

***Office of Emergency Management
Pierce, King, Snohomish Counties***

***Emergency Preparedness Research
Phase II- Spring/Summer 2005 Report***

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**OFFICE OF EMERGENCY MANAGEMENT
DISASTER & EMERGENCY PREPAREDNESS SURVEY**

July 2005

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Introduction

Within each of the three counties sponsoring this study – Pierce, King, and Snohomish – their respective Office of Emergency Planning has the task of coordinating the preparedness, response, and recovery efforts of the county government and addressing the needs of citizens in the event of either natural or man-made disasters or emergencies. The public education component of OEM has the responsibility of providing the public with informational tools that are needed to be prepared for a disaster or emergency.

Phase I research, conducted in Fall 2004 by Hebert Research, sought to understand King County's preparedness activities and needs. Phase II, being reported now, includes research conducted in Spring/Summer 2005. This recent study sought to benchmark resident preparedness activity for later comparison in Pierce and Snohomish Counties in addition to King County. It also sought to bring more insight to public education managers on elements of social marketing – accessibility of materials (distribution) and messaging (communication). The research design utilized both qualitative and quantitative methodologies.

The analysis provides program managers with multi-dimensional understanding of the level of current preparedness and information that will help to heighten resident awareness of educational aides and to facilitate resident conversation on preparedness within their social networks. This analysis also identifies segments of the population that are the most prepared and those that have the greatest need for preparedness education.

The next survey in Phase II will be conducted in Fall 2005 and will track the level of overall preparedness and identify additional insights which can be used to create and disseminate messaging that compels area residents to engage in more preparedness activities. Future studies could build upon such analysis by testing specific forms of messaging and tracking the effect of communication campaigns over time and between demographic, psychographic, and lifestyle segments.

Study Sponsors



**Snohomish
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*Office of Emergency Management
Pierce, King, Snohomish Counties*

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Research Objectives

The following objectives were addressed during the course of research and analysis:

- Create multidimensional behavioral benchmarks to track Evacuation preparedness, Workplace preparedness and Shelter-in-place preparedness.
- Determine the degree to which residents of King, Snohomish and Pierce Counties are prepared to Shelter in place in the event of an emergency and compare this level of preparedness with their perception of Shelter in place preparedness.
- Determine how many days residents within the tri-county area are able to Shelter in place without assistance.
- Measure the level of workplace preparedness and determine whether there are significant differences between Pierce, King, and Snohomish Counties.
- Determine how comfortable parents are with their children *sheltering in place* at school in the event of an emergency.
- Identify the level of *evacuation* preparedness within the tri-county area and determine whether this level of preparedness is consistent with resident perceptions of preparedness.
- Determine what residents have done to prepare to *shelter in place* or *evacuate* in the event of an emergency.
- Determine the locations where educational information about preparedness would be most useful to residents.
- Identify the message elements and communication channels that residents cite when they think of where to go to get preparedness information and what they should know to be prepared.
- Conduct statistical analysis to identify specific segments of the tri-county population that are especially in need of preparedness education.
- Identify questions for future research which will assist the Office of Emergency Management identify messaging and communication channels that will compel residents to become more prepared for an emergency or disaster.

Methodology

The following is a detailed description of the methodologies used in the Spring 2005 tri-county study and the techniques that were applied during the course of analysis.

Key Person Interviews

Key Person Interviews are brief interviews with people who are in positions of influence within the area of study and are able to provide insight that cannot be gained through resident interviews or focus groups. In this study, 23 key person interviews were completed. These data are referred to throughout the report and are compared with the findings of the resident survey to identify points of convergence and tension between average citizens and those who are in a unique position to facilitate disaster preparedness on a grand scale.

Focus Groups

A focus group is a method of qualitative research that is widely utilized in marketing and public opinion research. In the case of this study, two focus groups were held following survey research and key person interviews to gain a more in-depth understanding of the survey data and uncover insight that can be applied to the development of educational messaging. Focus group findings are referenced throughout the report. The groups were held in Puyallup and Everett WA with residents that live within those cities. Each focus group participant was given \$65.00 for their participation. Appendix B contains a synopsis of what was uncovered in the focus groups.

The balance of this method section describes procedures that were applied to the telephone survey of Pierce, King, and Snohomish County residents.

Sample Frame and Sampling Procedure

A stratified probability sampling procedure was applied to identify residents of Pierce, King, and Snohomish Counties to participate in the survey. Residents were selected from the total population of households that have listed telephone numbers. Hebert Research interviewed a total of 565 residents between May 24th and June 13th, 2005. The response rate—the proportion of those who were invited to participate that actually did so—was 33.0%.

Research Controls

Hebert Research applies a variety of controls to help ensure that the research and analysis offered is of the highest quality that can be provided within the research budget. The primary research controls that were employed in this study include the following:

Internal Peer Review

Hebert Research uses a “CERA” process—similar to academic peer review—to ensure that each study meets or exceeds rigorous quality control standards. Through this process,

both junior and senior analysts review each analysis and offer critical feedback designed to reduce error and heighten the generalizability of the research.

Statistical Weighting

Statistical weighting is a technique that is commonly used in survey research to compensate for sampling and response error. Statistical tests were run to identify demographic factors that are associated with variance and then appropriate sample parameters were compared with known population parameters. Because very recent demographic data is not available through the U.S. Census, demographic data from Claritas, Inc. (an established and widely used vendor of demographic data) were relied upon to identify population parameters. Demographic sample parameters were compared with population parameters and adjustments were made to account for response bias. In this survey—and as is typically the case with survey research—women and those above 55 responded to the request to participate in the survey at a rate that exceeded their actual presence in the population. Following preliminary analysis, it was concluded that such weighting was especially important given the fact that a significant amount of variance was associated with age and gender. In other words, responses often varied between men and women, age segments, and sub-regions within the tri-county area. To compensate for potential sampling bias, “strata weights” were created and applied to the sample to ensure that men and women as well as residents of various age groups were properly represented within each of the geographic strata that are compared in the analysis. This helps ensure that the overall sample is representative of the tri-county area but also that each sub-region (i.e., the City of Seattle, King County (excluding Seattle), Pierce County and Snohomish County) is properly and proportionately representative. Such a procedure allows for a high level of statistical precision and comparison. In the final weighting analysis, it was concluded that the sample was representative of the population within the following critical parameters:

1. Region and sub-region
2. Gender
3. Age
4. Proportion of respondents who are married with children

Research Assistant Training and Internal Controls

Hebert Research uses experienced Research Assistants to conduct telephone interviews. Each Research Assistant is trained when they begin working with the firm and they receive additional project-specific training at the beginning of each study. This helps to ensure that experienced and competent staff is involved in all phases of the project, thereby reducing the probability of error.

Research Assistants are supervised by a highly experienced interviewer who oversees them throughout the data collection process. All data collection activities are overseen by the Director of Operations who keeps the Senior Research Analyst, Research Director, and President apprised of the status of the project. A Research Analyst regularly reviews incoming data to ensure that they are accurate to the best of the firm’s knowledge and are being gathered in a manner that is consistent with quality control standards.

Moreover Research Assistants, Junior Analysts, and others within the firm remain “blind” (i.e., unaware) to hypotheses that have been developed by Senior Analysts, Directors and the President. This ensures that conscious and unconscious bias does not have an effect on the data-collection process.

OEM Preparedness Measures

Three sets of questions were created to benchmark and begin to track the degree to which residents are able to [1] shelter-in-place [2] evacuate or [3] stay safe in the workplace during disaster or emergency. These multidimensional behavioral measures are sensitive to change over time but not susceptible to minor changes that could serve to interfere with empirical trend analysis. Values between 1 and 3 were pre-assigned to specific behaviors by OEM staff.

Multivariate Analysis

Statistical analysis is commonly conducted using multivariate techniques. The Senior Analyst relied primarily on three statistical tests, the Chi Square, ANOVA (i.e., Analysis of Variance) and Pearson Correlation coefficient to identify statistically reliable differences between segments and variables. The Chi-square test was used with categorical variables such as place of residence. By contrast, the ANOVA test was used with continuous data such as the three preparedness indexes that were created for the analysis. Multivariate analysis was conducted to [1] identify differences between individuals within the following groups and [2] associations between these groups and variables of interest.

- Sub-region
- Gender
- Age
- Type of dwelling
- Level of preparedness to shelter in place
- Level of evacuation preparedness
- Level of workplace preparedness

When differences between groups or variables are significant, the level of significance is reported as a “P” value. These values are the statistics that are commonly used in hypothesis testing and are relied upon to determine the reliability (i.e., the degree to which one can be certain) of a given finding or difference. This value describes the probability that an effect—for instance a difference between sub-regions—occurred due to chance or error. Thus, *low P values (i.e., those at or below .05) are indicative of high levels confidence and establish that the effect being observed can be relied upon in decision-making.* P values of .000 are the lowest commonly reported in the social sciences and thus are indicative of a very high level of decision-making reliability.

A Note on Correlations and Measures of Association

“Cramer’s V” is a statistical test that measures the degree of association between variables. Where significant and appropriate, Cramer’s V coefficients are referenced to

describe the strength of the relationship between variables (e.g., preparedness actions and county of residence). Such tests are similar to the Pearson correlation coefficient which is also utilized in this analysis. The higher the coefficient of association or correlation, the stronger the relationship between variables and, therefore, the greater the probability that one of the variables being examined is causing an effect on the other.

Margin of Error

The margin of error for the resident survey, as a whole, is $\pm 4.4\%$ at the 95% confidence level.

Hebert Research has made every effort to produce the highest quality research product within the agreed specifications, budget and schedule. The client understands that Hebert Research uses those statistical techniques which, in its opinion, are the most accurate possible. However, inherent in any statistical process is a possibility of error, which must be taken into account in evaluating the results. Statistical research can predict resident reaction and external conditions only as of the time of the sampling, within the parameters of the project, and within the margin of error inherent in the techniques used.

Evaluations and interpretations of statistical research findings and decisions based on them are solely the responsibility of the client and not Hebert Research. The conclusions, summaries and interpretations provided by Hebert Research are based strictly on the analysis of the data gathered, and are not to be construed as recommendations; therefore, Hebert Research neither warrants their viability nor assumes responsibility for the success or failure of any client actions subsequently taken.

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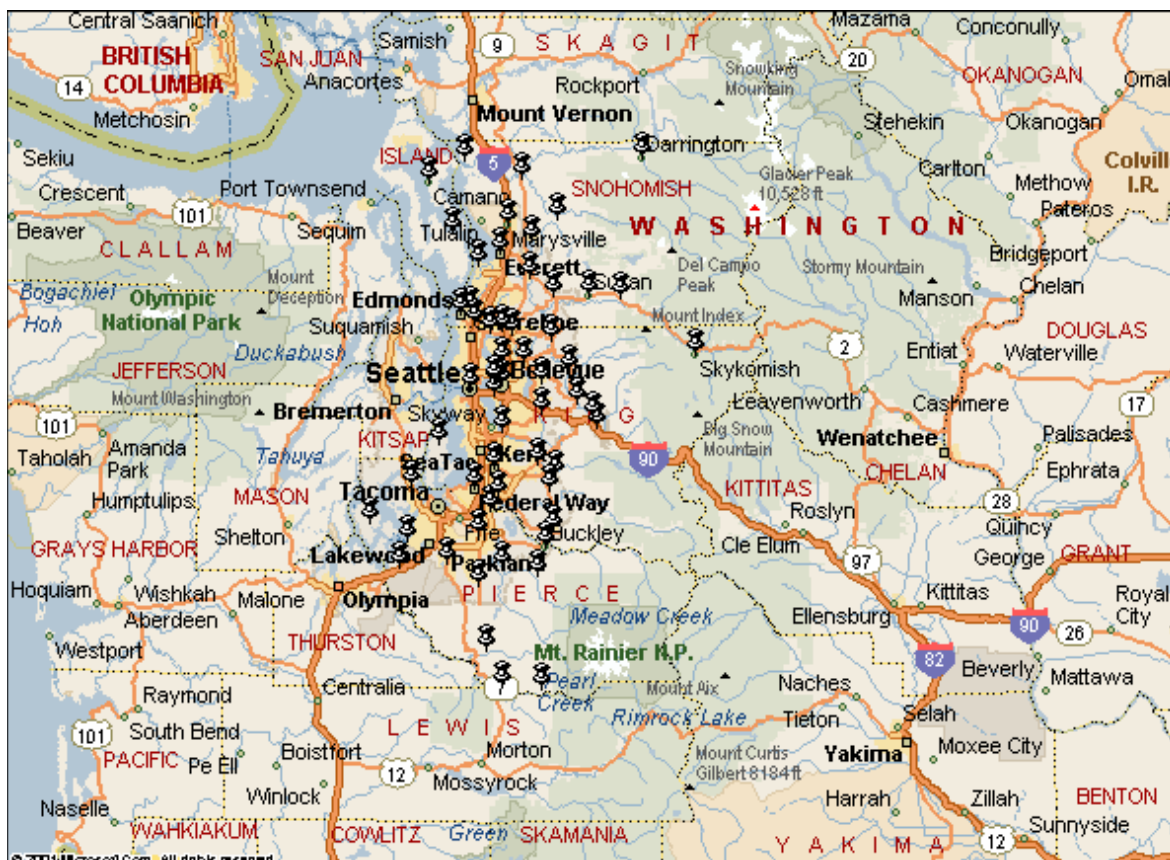
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Survey Area

The map below indicates the study area. Each marker represents one zip code that was included in the study. Note that residents of each of these zip codes are included in the sample and that statistical weighting was applied to ensure that the four primary regional strata (City of Seattle, Pierce, King, and Snohomish Counties) are proportionately represented in the overall sample.



