provision Plan* resulting in identification of existing and future sites and buildings, as well as improvements for their establishment or enhancement

## 4.3.1 Review of a Comprehensive Range of Mitigation Actions

### Identification and Analysis of a Catalog of Potential Actions



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For each hazard, City Staff created a comprehensive catalog of sample mitigation actions that were applicable to the City of Merced. The hazards for which sample mitigation catalogs were created are those in which the City is most vulnerable to, based on the MHMP Risk Assessment. The specific actions themselves were based upon the MHMP vulnerability assessment. The catalogs were not meant to be exhaustive or site-specific but rather to inspire discussion. The sample mitigation actions in the catalogs derived from numerous sources, including: 1) the City's "Community Risk Assessment; and 2) hazard mitigation plans, notably from Central Valley California communities.

The initiatives included in the catalogs were meant to be new action items, and do not include current mitigation actions, though improvement of a current activity may be listed. The catalogs also noted how the proposed actions affected new and existing buildings and infrastructure. Recognizing that Merced's economic setting could improve, and because external funding sources may also become available, the selection process of actions was not limited due to lack of local funds.



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### Mitigation Sorted by Type

To facilitate a greater understanding of the nature of actions, the sample actions were also sorted by mitigation type. Mitigation efforts fall into one or more of these types:

- **Prevention:** Administrative or regulatory actions that influence the way land is developed and buildings are built, such as: planning, zoning, building codes, capital improvement projects, open space, and floodway preservation, and storm water management safeguards.
- **Property Protection** – Actions that involve the modification of existing buildings to protect them from the hazard area, such as: removal from elevation, retrofits, relocation, and flood-proofing.
- **Public Education** – Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property, such as: outreach, disclosure information for real estate transactions, information brochures along with public mailings and educational programs.
- **Resource Protection:** Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems, such as: cleaning of creeks, debris removal, management of City trees, restorative plantings, and dedicating creek-side open space to the City.
- **Emergency Services:** Actions that protect people and property during and immediately after a hazard event, such as: improved response times, special training classes, standby power for critical facilities, and emergency personnel communications.
- **Structural Projects:** cleaning of creeks, cooling centers, projects to modify FEMA maps



### **Review and Ranking of Catalog of Potential Actions**

The catalogs were presented at the July 13, 2012 Disaster Council meeting, as well as at a general public meeting about local hazard mitigation planning held at regular meeting of the City's Planning Commission on July 18, 2012. [briefly describe summer outreach event]. The PLT requested and encouraged the Disaster Council, the Planning Commission and all audience members to review, discuss and comment on the draft catalogs, focusing on the following tasks:

- A numeric ranking of the ideas in each table;
- Comments of each cataloged action, as appropriate; and,
- Describe new actions

The Planning Leadership Team (PLT) collected these comments and rankings (1 being best, 2 next best, etc.) from the Disaster Council, stakeholders, the Planning Commission and members of the public, which are presented in Appendix G, which includes: 1) the original comprehensive set of suggested actions; 2) numeric rankings; and 3) comments, including suggested new action items.

### **CREATING A FOCUSED LIST OF MITIGATION ACTIONS**

As part of the review of a comprehensive range of potential mitigation actions, the PLT narrowed the potential mitigation actions listed in Appendix G, from 54 actions to 10 actions.

Changes to the comprehensive list of potential mitigation actions were based on meetings with technical City Staff, as described in "Flood Related Actions" and "Other Staff Recommended Hazard Mitigation Actions" (see sub-sections below), as well as several factors, and include:

**Scores:** Scores ranged from a best (1) to least supported (7). Actions with scores of 4-7 were generally removed, while those with scores of 1-3 were generally kept.

**Mitigation Action and Projects:** Ineligible actions, as defined by FEMA's updated regulation checklist (formerly called crosswalk) were removed from the list of recommended action. For example, actions that are emergency response or operation preparedness in nature are ineligible, and hence, were removed from the recommended list of mitigation actions.

**Hazard Threat:** Actions that aligned with high threat hazards were generally kept, whereas actions that aligned with low threat hazards were generally removed.

**Current or LHMP-related Actions:** Actions that are currently undertaken or which have been addressed in the Local Hazard Mitigation Plan were removed.

The resulting "focused list" of mitigation actions is presented in Appendix I. This list was the basis of further discussion and prioritization performed at the Disaster Council public meeting of December 7, 2012.

Although low-scoring mitigation actions are not included in the Action Plan, they can be reconsidered during the MHMP update process.

### **FLOOD RELATED ACTIONS**

On August 7, 2012, a meeting with flood hazard specialists representing the City of Merced, the County of Merced and the Merced Irrigation District, met to identify flood-related projects for the LHMP plan area. These recommended actions are listed below, and were noted in the focused list of actions.

- Increased storm-water storage (see detail below)
- Upstream storm-water Diversions
- Black Racal Creek detention basin

A water diversion structure on Fahrens Creek, south of Yosemite Avenue, diverts water into the large basin that is located between that point and Buena Vista Avenue. Storm-water diversion currently begins when the flow in Fahrens Creek is at 50 cubic feet per second (CFS). Hicham M. Eltal of the Merced Irrigation District (MID) recommended that the diversion should occur at 200 cfs, so that storage capacity is not wasted during larger flooding events. A new diversion design and improvements would be necessary for this change.

#### OTHER STAFF RECOMMENDED HAZARD MITIGATION ACTIONS

On November 26, 2012, City Staff from the airport, fire department, engineering department, building department and the public works department met to discuss hazard vulnerability and needs to existing buildings and infrastructure. The group offered several recommendations, specifically, the group:

- supported the focused action to perform building-specific, structural seismic vulnerability assessments of City-owned critical facilities (buildings and infrastructure) constructed prior to 1980, especially as it relates to several old fire stations; the original (phase 1) of the “M” Street police station; and the public works corporation yard.
- emphasized the need to refer to shelters instead of cooling centers.
- supported the focused action to address wildland fire interface zones with an emphasis on the development interface with natural open spaces; and
- Strongly identified the need to plan for and develop resources to provide energy-back-up systems for critical infrastructure and buildings.

#### NOTEWORTHY INELIGIBLE ACTIONS

Some of the potential mitigation actions received high scores from the community, yet were removed due to ineligibility requirements of the Local Hazard Mitigation Program, or simply reiterated current City practices. These actions are listed here to signify their value to the community.

##### *“Response-Based Actions*

- Develop Community Emergency Response Teams (CERT) of residents and businesses to aid first responders and volunteers.
- Strengthen emergency operations by increasing collaboration and coordination among public agencies, non-profit organizations, businesses, and industries. For example, standardize systems among agencies to provide for better interoperability.
- Coordinate with medical community to quicken the reporting of damage to a medical facility office, pharmacy (and so on).

##### *Planning-Based Actions*

- Support management and land use planning practices with hazard mitigation to protect life.
- Require a master drainage plan as part of the approval process for all specific plans and large development projects. The plan’s intent is to ensure that the overall rate of runoff from a project does not exceed predevelopment levels.

## 4.3.2 Prioritization of Actions

The activities of the PLT and *Disaster Council* at public meetings, discussed in the Chapter sections above, resulted in the selection of a focused set of   non-prioritized mitigation actions. At their December 7, 2012 meeting, the Disaster Council prioritized the focused list of actions. This section is a narrative of how the community prioritized the mitigation actions, and includes a discussion of “Benefit-Cost Review” and “Prioritization Methodology.”

### Benefit-Cost Review

This section discusses three interrelated topics: 1) the requirement for a cost-benefit assessment; 2) the approach of this Plan’s Cost-Benefit Review (CBR); and 3) future project-level Benefit-Cost Analysis (BCA).

#### SCOPE OF COST BENEFIT ANALYSIS

A full-blown cost-benefit analysis (CBA) is not required; rather, a Benefit-Cost Review (BCR) satisfies the DMA 2000 requirements even if it is relatively simple. As allowed by DMA 2000, the City’s benefit-cost review was primarily qualitative.

#### BENEFIT-COST REVIEW (BCR) CRITERIA

An emphasis was placed on the importance of a benefit-cost review in determining action priority. Criteria used to assist in evaluating the benefit-



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cost of a mitigation action included in the “Economic” criteria discussed below, under “STAPLEE” CRITERIA.

#### FUTURE PROJECT-LEVEL BENEFIT-COST ANALYSIS (BCA)

For many of the actions identified in the MHMP action plan, the City of Merced may seek financial assistance under FEMA’s HMGP or PDM programs. Both of these programs require detailed benefit/cost analysis as part of the application process. These analyses will be performed on the projects at the time of application preparation. However, for projects not seeking financial assistance from grant programs that require this sort of analysis, the City reserves the right to define “benefits” according to the parameters that meet the needs and the goals of the MHMP.