Respondent Profile

The following tables describe the demographic profile of survey respondents. All respondents live within Pierce, King and Snohomish Counties. As noted in the methodology section statistical analysis was conducted to determine whether the sample was representative of the population and statistical weighting was used to make adjustments where appropriate. The weighted age, region, gender and married with children sample parameters are compared with population parameters to illustrate the fact that the sample is representative of the population within these critical parameters. The population proportions within each table represent the distribution within the overall sample frame of Pierce, King, and Snohomish counties (i.e., the “tri-county” area).

Region	Population	Sample
Pierce County	22.7%	22.7%
Snohomish County	19.3%	19.2%
Seattle	21.1%	21.1%
King County (excluding Seattle)	37.0%	37.0%

Age	Population	Sample
18-24	12.2%	12.1%
25-34	18.9%	18.4%
35-44	21.6%	21.0%
45-54	20.3%	21.1%
55-64	13.3%	13.8%
65+	13.7%	13.7%

Gender	Population	Sample
Male	49.9%	50.8%
Female	50.1%	49.2%

Married with Children	
Population	Sample
23.4%	24.2%

Type of Residence	
Single Family detached home	72.1%
Apartment, condo, or town house	18.5%
Mobile/manufactured home	3.1%
Other/Refused	6.3%

Ethnicity	Percent
White/Caucasian	82.4%
Hispanic or Latino	2.2%
Asian American/Pacific Islander	3.9%
Native American	0.5%
African American	1.9%
Other	3.1%
Don't know	0.3%
Refused	5.8%

Live In A High Rise Building	
Yes	1.0%
No	95.0%
Refuse	3.9%

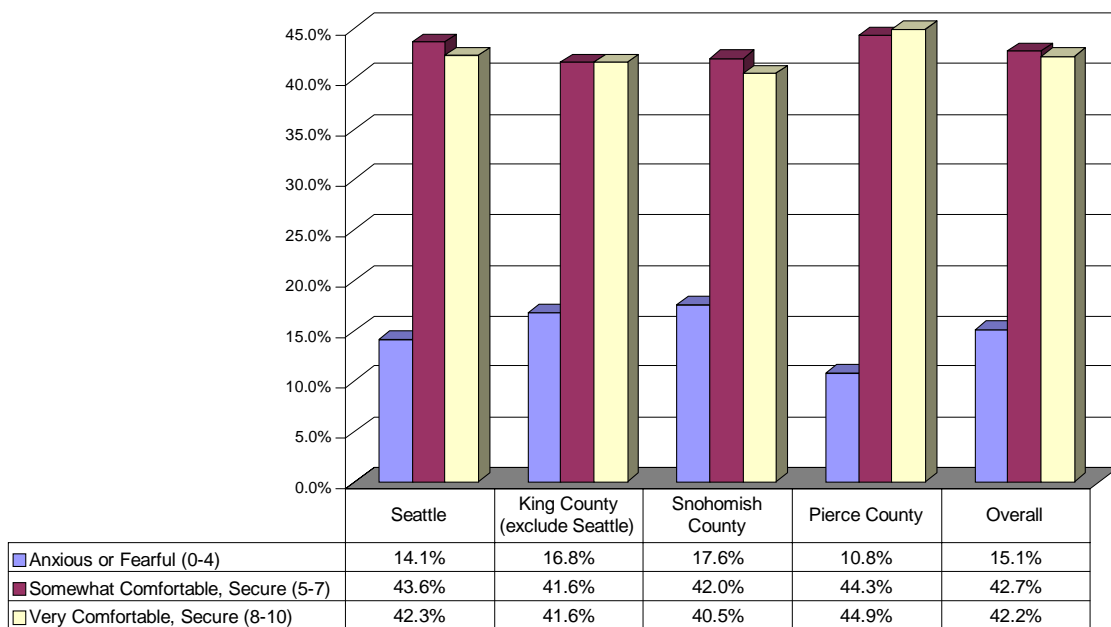
Employment Status	Percent
Employed	58.8%
Not employed, stay at home parent or disabled	20.8%
Retired	19.4%
Refused	0.9%

Type of Work Facility	
Free standing building	50.2%
Work at home or have a home office	11.3%
A high rise office building of several stories	9.0%
A building or structure containing multiple businesses	11.7%
Mostly work outside	10.5%

Overall Level of Comfort of Residents with Emergency or Disaster

In question 1, respondents were asked to rate their overall comfort or anxiety when thinking of a disaster or emergency (event/occurrence), using a scale of 0 to 10, where 0 meant *Extremely anxious, fearful* and 10 meant *Extremely comfortable, secure*. The majority of respondents gave ratings of 5 or greater, indicating that they are at least *Somewhat comfortable*. Moreover, more than 40% within each regional segment reported being *Very comfortable* and 12.2% of the overall sample stated that they were *Extremely comfortable, secure*. The overall average (mean) was 6.71. These findings indicate that tri-county residents are relatively comfortable with the possibility of a major event.

Overall Level of Comfort



Statistical Analysis

With the notable exception of age, statistical testing established that there are no significant differences between demographic (respondents profile) segments. There were significant differences between age segments ($p = .006$). The mean scores of six age segments are described in the following table. Note that the 35-44 segment has the lowest mean score and, hence, is the most anxious. Those in the 18-24 segment also have a relatively high proportion of anxious individuals. It is also important to note, however, that none of the segments falls below the threshold of 5 and so, on the whole, it should be concluded that all respondents are at least relatively comfortable.

Age	Mean
18-24	6.21
25-34	7.01
35-44	6.09
45-54	7.13
55-64	6.84
65 or older	6.82

Qualitative Analysis

Respondents who gave ratings between 0 and 4 (indicating anxiety and fear) and 8-10 (indicating comfort and a sense of security) were asked to explain their answers in their own words.

Those in the *anxious, fearful* segment often cited natural disasters—in particular, earthquakes—as a primary cause of their concern. The typical reasoning behind this concern was the fact that they live on a fault line and believe that because earthquakes have occurred before the probability of one happening again is relatively high:

- *We live in earthquake country, we live on a port.*
- *I know the area is earthquake prone. I'm not sure of the preventative measures taken in the development of the Tulalip casino and how prepared for earthquakes it is. I live nearby.*
- *We had an earthquake a few years ago and that just happened.*
- *Because I'm aware of the dangers of having a earthquake in the area.*
- *I remember the earthquake back in 2001. That scared me to death.*

Some *anxious, fearful* respondents also voiced a sense of hopelessness or a fear of the unknown.

- *Certain things happen and you have to be prepared to deal with it and there's nothing you can do about it. Earthquakes can ruin us from the east side to the west side because we live on a fault.*
- *It's scary not to know what will happen to people when a certain incident occurs like a tornado for example.*
- *We just don't know what could happen. I live near Mt. Rainer so I have that concern, and whatever else may happen.*

It is interesting to note here that the anxiety provoking effect of earthquake fear is seen in other quantitative measures presented in this report and that the threat of terrorist attack was not mentioned as a cause of anxiety or fear. This latter finding is also confirmed by other quantitative measures presented in latter sections of this report.

Respondents who gave ratings indicating that they were not *anxious, fearful* and, indeed, felt *very comfortable, secure* with the possibility of an emergency or disaster often stated that they felt prepared:

- *Because I've been trained to deal with such situations.*
- *I think I am well prepared.*
- *Because we are very prepared for any emergencies.*
- *I think people are prepared now in most disasters, particularly in the private sectors. Many homes are equipped so they won't slide off it's foundation.*
- *I am pretty knowledgeable in preparedness and I feel prepared for a disaster.*

There was also a sense that one should not worry about things that are beyond one's control or that while the possibility of disaster is certainly there, it's not something that the respondent commonly thinks about:

- *Because if something's going to happen it's going to happen and you really can't stop it. If it's your time to go, it's your time to go.*
- *I don't think you have to worry about things you can't control.*
- *Because I'm not a fatalist, I don't wait for things to happen. If they happen, they happen.*
- *I can't change it and its unpreventable.*
- *I don't worry about it as much, I know it could happen but it doesn't rule my life.*
- *I just don't stress over things like that.*

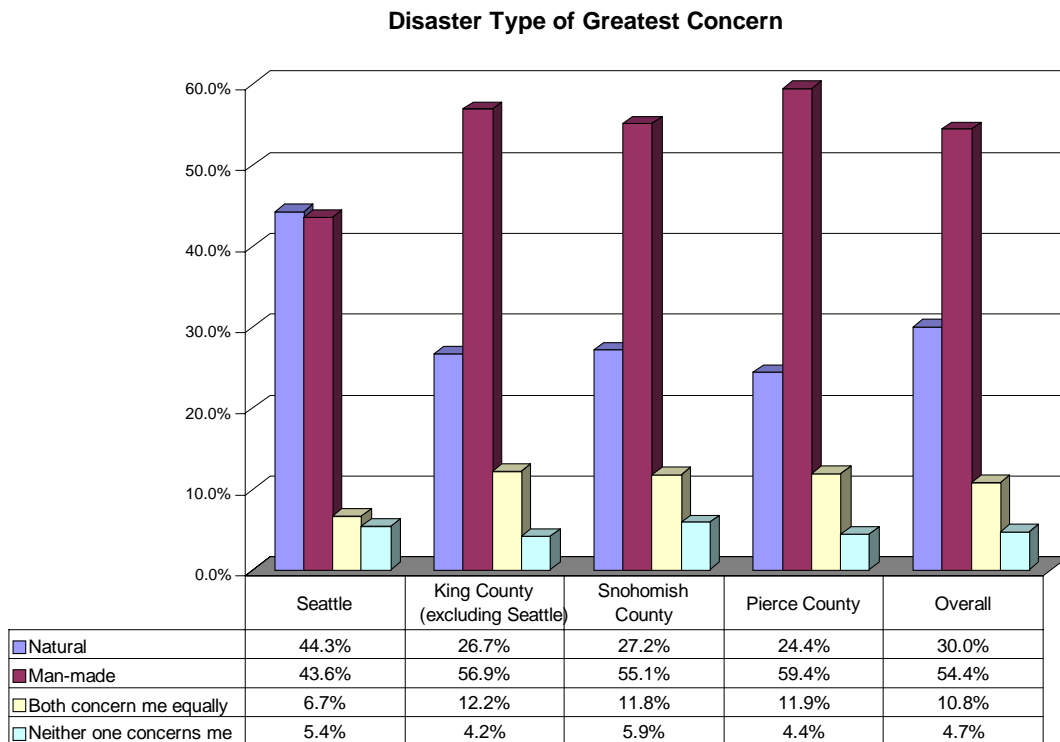
Finally, some respondents cited their faith in God as a reason for not being fearful. The reasoning here was that:

- *Because I trust God and he will protect me and if not it meant my time.*
- *Because God has given me a feeling that lets me know he will watch over me.*
- *We are clear in our faith in God.*
- *I trust God and I think I'm prepared as well as I can be.*

Type of Disaster that Concerns Residents the Most

Question 3 introduced respondents to two types of disasters or emergencies – *natural* or *man-made* – they could experience and asked them to identify which one most concerned them. As the following graph shows, overall the majority of respondents indicated *man-made* events (54.4%) caused them more concern than *natural* occurrences (30.0%). Only a very small percentage reported not being concerned with either type (4.7%).

While these findings do indicate that *man-made* occurrences such as terrorist attacks are of greatest concern, it should be emphasized here and will be evidenced throughout the report that *natural* events such as earthquakes are oftentimes viewed as the “worst” type of event. The reasoning that drives this apparent contradiction is the belief that while terrorist attacks present a “clear and present danger”, they are localized and hence would have less widespread impact than a *natural* event such as an earthquake. For this reason, *man-made* emergencies are those which cause the highest level of concern but *natural* disasters are those which provoke the most fear. This conclusion was substantiated in focus groups and thus is supported by multiple forms of evidence.



Statistical Analysis

There were statistically significant differences between Pierce, King and Snohomish Counties ($p = .011$; Cramer’s $V = .112$). Seattle residents are less concerned about *man-made* disasters than residents in other areas but significantly more concerned about the

possibility of a *natural* disaster. The Cramer's V of .112 is a marginally strong association, suggesting that residence is a cause of variance in responses.

There is also a significant difference between age groups. The 18-24 segment shows a higher level of concern about *man-made* events than the others whereas the 55-64 segment shows greater concern than the others about *natural* occurrences. The Cramer's V of .182 is relatively high, indicating that age is part of the cause of the concern.

	18-24	25-34	35-44	45-54	55-64	65 or older
Natural	11.1%	37.1%	37.3%	40.9%	46.5%	33.3%
Man-made	68.3%	49.5%	48.3%	52.2%	33.8%	48.7%
Both concern me equally	6.3%	11.4%	12.7%	6.1%	14.1%	6.4%
Neither one concerns me	14.3%	1.9%	1.7%	0.9%	5.6%	11.5%
P= .000						
Cramer's V= .182						

Resident Perception of Preparedness for Natural or Man-Made Disaster

Respondents were asked in question 5 which type of disaster or emergency they felt best prepared to deal with and why. The majority of respondents (67.3%) indicated they felt best prepared to deal with a *natural* disaster or emergency when compared to a *man-made* disaster or emergency.

Qualitative Analysis

The most common answers for feeling prepared to handle a *natural* disaster or emergency were the belief that they were prepared for such an event and the experience of having lived through a *natural* disaster.

- *Natural, because I know what to expect.*
- *Natural because we have more facilities and people prepared for that.*
- *Natural because we are more prepared for earthquakes and such because we've been drilled on them continuously.*
- *Natural because we have all steps implemented now.*
- *Natural. I don't think that would be as devastating as man-made; man-made can be fantastically huge, with an earthquake the chances are smaller of being killed.*
- *A neighborhood block emergency plan.*

Few respondents indicated they felt best prepared to deal with a *man-made* disaster or emergency. When respondents did indicate that they were prepared, they often stated that they felt the area that they live in was not a target or that they could be warned and evacuate.

- *Man-made because I know that my location is less threatened than other locations (e.g. Port of Tacoma).*
- *Man-made disasters such as a terrorist attack. I think it's a very slim possibility that it could happen and if it does happen I can just escape.*
- *Man-made; you can evacuate; a natural one, there's no one coming to help you. You have to deal with it.*
- *Man-made because there is more warning, maybe. A chemical spill/fire; a warning of the hazards & to avoid the area.*

A relatively small segment stated that they did not feel prepared to deal with either type of emergency.

- *I don't feel I'm prepared for either one. You don't know if an earthquake is a large one or a small one until after it occurs. Just as an attack, if it is large or small, you don't have any way of knowing before it happens.*
- *I'm not prepared for either.*
- *Both about the same because a disaster is a disaster. A person's preparedness shouldn't matter if it's natural or man-made.*

Resident Perceptions of Worst Possible Type of Emergency

In question 4, respondents were presented with a list of possible disasters or emergencies and asked which one they would consider to be the worst possible for them. As the table below shows, *Earthquakes* are the event most on the minds of tri-county residents. *Other* emergency events mentioned by a considerable portion of the sample were nuclear war and fire.

Note that *Earthquakes* are of particular concern to Seattle residents. In latter sections, it will be shown that residents of Seattle and King County are also less prepared for disasters.

Event	Seattle	King County (excluding Seattle)	Snohomish County	Pierce County	Overall
Earthquake	56.7%	39.2%	43.1%	25.0%	40.5%
Terrorist attack	16.7%	23.9%	19.3%	15.6%	19.6%
Volcanic eruption	2.0%	4.8%	0.9%	18.8%	6.5%
Chemical spill or other type of industrial accident	5.0%	3.3%	9.2%	8.6%	6.0%
Flooding	0.0%	2.9%	2.8%	2.3%	2.1%
Disease outbreak or epidemic	1.7%	2.4%	1.8%	1.6%	1.9%
Tsunami	0.0%	1.9%	1.8%	0.0%	1.1%
Meth lab in neighborhood	0.0%	1.0%	0.9%	1.6%	0.9%
Winter storm	0.0%	0.5%	0.0%	0.0%	0.2%
Other	14.0%	12.4%	13.8%	15.6%	13.3%
Don't know	8.0%	4.8%	4.6%	7.0%	5.7%
None	0.0%	2.9%	1.8%	3.9%	2.3%

Statistical Analysis

There were statistically significant differences between counties ($p = .000$, Cramer's $V = .227$). Pierce County respondents were more likely to state that a *Volcanic eruption* was the worst possible type of emergency (19.0%) while Seattle residents were more likely than those of other areas to cite *Earthquakes* as the worst type of disaster (56.7%).

Respondents who reported being *Very comfortable, secure* were far less likely than those who reported being *Anxious, fearful* to state that *Earthquakes* were their primary concern ($p = .000$; Cramer's $V = .273$). This finding shows that concern about earthquakes, in particular, is a cause of anxiety and that concern about them could be a significant motivator for overall preparedness. It is also important to note that the *Somewhat comfortable* group (those with scores between 5 and 7 on question 1, the comfort scale), was significantly more likely to cite *Terrorist attack* as their primary concern. The statistical associations between comfort and a specific disaster indicate that the possibility of *natural* disaster causes more anxiety than the possibility of terrorist occurrence. This is certainly not to say that residents don't fear terrorism rather than their level of fear is somewhat lower when compared to fear of a widespread *natural* event.

Key Person Perceptions of Worst Possible Type of Emergency

Similar to the findings of the tri-county resident survey, nearly 35% of key person respondents reported they were most concerned with a *natural* disaster. This finding is one of several points of convergence that exist in the comparison of the resident and key person interviews. Thus, there is significant agreement—along a number of different dimensions—between average residents and those in a position of authority in either business or local government.

Note, however, that the distribution of responses is somewhat different with key persons: While a majority of them view *Earthquakes* as the worst possible type of disaster, there are also large proportions who believe that a *Terrorist attack* or *Chemical spill* is the worst type of disaster. The category of *Chemical spill* is the primary area of disconnect between residents and key persons. This may reflect a greater concern with chemical release or explosion among business people and government officials. Overall, those in a position of authority within the tri-county area appear to be considerably more concerned about *man-made* disasters than average residents.

Key Person Worst Emergency	
Event	Overall
Earthquake	34.8%
Terrorist attack	21.7%
Chemical release or explosion	26.1%
Disease outbreak or epidemic	4.3%
Volcanic eruption	4.3%
Other	8.7%

Resident Frequency of Engaging on Basic Preparation Activities

In question 12 of the resident survey, respondents were asked about what preparedness activities they had implemented or dedicated to preparedness. Over 90% of the respondents surveyed indicated having performed at least one activity. When asked specifically which activities they had completed, most respondents indicated they had *Gathered home supplies* (75.6%), created an *Escape route at home* (65.6%) and/or developed a *Household communication plan* (52.3%). The implementation of a *Workplace escape route* was the least frequently cited activity.

Preparedness Activities	
Have gathered home supplies such as water, food and blankets	75.6%
Have a home escape route	65.6%
Have a household communication plan	52.3%
Have secured household items from falling	47.9%
Have an workplace escape route	38.8%

Note: Percentages do not sum to 100% due to multiple responses possible for each respondent.

Statistical Analysis

There were no statistically significant differences between regions in the proportion of residents who engaged in the latter three behaviors described in the table above. However, it is clear that Pierce and Snohomish Counties have higher proportions of residents who have gathered home supplies for their preparedness than those who reside in King County ($p = .000$). This is consistent with other findings presented in this report which show that King County residents are less prepared than residents of Pierce and Snohomish Counties.

	Seattle	King County (excluding Seattle)	Snohomish	Pierce
Did Not gather household supplies	36.9%	42.7%	20.6%	26.7%
Did Gather household supplies	63.1%	57.3%	79.4%	73.3%

Resident Preparedness Analysis-- Ability to Shelter in Place

Residents were asked in question 6 which of a list of behaviors they have done in their household in an effort to be prepared to *shelter in place* in the event of an emergency or disaster. Each response had a pre-assigned value between 1 and 3 established by OEM staff. Activities with a 1 are considered to be consistent with a low level of preparedness while those with a 2 are associated with a mid-level of preparedness and those with a 3 are indicative of a high level of preparedness. Note that the activities with high index values are also low incidence behaviors and the more common activities are associated with lower index scores.

To benchmark the degree to which area residents are prepared to *shelter in place*, the values were integrated into a scoring system that allowed each respondent to be ranked along a preparedness continuum. The maximum score was 18. The highest score any survey respondent attained was 12. Thus, no one engaged in all of the following behaviors.

OEM Value	Preparedness Activity for "Sheltering in Place"	% of Sample
1	Know how to turn off utilities	71.8%
1	Taken a class for training on first aid, CPR or disaster preparation	66.5%
2	Have out of area contact for all household members to contact when separated	57.0%
1	Developed a household escape plan	53.5%
2	Discussed disaster or emergency preparedness with household members	53.4%
2	Have secured household objects from falling	43.1%
3	Have designated a particular room in the dwelling to stay in during a disaster or emergency	19.9%
3	Have an accessible household "remaining in place" supply kit containing water, food, radio and personal need items	23.6%
3	Have an All Hazard Tone Alert radio	9.9%

The following table illustrates the proportion of the overall sample that fall within each of the three segments. A majority can be considered to be at a moderate level of readiness.

Level of Preparedness -Sheltering in Place	Percent
Low Level of Preparedness (0-4)	25.3%
Mid Level of Preparedness (5-8)	55.8%
High Level of Preparedness (9-12)	18.9%

The degree of *sheltering in place* preparation varies geographically. The following table describes the average (mean) OEM scores of the four regions that were compared in the analysis. Analysis of Variance (i.e., ANOVA) established that there are statistically significant differences between the areas ($p = .011$). These data also indicate that Seattle and King County residents are significantly *less* prepared to *shelter in place* than residents of Pierce and Snohomish Counties.

Residents by Region	OEM Mean
Seattle	5.82
King County (excluding Seattle)	6.44
Pierce County	6.49
Snohomish County	6.86
Overall	6.40

There are also statistically significant differences in the level of actual preparedness to *shelter in place* between age segments ($p = .000$). Note that respondents who are below 34 years of age have engaged in fewer preparation activities than those in higher age segments.

Age	OEM Mean
18-24	5.16
25-34	5.79
35-44	6.25
45-54	7.27
55-64	6.94
65 or older	6.70

There are no statistically significant differences in preparedness between men and women or those who live in various types of dwellings.

Preparedness Analysis—Number of Days Resident can Shelter in Place

In question 8, respondents were asked how many days they could *shelter in place* at their home without assistance with water, food, or basic needs. The vast majority (90.1%) reported that they could *shelter in place* for more than three days and most said they could *shelter in place* for a full week without assistance. The mean number of days that respondents stated they could *shelter in place* was 9.18 and the median was 7. Statistically speaking, the median is the superior measure of central tendency in this situation as it is less a product of “outliers” or abnormally high estimates. Note that at 14 days the proportion of residents who are still able to sustain themselves drops dramatically to 12.1%.

Number of days	Percent
0-2	9.9%
3-7	61.2%
8-14	16.8%
15-21	3.8%
22-30	5.9%
31+	2.4%

Statistical Analysis

Analysis of Variance established there are statistically significant differences between regions ($p=.000$). Consistent with other measures described in this report, King County residents and, in particular, Seattle residents are less prepared than the residents of Pierce and Snohomish Counties. Note, however that all of the means are well above the critical three day threshold.