### Prioritization Methodology



#### CRITERIA USED

After the focused set of mitigation actions was assembled, the *Disaster Council* utilized several decision-making tools to rank the importance and effectiveness of the actions. These tools included: 1) Benefit-Cost Review “economic” criteria; 2) FEMA’s recommended prioritization criteria, STAPLEE; and 3) community input gathered from the City’s *Natural Hazard Community Awareness Survey* (Appendix C).

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#### “STAPLEE” CRITERIA

The criteria listed below were used to assess the strengths and weaknesses, opportunities and constraints, and costs and benefits associated with mitigation actions. This section includes a general description of each criteria, along with related questions to help the community and Disaster Council rate the value of potential mitigation measures.

**S Social:** Mitigation actions are acceptable to the community if they do not adversely affect a particular segment of the population, do not cause relocation of lower income people, and if they are compatible with the communities social and cultural values.

- Will the mitigation action be socially accepted within the community where it will be implemented?
- Will the mitigation action adversely impact one particular segment of the population (neighborhood, culture, religion, etc.)

**T Technical:** Mitigation actions are technically most effective if they provide long-term reduction of losses and have minimal secondary adverse impacts.

- Is the mitigation action technically feasible?
- Will the mitigation action help to reduce losses in the long term?
- Will there be any secondary effects which could nullify the action's benefits?

**A Administrative:** Mitigation actions are easier to implement if the jurisdiction has the necessary staffing and funding.

- Does the jurisdiction have the staffing capability to implement the action, and can it be readily obtained?
- Has the jurisdiction allocated or funded the action (i.e. annual budget, CIP, grants, etc)?
- Can the community provide the necessary maintenance work required to maintain the mitigation action?

**P Political:** Mitigation actions can truly be successful if all stakeholders have been offered an opportunity to participate

in the planning process and if there is public support of the action.

- Is there political support to implement and maintain the mitigation action?
- Is there a local champion (private or public) willing to help see the action to completion?
- Is there enough public support to ensure the success of the mitigation action?

**L Legal:** It is critical that the jurisdiction or implementing agency have the legal authority to implement and enforce a mitigation action.

- Do State regulations exist that support the implementation of the mitigation actions?
- Are the proper local laws, ordinances, and resolutions in place to implement the mitigation action?
- Is the mitigation action likely to be challenged by stakeholders who may be negatively affected?

**E Economical:** Budget constraints can significantly deter the implementation of mitigations actions. Hence, it is important to evaluate whether an action is cost-effective.

- Do the benefits of the mitigation action exceed the associated costs?
- Does the cost seem reasonable for the size of the problem and likely benefits?
- Does the action contribute to other community economic goals, such as capital improvements or economic development?
- How many people will benefit from the action? How large an area is impacted?
- Does the action protect infrastructure, community assets or critical facilities?

- What will the action cost? What is the timing of available funding? Will outside sources of funding be required?
  - What is the action’s ability to reduce expected future damages and losses?
- \* Benefit-Cost/Economic information is presented in the MHMP Action Plan (Section 4.3.3).

**E Environmental:** Mitigation actions that do not have an adverse effect on the environment, that comply with Federal, State, and local environmental regulations, and that are consistent with the community’s environmental goals, have mitigation benefits while being environmentally sound.

- Will the mitigation action significantly affect the environment?
- Is the mitigation action consistent with the community’s environmental values and goals?

PROCESS

Prior to the prioritization exercise, the PLT presented these criteria to the *Disaster Council* for review and discussion. The public was also given an opportunity to comment on the criteria and the focused list of mitigation actions.

The *Disaster Council* was given eighteen colored dots to prioritize the actions with the above criteria in mind, emphasizing the benefit-cost review criteria. The values of the dots were as follows:

Table __: Dot Priority Values			
	Red	Blue	Yellow
<b>Priority</b>	High	Medium	Low
<b>Dot Value</b>	4	3	2
<b>Number of Dots</b>	6	6	6

The PLT totaled the dot values to determine the priority of recommended actions. The values ranged from [redacted] to [redacted]. The priority value is listed in the Action Plan, and for convenience, Table \_\_ lists the mitigation actions by priority.