Residents by Region	Average (mean) number of days
Seattle	6.75
King County(excluding Seattle)	8.35
Snohomish County	11.05
Pierce County	11.42

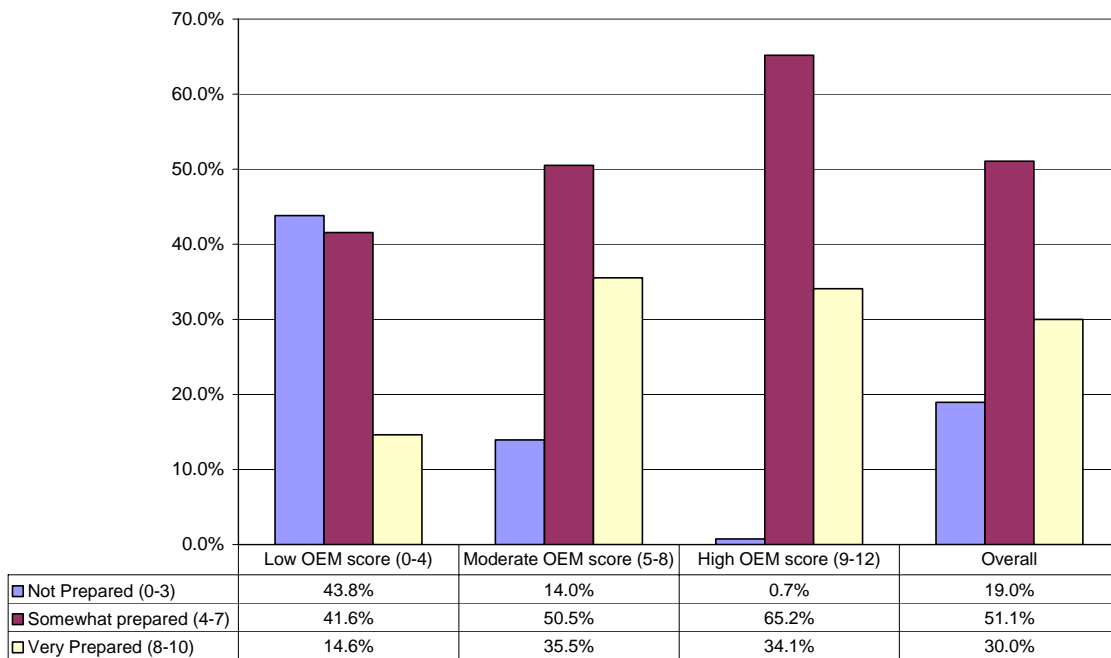
While there were no statistically significant differences between men and women or those with or without dependent children, there were differences between age segments ($p=.023$). Consistent with other measures, younger residents appear to be less prepared.

Age	Average (mean) number of days
18-24	9.49
25-34	7.33
35-44	7.95
45-54	8.38
55-64	11.93
65 or older	10.93

Preparedness Analysis-- Perception of the Ability to Shelter in Place

Analysis of question 7 and the shelter-in-place benchmark shows a strong statistical relationship between the perception of being prepared (listed vertically) and the degree to which one is actually prepared (shown horizontally) to *shelter in place* at home in the event of a disaster or emergency. Note that a majority of those in the high preparedness condition (i.e., those who have engaged in a variety of preparation activities) perceive themselves to be moderately prepared. Given the fact that the OEM benchmark scores in the highly prepared condition are between 9 and 12 (and do not reach the high score of 18) it can be concluded that the attitudinal measure is in line with the behavioral index measure. The relationship between attitudes and behavior can also be observed in the low and mid segments of the model. This is important as it shows that a majority of perceptions are consistent with reality on the question of preparedness.

Relationship Between the Perception of Preparedness and the Degree to Which Residents are Truly Prepared to Shelter in Place



Statistical Analysis

The Pearson correlation coefficient of .315 is highly significant (p= .000) and shows a relatively strong positive linear relationship between engaging in preparedness activities and the perception of being prepared. The Chi Square test was also used as an alternate measure and showed a clear difference between segments (p= .000) and the Measure of Association (Cramer's V) is also quite high at .284.

Preparedness Analysis-- Ability to Evacuate

Question 9 presented respondents with a list of preparedness actions taken in planning for evacuating from their dwelling within 15 minutes of receiving such a command. The most frequent answers included having water and snack food set aside (69.7%) and having set aside a small amount of cash (56.6%). Because these preparedness actions may not be associated specifically with disaster preparedness, their pre-assigned OEM value was 1. The three activities that have a value of 3 (indicating that they could be especially important in evacuation preparation) are also among the behaviors that are engaged in by the smallest proportion of tri-county residents.

OEM Value	Preparedness Activity for Evacuation	% of Sample
1	Water and snack food set aside	69.7%
2	Have set aside small amount of cash	56.6%
2	Have grab 'n go kit with pair of eyeglasses, necessary medications, toiletries	39.1%
1	Made photocopy of identification and credit cards	28.6%
3	Pet necessities taken into account	24.8%
2	Prepared a checklist of items to take	21.3%
3	Have grab n' go kit with entertainment items for household members	18.5%
3	Have set aside supplies for special needs of infants or elderly	18.5%

The maximum possible score on the benchmark was 17. However, the highest respondent score was 12. The three preparedness segments are described in the following table.

Level of Preparedness - Evacuation	Percent
Low level of preparedness (0-3)	49.2%
Mid level of preparedness (4-8)	34.1%
High level of preparedness (9-12)	16.8%

Here again, Seattle and King County residents have average preparedness scores that are lower than those in Pierce and Snohomish Counties. The P value of .026 makes it clear that the difference between means is sufficiently high to be relied upon.

Residents by Region	OEM Mean
Seattle	3.50
King County(excluding Seattle)	3.92
Snohomish County	4.85
Pierce County	4.88
Overall	4.22
P= .002	

While there were no statistically significant differences between age groups, there was a difference in the preparedness levels of men and women. Overall, men report having engaged in more preparedness activities than women.

Gender	OEM Mean
Male	4.51
Female	3.90
P= .039	

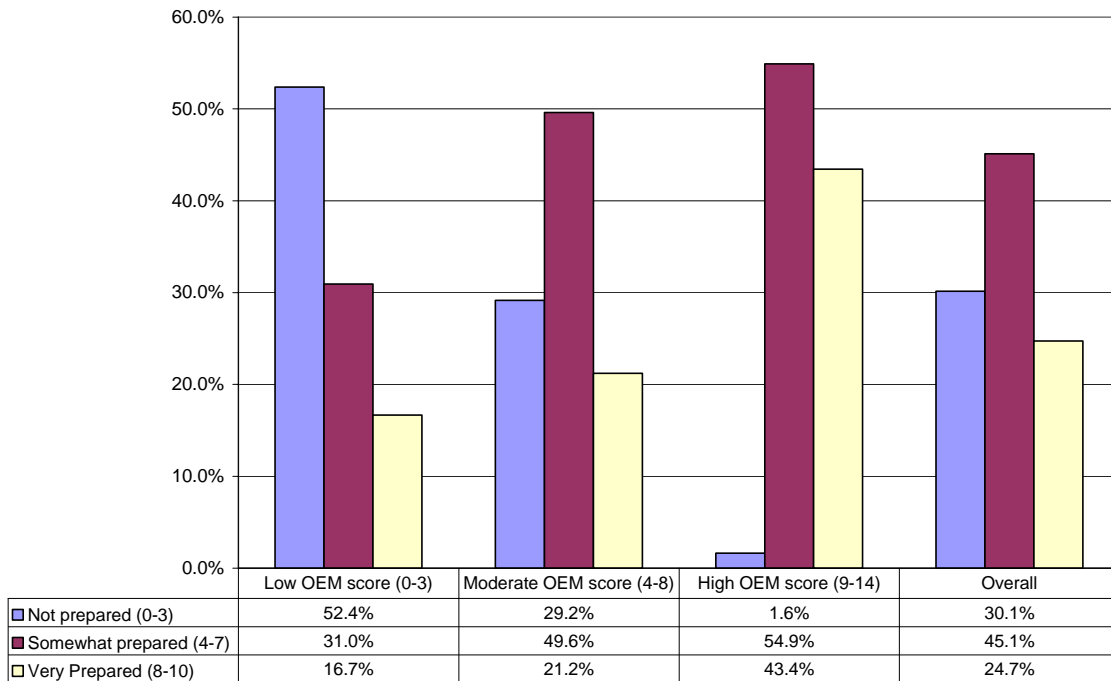
Qualitative Analysis

The *evacuation* and *shelter in place* mean OEM scores suggest that residents are better prepared to *shelter in place*. Moreover, the findings of the focus groups also support the conclusion that residents are better prepared to *shelter in place*. It must be emphasized however, that this comparison appears to be valid only when considering situations in which one is at home. The comparison does not generalize to workplace preparedness.

Preparedness Analysis-- Perception of the Ability to Evacuate

Respondents were asked in question 10 how they would rate their level of preparation if told to evacuate within 15 minutes. Using a 0-10 scale where 0 is *Not at all prepared* and 10 is *Extremely well prepared*, most residents (69.8%) felt that they were at least *Somewhat prepared*. The average rating was a 5.29, indicating a moderate level of perceived preparedness. The chart below shows a strong linear relationship between perceptions (listed vertically) and behaviors (shown horizontally) suggesting that the latter is driving the former. Respondents with the highest OEM benchmark scores show the higher level of perceived preparedness.

Relationship Between Perception of Preparedness and Ability to Evacuate



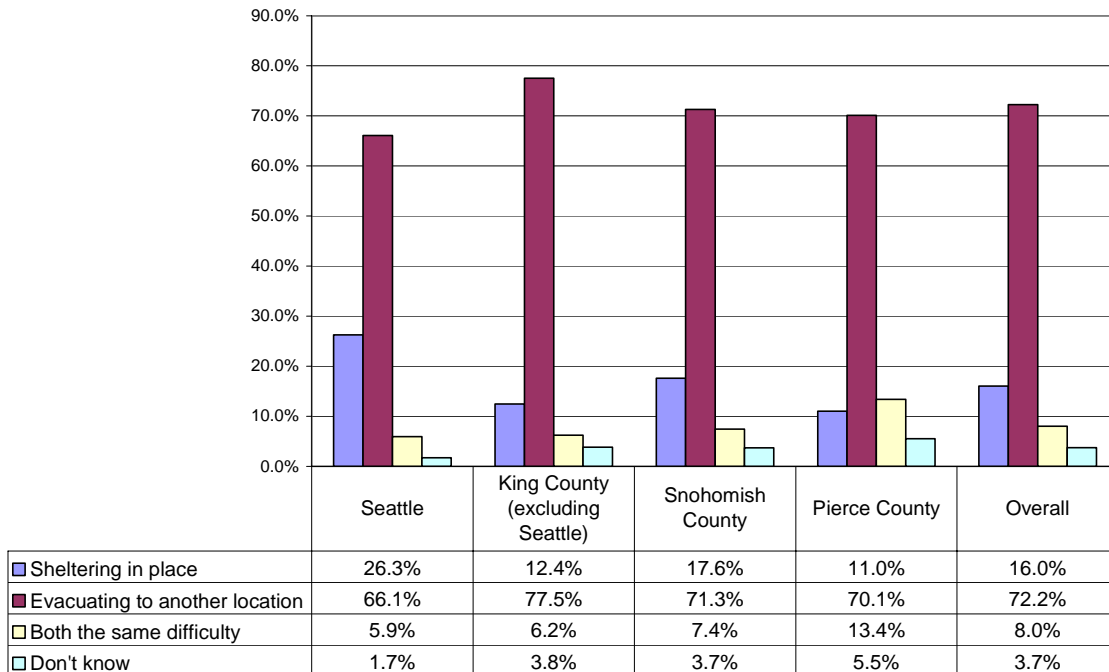
Statistical Analysis

The difference in mean perception scores between the evacuation preparedness segments is highly significant ($p=.000$) and the relatively high level of association between the behavioral benchmark and perception measures (Cramer's $V= .322$) is an indication that evacuation preparedness behavior is causing the perception of being well-prepared. The relationship between measures is also seen in the Pearson correlation measure which is relatively high (Pearson= $.390$) and statistically significant ($p= .000$). Responses to the perceived preparedness question were also segmented by county. The average (mean) rating was a 5.16. The Analysis of Variance test (i.e., ANOVA) established that the within-region variance exceeds between-region variance and, therefore, it cannot be concluded that there is a statistically significant difference between regions.

Perception of Greatest Difficulty – Sheltering in Place or Evacuating

As the graph beneath shows, when respondents were presented with the two basic types of responses to disaster or emergency situations, the majority believed *Evacuating to another location* (72.2%) was the most difficult. Relatively few had no opinion. These results suggest that tri-county residents would be receptive to information about evacuation procedures and locations as evacuation is clearly an area of concern.

"Which would present the greatest difficulty for you"



Statistical Analysis

Differences between regions were statistically significant ($p=.004$) but the level of association was relatively small (Cramer's $V= .133$), indicating that location does not explain much variance in the perception. While there were no statistically significant differences between men and women, there were clear statistical differences between age segments ($p= .000$). The difference is non-linear and probably the product of situational or lifestyle factors associated with the age segments.

	18-24	25-34	35-44	45-54	55-64	65+
Sheltering in place	28.1%	30.3%	7.1%	8.0%	10.8%	18.9%
Evacuating to another location	67.2%	62.6%	83.9%	74.3%	78.4%	66.2%
Both the same difficulty	4.7%	4.0%	7.1%	10.6%	6.8%	12.2%
Don't know	0.0%	3.0%	1.8%	7.1%	4.1%	2.7%

Preparedness Analysis—Key Person Perception of Most Difficult Emergency Situation

As indicated in the table below, when key person respondents were presented with the types of responses to disaster or emergency situations -- *shelter in place* or *evacuation* - the majority of these respondents considered *evacuating to another location* (39.1%) to be the somewhat more difficult response when compared to *sheltering in place* (30.4%). A substantial percentage of key person respondents felt *both* responses would be difficult for them.

Key Person Most Difficult Emergency	
Situation	Overall
Sheltering in place	30.4%
Evacuating to another location	39.1%
Both the same difficulty	26.1%
Don't know	4.3%

Preparedness Analysis-- Workplace Emergency Preparedness

Question 16 presented respondents with a list of workplace preparedness activities. As described in the table below, the majority of respondents “Discussed what to do in the event of a fire or earthquake” (73.6.4%) while relatively few (13.9%) said that they did not have any “Specific plan in place to deal with emergencies”. More than half (56.2%) of respondents indicated their employers have “Assigned employees and co-workers responsibilities” while 56.2% “Practiced emergency drills on specific procedures for emergencies such as drop, cover and hold during an earthquake”.

OEM Value	Workplace Preparedness Activity	% of Sample
2	Discussed what to do in the event of a fire or earthquake	73.6%
3	Employees and co-workers have been assigned responsibilities	56.2%
3	Practiced drills on specific procedures for emergencies such as drop, cover, and hold during an earthquake	56.2%
2	Dedicated emergency flashlights, batteries, and radio	44.3%
3	Dedicated provisions such as water, food, and blankets	36.9%
1	Instructed on exit routes from work area to outside building	36.2%
2	Heavy objects have been secured	23.8%
-1	My place of work does not have a specific plan for dealing with emergencies	13.9%

The three preparedness levels are described in the following table. Note that the response “My workplace does not have a specific plan for dealing with emergencies” was assigned a negative value (-1). This determination was made based on the reasoning that a workplace can have the supplies needed to deal with emergency or disaster but without a plan the chaos of the moment or a worker’s lack of knowledge about where to go to get supplies can cancel out the effect of having engaged in other preparedness activities. Note, too, that the range of the low preparedness segment is considerably smaller than *evacuate* and *shelter in place* low preparation segments. The category includes only those with a score of -1 or 0. The maximum possible score was 15 but the highest score any respondent received was 13.

Level of Preparedness - Workplace	OEM Mean
Low level of preparedness (-1-0)	22.5%
Mid level of preparedness (1-8)	36.8%
High level of preparedness (9-13)	40.7%

The table below describes the average (mean) scores for each of the four sub-regions compared in the study. The differences are statistically significant ($p = .008$). Observe that the OEM scores for Seattle and King County residents are significantly lower than those in Snohomish and Pierce Counties. This is consistent with the comparison of mean scores on the other two preparedness benchmarks measuring preparedness to *shelter in place* or *evacuate*. Thus, it is clear that Seattle and King County residents view their workplaces as less prepared to address disaster than those in Pierce and Snohomish Counties.

Residents by Region	OEM Mean*
Seattle	5.59
King County (excluding Seattle)	5.79
Snohomish County	7.27
Pierce County	7.96
Overall	6.49
P = .008	

*OEM mean scores are tabulations based on respondents' household locale which is not always the same locale as their workplace.

There is also a significant difference between age segments that is consistent with that seen in the comparison of *shelter in place* preparedness scores. However, the effect here is much more pronounced. The 18-24 segment has a much lower OEM mean score than the other segments. There may be a "seniority effect" at work here. Seniority (both in terms of age and responsibility within a company) may be the cause of difference between age segments.

Age	OEM Mean
18-24	3.36
25-34	6.13
35-44	6.96
45-54	6.97
55-64	7.23
65 or older	8.16
P = .004	

Analysis of Variance, moreover, revealed that there is a significant difference between men and women in the level of work place preparedness. As a group, women have taken more actions to prepare for workplace disaster.

Gender	OEM Mean
Male	5.92
Female	7.27
P= .018	

It can be detected as well that there are significant differences how respondents rate workplace preparedness among workplace settings. Individuals who “Work at home” have undertaken the fewest preparations along with those who “Mostly work outdoors” (e.g., the trades) who also report low levels of preparedness. Respondents working in more complex settings – “High-rise office building” and “Manufacturing plants” have a greater sense of workplace preparedness.

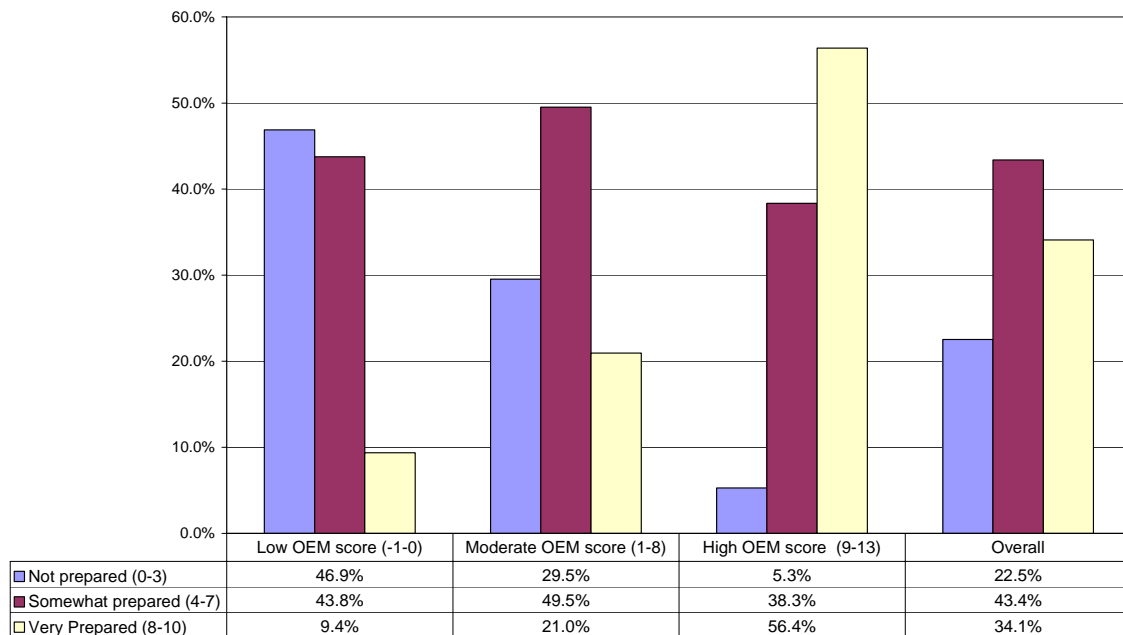
Type of work facility	OEM Mean
Work at home	3.13
Mostly work outside, not in a building	4.46
Free standing building	6.74
A building containing multiple businesses	6.87
A high-rise office building	7.90
A manufacturing plant	10.28
P= .000	

Preparedness Analysis-- Perception of Workplace Preparedness

In question 17, respondents were asked to rate the degree to which they felt prepared, while at the workplace, for specific *man-made* emergencies such as a *Chemical spill* or *Terrorist act* on a scale of 0-10 with 0 being *Not at all prepared* and 10 being *Extremely well prepared*. The majority (77.5%) indicated that they feel their workplace is at least somewhat prepared. Consistent with other findings described in this report, those who work in Snohomish and Pierce Counties feel significantly more prepared than those in King County ($p = .000$).

The chart below illustrates the level of perceived preparedness (Q17) within each of the three behavioral benchmark segments (Q16). As was the case with the other two comparisons of perception and behavior, there is a strong linear relationship between the perception of preparedness (listed vertically) and the degree to which one is truly prepared (shown horizontally). The difference between preparedness segments is statistically significant ($p = .000$) and the relatively high level of association between the measures (Cramer's $V = .351$) indicates that engaging in preparedness activities makes one feel prepared.

Relationship Between Perception of Preparedness and Actual Workplace Preparedness



Key Person Preparedness Analysis-- Perception of Workplace Preparedness

When key person respondents were asked about their perceptions of workplace preparedness, the majority indicated their workplace had a high level of preparedness (60.9%) compared to resident respondents, 34.1% of who consider their workplace to be highly prepared. The difference in perceived preparedness is likely a product of the fact that many of the key person respondents are government employees. The findings of the focus groups made it quite apparent that government employees view their workplaces as being more prepared than those in the private sector. Thus, the difference between measures is attributable to sampling and not a true disconnect between the perceptions of average residents and those in authority positions. Note that a majority of residents and key persons believe that their workplace is at least somewhat prepared.

Key Person Workplace Preparedness	
Perception of Preparedness - Remaining in Place	Percent
Not Prepared (0-4)	8.7%
Somewhat Prepared (5-7)	30.4%
Very Prepared (8-10)	60.9%

Key Person Preparedness Analysis—Perception of Ability to Shelter in Place at the Workplace

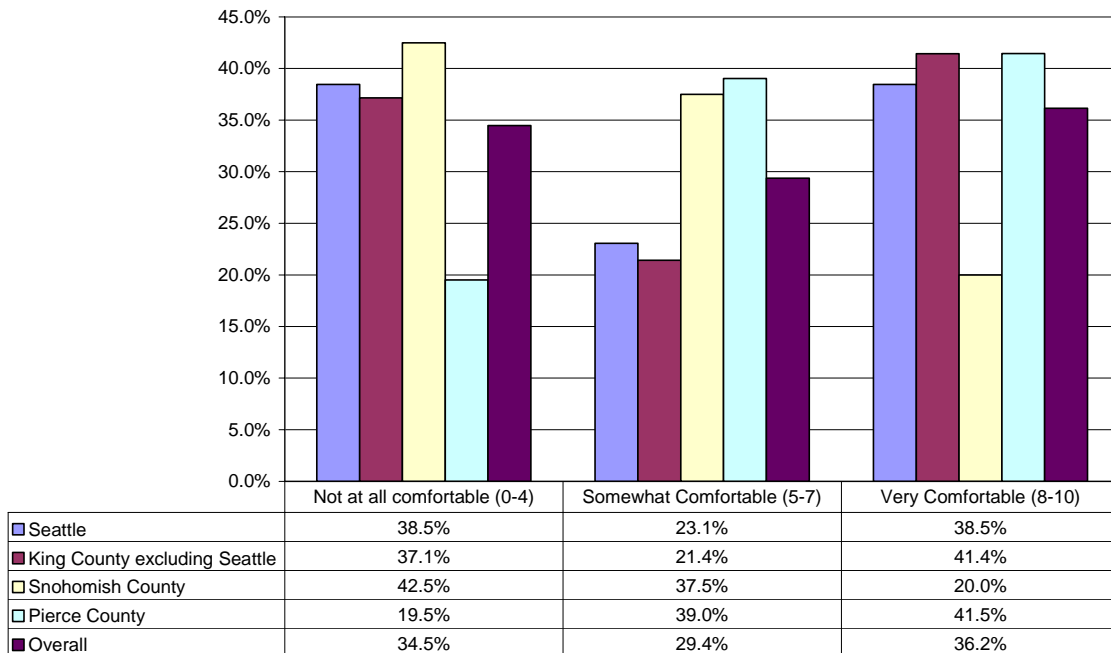
In key person interviews, respondents were asked to rate the degree to which they felt prepared to *shelter in place* at the workplace. The majority gave ratings between 5 and 7, indicating that they feel moderately prepared. The distribution of responses is similar to that seen in the preceding section on residents. This indicates that typical residents and those in a position of authority have similar perception about the ability to shelter in place.

Key Person Preparedness - Sheltering in Place at Workplace	Percent
Low Level of Preparedness (0-4)	9.1%
Mid Level of Preparedness (5-7)	50.0%
High Level of Preparedness (8-10)	40.9%

Comfort Level with Child Remaining at School during an Emergency

Respondents with children (28.3%) were asked to rate their comfort level with leaving children at school between 24 and 72 hours in the event of an emergency. On a scale of 0 to 10 where 0 is *Not at all comfortable* and 10 meant *Extremely comfortable*, the distribution showed little variance between the scale's ends. The mean rating was 5.60 and the median was 6.0, indicating that responses are skewed slightly to the high end of the scale.

Comfort with children remaining at school for 24-72 hours hours due to emergency or disaster



Statistical Analysis

An Analysis of Variance test revealed that there were no significant differences between the mean scores of the four regions but men were significantly more comfortable with their children remaining at school in a disaster ($p = .015$) while parents between 18 and 34 were significantly less comfortable with the idea than those in higher age segments ($p = .014$), perhaps because they have younger children.

Emergency Preparedness at Child's School

Parents were asked what types of emergency preparedness they were aware had taken place in their child's school. They frequently cited *Fire drills* (59.1%) and *Evacuation procedures* (49.3%). In what may be a bit of a surprise, nearly a quarter (24.5%) of the respondents surveyed *don't know* anything about preparedness activities occurring in the school. There are statistically no significant differences between regions in the proportion of parents that report their children engaged in one or more of the three specified activities.

Workplace Preparedness	
Evacuation procedures	49.3%
Fire drills	59.1%
Drop, cover and hold earthquake drills	47.8%
Other	42.7%
Don't know	24.5%

Note: Percentages do not sum to 100%
because many respondents provided more than one response

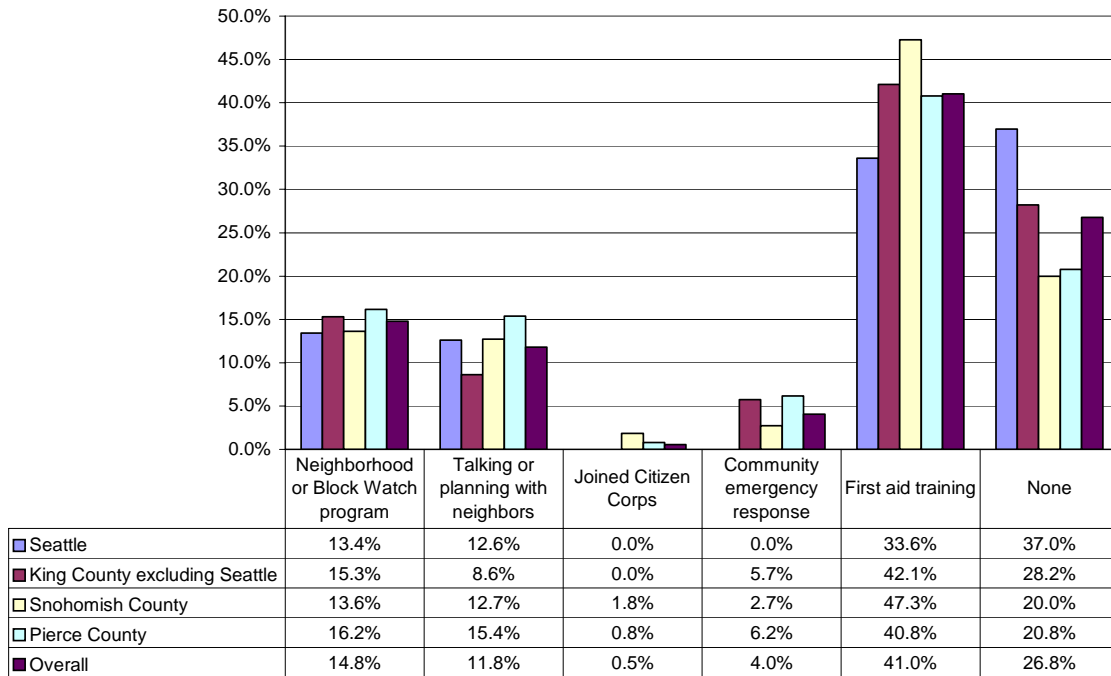
Frequently cited *other* responses included preparation kits/supplies and lock down drills/procedures.

Community Disaster Preparedness Participation

Among those that have engaged in preparedness activities, many cited *First aid training* as the activity they engaged in. This is an action often driven at least in part by concerns other than preparedness.

On a related note, the focus groups established that while *block watch* groups and *talking with neighbors* are desired by many residents, they have a difficult time initiating such discussions because they feel disconnected from their communities.

Actions Taken by Residents to Prepare for Disaster



Statistical Analysis

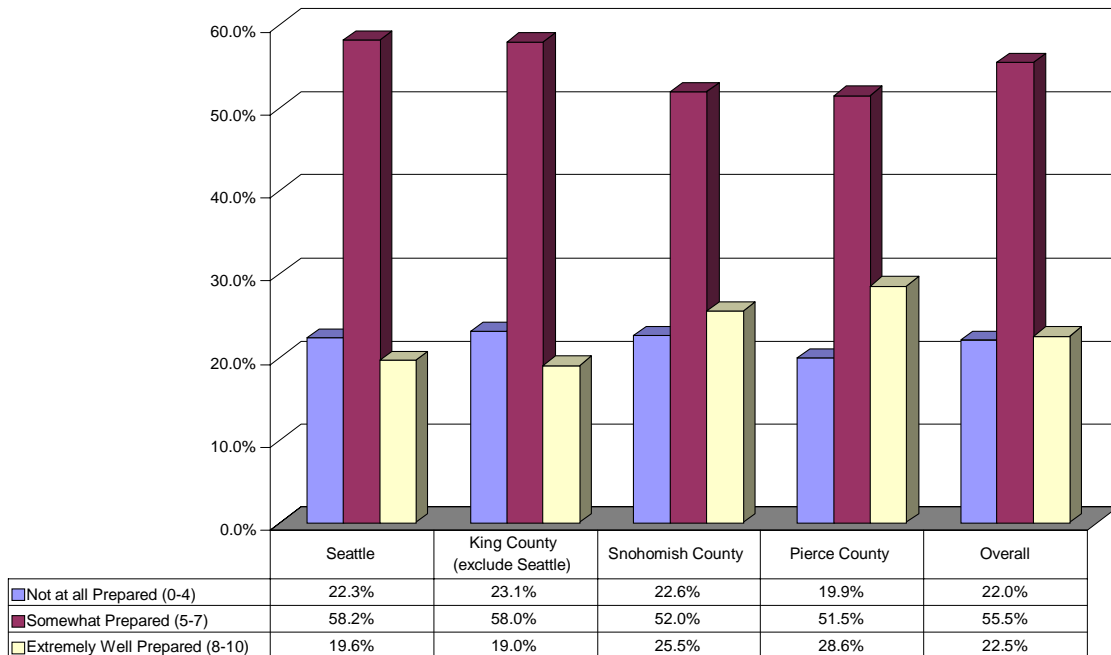
The differences between regions were statistically significant ($p=.018$). Note that King County residents and, in particular, Seattle residents were more likely than those in Snohomish and Pierce Counties to report that they had not engaged in any preparedness activities.

Respondents with children were significantly *less* likely to report that they had done nothing to prepare ($p= .034$) and men were significantly *more* likely to report that they had engaged in at least one preparation activity ($p= .002$). These findings suggest that fathers should be recruited in disaster preparation activities and education efforts.

Perceived County Preparedness Beyond Police and Fire Services

Most respondents (58%) agreed their county was *Somewhat prepared* to deal with disasters and emergencies beyond basic police and fire services (57.0%). However, only 22.5% gave ratings between 8 and 10, indicating that few feel that their county is well prepared. The mean rating was 5.87. The differences in average (mean) scores between regions is statistically non-significant. Clearly a majority of area residents believe that their county is *Somewhat prepared* for disaster.

Perception of home county preparedness beyond basic services such as fire and police



Key Person Perceptions of Community Disaster Preparedness

When key person respondents were asked for which emergency type they believed their community was best prepared to deal, not one respondent indicated a *man-made* occurrence. Nearly 9 in 10 respondents felt their community was best equipped to handle a *natural disaster* (87.0%). This is consistent with findings from the resident survey, which shows most resident respondents (67.3%) felt best prepared to deal with a *natural* event compared to one *man-made*. A small number of key person respondents (4.3%) were not able to determine which type of disaster or emergency they sensed their community was best prepared to confront.

Key Person Community Preparedness	
Emergency Situation	Percent
Man-Made	0.0%
Natural	87.0%
Both equally	8.7%
Don't know	4.3%

Awareness of Community, Neighborhood, or Church Preparedness Activities

Respondents were asked what actions had been taken by their community, neighborhood, or church for either a *natural* event or *man-made* occurrence. Most respondents indicated they were not aware of any activity among these groups.

The following comments were made by respondents:

Community

- *The community has done a lot of talking but I don't know if they have come up with any specific plans.*
- *I know the firefighters and emergency medical technicians have training in helping in disaster emergencies and evacuating procedures.*
- *Things in our community such as providing temporary shelter and food.*
- *A block party that discusses emergencies and passed out different types of literature listing out security procedures. They handed out newsletters on procedures for certain emergencies and what specific steps to take.*
- *Our community has the certified program called CERT. It's an acronym for community certified, with firemen and police training.*

Neighborhood

- *Our local fire department offers hand outs on safety in the home.*
- *Meetings in our neighborhood and information flyers passed out that tell you how to be prepared.*
- *Our apartment community is in the process of developing a preparedness program.*
- *We have a phone tree from neighborhood to neighborhood.*
- *There's a block safety group being developed in our neighborhood where they teach us to prepare for natural disasters*

Church

- *Our church had an evacuation drill last week.*
- *Our Church has a big room of things put aside for emergencies.*
- *Church has a supply of water and a few other things that people would need, so people could come there.*
- *Church. They have escape routes.*
- *Our church is an official Red Cross shelter.*

Type of Information that Would Make Respondent Feel Prepared

In question 22, survey participants were queried about the form of preparedness information that would help them ready their households for dealing with a major event. OEM program managers cite supplies and a communication plan as two key elements of home preparedness. Among the choices listed, a *Checklist* of inventory items and a *Communication plan form* represented specific types of assistance. All other choices examined potential channels for communication.

Analysis of survey and focus group data clearly indicate that *Checklists* are particularly useful to many because they provide clear guidance and are easy to use. The ideal *Checklist* for many would be area-specific both in terms of locale and type of event likely to occur. Printed *Checklists* clearly help people efficiently engage in activities to improve their preparedness. These data also point to the fact communication campaigns should probably utilize multiple channels.

Type of Assistance	Seattle	King County excluding Seattle	Snohomish County	Pierce County	Overall
Checklist for home supplies	10.0%	23.0%	20.2%	22.7%	19.6%
A form to enter names and numbers for a communication plan	1.7%	0.5%	2.8%	3.4%	1.8%
Television messages giving you information	13.3%	16.2%	16.5%	17.6%	15.9%
Radio messages giving you information	5.0%	4.9%	5.5%	6.7%	5.4%
Information in a newspaper	3.3%	5.4%	3.7%	3.4%	4.2%
Information with monthly utility bill	5.8%	6.9%	5.5%	7.6%	6.5%
Information in a neighborhood or community club newsletter	5.8%	2.9%	7.3%	3.4%	4.5%
Other	20.0%	20.6%	13.8%	15.1%	17.9%
Don't know	20.0%	11.8%	16.5%	12.6%	14.7%
None	15.0%	7.8%	8.3%	7.6%	9.4%

Residents over 65 were more likely than those in other age segments to report *none* that they *don't know* what type of assistance would be helpful (p= .000). Respondents between 18 and 24 were more likely than those in other age segments to report that they thought *Television messages* or a *Checklist* of home supplies would be useful.

Type of Communication that Would Make Key Person Satisfied their Community was Prepared

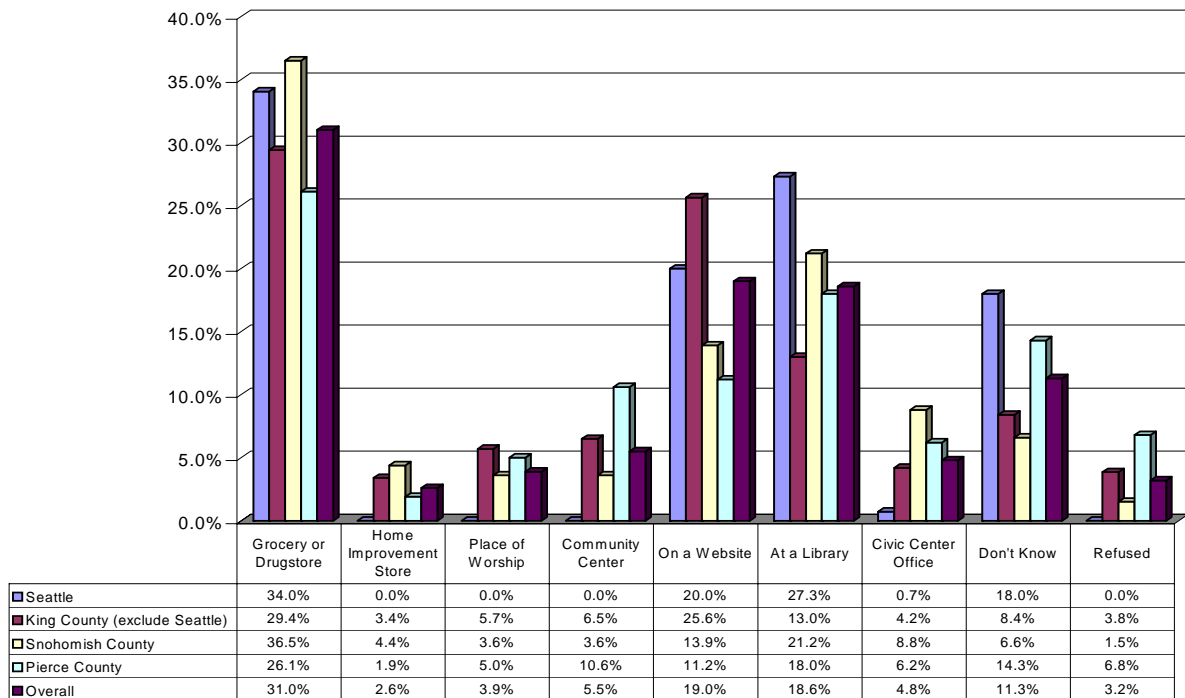
When key person respondents were questioned about the type of communications that would satisfy their desire to make sure the community was prepared, *media reporting* on household preparedness was the most frequent response. These findings may be partly a product of the fact that business leaders are resistant to government oversight or intervention and thus would prefer something less intrusive. Note, as well, that the question does not ask what would help a respondent's business be most prepared but rather what would be of greatest assistance to the community. Again, while respondents often cite advertising as something that they believe could be useful in motivating others, they very rarely state that an advertisement resulted in behavioral change.

Key Person Communication Support	
Type of Information	Percent
Reporting in the news media on household preparedness	47.8%
Messaging from local government emergency management	13.0%
In-person visits by government emergency management	13.0%
Contact with Red Cross	4.3%
Other	13.0%
Don't know/refused	8.7%

Availability of Preparedness Materials and Information

In question 22a, respondents were asked what distribution channels would be most useful to them. *Drug or grocery stores* (31.0%), *libraries* (18.6%) and *websites* (19.0%) were cited with the greatest frequency. Past consumer insight research has shown that magazine racks at checkout stands are prime “real estate” for literature and analysis suggests that this would be an ideal location to place lists and preparation brochures. It is also useful to note that people often go to *websites* and *libraries* when seeking in-depth information. This finding suggests that residents feel that in-depth materials are more useful than those that offer only a cursory review of actions that should be taken to get prepared for disaster. Interestingly, very few respondents felt in availability of the information would be useful at a *civic center* (4.8%), *place of worship* (3.9%), or a *home improvement/hardware store* (2.6%).

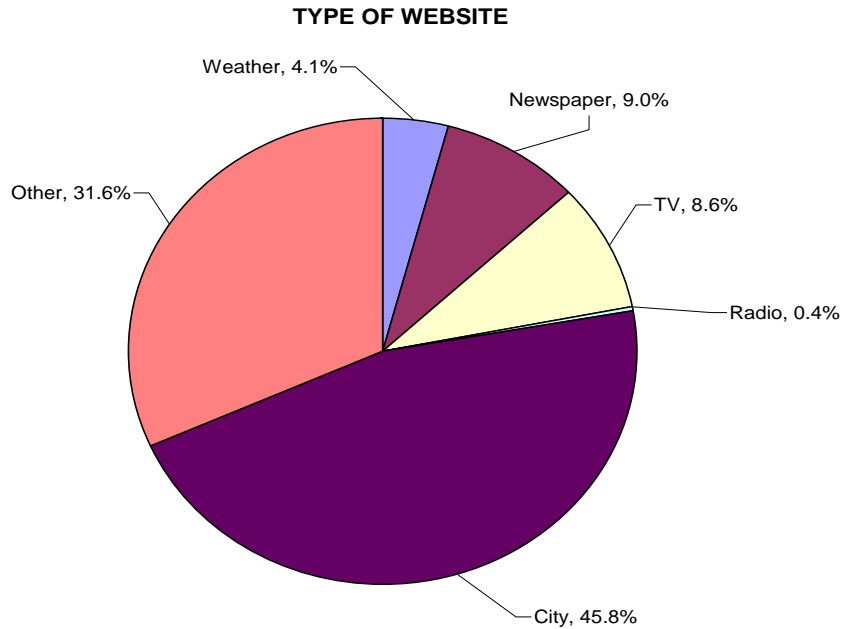
Usefulness of Specific Communication Channels



Statistical Analysis

Statistically significant differences and associations were observed between counties and the availability of preparedness material and information ($p = .000$; Cramer’s $V = .212$). Specifically, respondents from Seattle were more likely to indicate the most useful place for them to obtain preparedness materials was from the *library* (27.3%) or *don’t know* where the best place to find the information would be (18.0%) when compared to respondents from other regions.

Respondents who indicated that a *website* would be the most useful place to get preparedness information (19.0%), were asked what type of website would be ideal. The responses are displayed below.



Statistical Analysis

Respondents who cited *other* type of website most frequently stated that *government* websites would be most useful to them. Men cited *city* and *newspaper* websites significantly more than women ($p = .006$) and the high level of association (Cramer's $V = .413$) indicates that gender is driving the difference. The 18-24 segment was more likely than those in other age groups ($p = .029$) to cite *city* or *other*, which strongly suggests that this demographic believes that *government* websites are the most useful disaster preparation sites

Key Person - Availability of Preparedness Materials and Information

Comparable to findings described earlier in this report, in which key person respondents said that news media reporting on household preparedness would contribute to their satisfaction with community preparedness, key respondents stated that the media was the best way to communicate with the public. After the media, the table below shows that mailing materials with annual business licenses could be useful but that other channels are viewed as having only a minimal effect.

Key Person - Most Helpful Placement of Preparedness Material	
Medium	Percent
Media messages giving information	56.5%
Information with annual business license mailings	13.0%
Information from insurance providers	4.3%
On a website	4.3%
At neighborhood community center	4.3%
At grocery or drugstore	4.3%
At hardware or home improvement store	4.3%
Other	4.3%
Don't know/refused	4.3%

Results of “3 days, 3 ways” Qualitative Concept-Test

Both focus groups were asked to interpret the “3 days, 3 ways” concept and explain [1] what the message meant and [2] whether the message is likely to compel them to become more prepared.



Nearly all top-of-mind reactions stemmed from confusion. These initial reactions are especially important in advertising as most ads receive only a passing glance and typically invite only minimal thought. After some discussion, some respondents were able to ascertain that the message had something to do with preparedness but no one was able to give a clear description of the meaning of the message. Others associated the collateral as a kind of apocalyptic religious message that was designed to suggest they should, as one respondent put it, “repent.” While some respondents did deduce that the message meant that they needed to be prepared for “3 days,” they also stated that such a message would not motivate them to become prepared and that if they had seen the message outside the context of the focus group, they would probably not have known what it meant.

After it became clear that the message was not resonating with respondents, group participants were asked to provide examples of imagery and language that could be used to create a collateral that would compel them to become more prepared. Many respondents reasoned that the key motivator of preparedness is experience with a disaster and thus the collateral should include a picture of disaster or before and after images. For instance, some respondents stated that a photograph of an area before an earthquake or terrorist attack and an image of the area after the event could serve to motivate people to become more prepared. Such images illustrate the reality of disaster and the need to be prepared. Both groups also made it very clear that in order for a message to compel them to become more prepared, it must be specific and provide clear guidance. It is also important that the benefit of preparedness be communicated through the campaign. The “3 days, 3 ways” tagline was, unfortunately, viewed as vague and thus less than compelling.

Furthermore, respondents stated the message would be especially unlikely to result in behavioral (or even attitudinal) change if it were placed on a bus or billboard because the act of driving an automobile makes it difficult to interpret and really consider such signage. At these sites, the message might be observed from a moving vehicle but wouldn't be clear enough to understand and generally not prompt action.

The key findings from the concept test are twofold: First, in order for preparedness materials to resonate with residents they must be specific and assume no knowledge of preparedness. Second, future messages should be based on the findings of research and tested to ensure that public education efforts serve to motivate residents to become more prepared.

Preparedness Promotion and Advertising Recall

In question 23, respondents were asked to give verbatim responses when asked if they were able to recall seeing or hearing any messages on TV, radio, or publications about where to look for information about preparedness, or about activities to prepare their household. Many respondents recalled seeing emergency preparedness advertisements or messages but few could recall specifically what they had learned. These findings clearly show that emergency preparedness messages are not being retained in the long-term memory of those who have been exposed to them.

Television, in general, was the most often cited medium among respondents. Some participants also indicated the newspaper, radio and websites as common places they found information.

Many respondents indicated media outlets as specified below:

Television

- *TV commercials and the local news.*
- *The emergency Broadcast System.*
- *TV, it was on ABC, a follow up with a message about how to be prepared for a Mt. St. Helens disaster.*
- *Something on the news, on TV, after the tsunami hit and after the Nisqually disaster.*
- *Just information from KING 5 News, and actually that's more from their website.*

Newspapers

- *I've seen it in the Seattle Times and the Bellevue paper and Time magazine. Articles I've read after floods.*
- *The Seattle Times, after 9-11 there were several articles.*
- *Shortly after 9/11, there were lists advertised on the Tacoma news tribune newspaper of things you should have stored for your home and in your car in the case of an event.*
- *Our local newspapers - The Gateway*

Radio

- *Yes, I heard it on NPR.*
- *A little bit on the radio mentioning about emergency preparedness.*
- *Talk Radio KIRO 710 AM from that radio station that had a guy that talked about earthquakes. They talked about tsunamis and he's from a King County organization and they study earthquakes.*

Brochures/Direct Mail

- Yes, in school. My college, Cascadia Community College had brochures posted in the halls.
- We have gotten different types of mailings about earthquakes and weather storms.
- I received something in my utility bill.

Websites

- KING-5 website promos. The power company sends out info to customers.
- Channel 5 (KING TV) website; all local TV websites, information available from Red Cross at Puyallup Fair.
- I know I've seen something online but I can't remember the specifics.
- T.V. News channel websites, however you have to join for access and I don't like that. Real Estate Agency gave me a plaque with a checklist of what you should do before, during or after an earthquake.
- I've seen the FEMA website.

None

- I haven't seen or heard anything.
- No, not at all.
- I haven't seen anything.

Preparedness Action Drivers and Motivators

When respondents were given the opportunity to tell about motivators that would “Enable people to take action to prepare for different types of emergencies”, public education and advertising were among the most frequently mentioned. Note, however, that the effect of advertising is confined primarily to attitudes while the focus groups suggest that behavior is driven more by members of one’s social network such as family, friends and colleagues.

Repeated messaging could serve to raise awareness about the importance of preparedness.

Consider the following responses:

- *I think a constant reminder; a commercial with a reminder on TV news.*
- *They should have a lot of publicity on the TV and on the radio.*
- *Education; article in city newsletter, TV spots & programs on public TV.*
- *Suggesting a grab n' go kit with first aid supplies, food and water in it and if they still don't do it, it's their fault and their responsibility.*
- *Probably education through mailings.*
- *More advertising on T.V. and radio to bring more people's attention. Newspaper would probably be the cheapest. Even flyers.*

The resident survey and focus groups both showed that social networks and communities play an important role in motivating preparedness:

- *More neighborhood involvement.*
- *More communication with the neighbors about it through the use of a neighborhood party discussing the differences between different types of disasters.*
- *More information given out at the community level.*
- *Have the neighborhood groups meet more than once a year.*

Many residents also stated that experiencing disaster—especially at the local or personal level— could motivate one to become more prepared. This is consistent with the findings of the focus groups and is a key point in the overall analysis.

- *It's up to people and you can't stimulate them to do it and you can't force them unless they have been through an experience themselves.*
- *Fear such as when an earthquake or fires occur, and then afterwards instruct them in what to do in order to better prepare for that the next time. The terrorist attacks of the 9/11 incident is one that I'm sure we all learned from.*
- *A terrorist attack in Seattle or another major earthquake. A bombing or chemical threat I think would make people fear and take action.*
- *Probably an emergency itself, like an earthquake.*
- *If something would happen first, then people would do something.*

Conclusions

- 1) Overall, a majority of tri-county residents appear to be moderately prepared for disaster. Seattle and King County residents are significantly less prepared than those who live in Snohomish and Pierce counties. Residents of King County between the ages of 18 and 24 are the least prepared segment of the tri-county adult population.
- 2) A majority of residents feel at least somewhat comfortable with the possibility of disaster or emergency. There are three primary causes of this level of relative comfort: First, some respondents report that they feel prepared for disaster or emergency and thus have no reason to fear one. Second, some respondents state that they don't worry about things that they feel are beyond their control. Finally, some residents have the "out of sight, out of mind" perspective in which they reason that they are unconcerned because they simply don't think about disaster.
- 3) Residents are less prepared to *evacuate* than *shelter-in-place*. It is also apparent that residents view evacuating as a situation that would cause them significantly more difficulty than sheltering in place. Thus, both in terms of attitudes and behavior, to *evacuate* poses a greater difficulty than to *shelter in place*. Residents seek area-specific information that will educate them about evacuation routes in their area and gathering points. It seems quite apparent that such information would lead to greater preparedness.
- 4) While residents fear *natural* disasters more than *man-made* events, they are more concerned about the possibility of a *man-made* event such as a *Terrorist attack*. Even though 40.5% of respondents cite *Earthquakes* as "the worst possible type of emergency" and only 19.6% have the same sentiment about a *Terrorist attack*, the research suggests that the threat of *Terrorist attack* is omnipresent but the likelihood of an *Earthquake* occurring seems less so. When asked why they have a greater fear of *natural* disasters, residents often state that they have experienced such emergencies and know the effect they can have. There is also the sense that one can be warned about a *Terrorist attack* and that they impact only a small area so they are less of a threat than *natural* disasters. Government and business leaders have greater concern about a *Chemical spill* than average residents.
- 5) A majority of residents report that they have engaged in some preparation activity but it is apparent that the possibility of disaster is not always what drives these activities. Gathering and storing basic supplies (i.e., water, food, and clothing), developing home escape routes, and creating communication plans are the most common activities.

- 6) While government workers, including teachers, often report that they feel at least moderately well-prepared to deal with disaster when at work, those in the private sector feel less prepared.
- 7) Many respondents and, in particular, parents state that the first thing they would do in a day time emergency is leave their location and go to the child's school or their home. Communication plans are not designed to facilitate staying where one is at the time of the event and it appears that this lack of planning can contribute to congestion and cause adverse effects.
- 8) While many respondents report that they have heard or seen information on disaster preparedness in the media, most are not able to recall what they saw but are more likely to recall where they saw it. This suggests that messaging is not resonating with residents and that the information is not being stored in long-term recall. Moreover, the "3 days, 3 ways" collateral was tested in 2 focus groups and all respondents stated that they did not know what the tagline meant. Such a lack of understanding appears to be a problem in preparedness education efforts.
- 9) While the survey shows that parents are moderately comfortable with their children remaining at school for 24 to 72 hours after an event, analysis suggests that many parents would go to great lengths to be with their children in the hours after a major event. Focus group results suggest that 12 hours is the most time parents would be comfortable being away from their children following an event.
- 10) Many residents state that *checklists* are the form of information which would be most useful. Area specific information that tells residents exactly what they need to be prepared appears to be the ideal educational materials. Comprehensive brochures could be an effective delivery system.
- 11) Residents state that *grocery stores*, *drug stores*, *websites* and *libraries* are the most convenient places to show or display *checklists* and preparedness materials. Checkout stands could be an ideal location for such materials. The preference for *websites* and *libraries* suggests that at least some residents are seeking in-depth information as well as simple *checklists*.
- 12) Community based groups and social networks of family, friends, and colleagues play an important role in motivating preparedness. *Block watch* groups, the *PTA*, *home owners associations*, *churches* and other grass roots organizations are the primary conduit of the type of preparedness information that results in behavioral change (e.g., spending part of the weekend putting together disasters kits and formulating communication plans).

Recommendations for Future Research

- 1) It is clear at this point in the research that increasing the level of preparedness within the population will require that officials learn to harness and leverage the power of small community and neighborhood groups such as “block watch” and the PTA. Such groups represent the core of a social infrastructure of preparedness information. Schools, and especially elementary schools, are also at the heart of a community-based infrastructure that can be leveraged to educate the population about how to become more prepared. The next phase of research should gain a clearer understanding as to how preparedness information flows through social networks as this knowledge will facilitate efforts to effectively engage the groups in a grassroots campaign and make it easier to effectively leverage local community.
- 2) While residents do state that they want to coordinate with their neighbors to become more prepared, they are unsure how to do so and cultural fragmentation makes it difficult for some to connect with others in their community. Block watch groups could be organized to distribute brochures and flyers at the neighborhood level to help organize small gatherings of neighbors. Qualitative “ethnographic” research could be conducted to gain a clearer understanding of how neighborhood groups operate and identify the best way to engage them in efforts to increase preparedness at the local level.
- 3) The short-term and long-term effects of the “3 days, 3 ways” campaign should be measured and alternate concepts should be tested to ensure that efforts to educate the public through advertising are optimally effective.
- 4) Future research could also test brochures and other materials to determine whether they are having the desired effect on residents and if there are ways that effectiveness can be improved.
- 5) Increasing the level of overall preparedness in the workplace will require at least some assistance from business leaders who are in a position to prepare employees for disasters. Future research should be conducted to determine the best way to engage the business community in preparedness efforts.
- 6) Finally, additional tracking studies should be conducted to monitor the level of overall preparedness and ensure that public education efforts are causing the desired effect.

Appendix A—Focus Group Synopsis

The objectives of the focus group was to gain qualitative insight that would contribute to a fuller and more in-depth interpretation of the data that is presented throughout the main body of the report. This synopsis of the focus group findings highlights insight that is especially important to motivating residents to become more prepared for an event.

What have you done to prepare for Disaster or Emergency?

When people engage in activities associated with preparedness it is oftentimes driven by things other than emergency preparedness. For instance, while respondents describe camping gear (e.g., sleeping bags and a portable stove) as part of what they have purchased in an effort to prepare but it is clear that the driver of the purchase is not just preparedness. Significant expenditures such as for a generator or portable cooking set-up are prompted by experience with power interruption caused by some natural event. The following points were made by focus group participants:

- Have clothes in garage, sleeping bag, canned food, area w/ gas stove and comments not a survivalist and anticipates weather extremes, not a science but everyday get ready
- Was going to sell travel trailer then earthquake happened and comments about keeping it and from tornado experience keeps up 1st aid supplies
- Have 24 bottles of water and comments probably unprepared as supply not related to preparedness
- Have an Idaho relative who has been designated as contact and comments that family has grown up dispersed throughout WWA
- Have a flashlight and radio
- Have water and canned food but not in a kit
- Have food for 6 days
- Have Rubbermaid tubs filled with Costco items and sterno and comments grew up when atmosphere charged with Russian bomb scare and stored food, fuel, and boots

Why haven't you prepared?

When respondents are asked why they have not prepared or done more to prepare, they often make statements to the effect that they believe [1] the threat is not imminent or [2] that they do not have the time to get prepared. Responses make it clear that convenience is a major barrier to preparedness.

- Having an attitude that this will never happen to me
- Washington does not have many natural disasters
- Knowing that one event will change your mind
- Experienced ice-storm and comments having a generator, flashlight but haven't put together an actual kit

- Built a new house and wired it for generators – furnace + -- an included a basement
- Time constraint and comments that preparedness is not something that is talked about
- Don't realize the potential situation they would be in without gas and water.

Communication Plans and Ability of People to Work Cooperatively

Respondents spoke about a communication plan in an emergency situation along two dimensions – phone contact and assembling together. Respondents with children were far more likely than those without to report having a communication plan. Like other areas of preparedness, the creation of the plan was not driven exclusively by the desire to be prepared for disaster. For instance, parents have developed communication plans with neighbors to ensure their children have a place to go in the event that they need an adult and the parent is not available. Disaster plans are related to these more common forms of communication planning. It appears that disaster “discourse” occurs within the context of other planning for less serious problems. A primary barrier to communication planning and, more generally, preparing to work cooperatively in disaster is social fragmentation. There is a sense of disconnectedness between many neighbors and in some cases within the family unit that makes it difficult to prepare. Respondents who have good relationships with neighbors appear to be better prepared for disaster. The perception of time constraint is another psychological barrier to preparedness.

- I don't need to plan because my kids are too young so they are with me. My husband just has to get in touch with me.
- I was in Florida when the earthquake occurred and unable to complete my calls to my kids; kids got each other
- My family is fragmented during the day; my kids are at different schools; it's hard to make plans with neighbors when they are in so many places
- Neighbors don't need to know my business
- We are so mobile that it is hard to find common connection
- About neighbors – schools brought parents together
- Schools should adopt neighborhood
- Fire department organizing communities to be self supporting; focus on communities within communities.

How Prepared is the Workplace?

While government employees appear to be well prepared in that they often describe having disaster drills and have clear plans in place to prepare for disaster, those who work in the private sector are far less prepared. It is clear that a primary barrier to plans working effectively within the workplace is the distraction of concern about loved ones, belongings and property. There was some discussion about what routes should be taken between the workplace and home following a large scale emergency.

- Postal employee: drills all the time; everybody is well prepared; can even identify missing person

- Retail stores not geared for anything; fire alarm goes off and there is indecision; believes employees should be trained.
- In a 30 person office and each person has an individual office; I don't know of a plan
- I am a school bus driver and am responsible for the kids but have no provisions on the bus just my radio connection
- Work in Olympia; my workplace is prepared but if I am ordered to leave the workplace getting home could be a long haul if my normal route is unavailable
- City employee; police have kits at work station; not sure about other departments

Community and Neighborhood Planning

Planning within social networks and the neighborhood is something that is appealing to many people but the sense of disconnectedness from their community, combined with the presence of cultural fragmentation sometimes makes planning difficult. The following groups and events were mentioned as things that could facilitate disaster planning

- Block Watch program to initiate conversation; maintain calendared times during the year to update.
- Schools (particularly elementary schools) serve to raise awareness about disaster preparedness by teaching children and sending home literature that encourages parents to get prepared and, in some cases, get involved in local activities and groups.
- PTA as a group that works within and organizes segments of the community.
- Placing flyers on the doors of neighbors to raise awareness about community events and invite people to meetings.
- Small fairs

Type of Information Desired

When respondents were asked what kind of information would be most helpful to them, they consistently stated that the information should be [1] specific and [2] targeted to their area. Area specific evacuation routes and checklists that inform them of exactly what they need in order to be prepared are especially useful. Less specific information such as "3 days, 3days" that is not clear is seen as have very limited utility.

- How suppose to respond when at place of residence.
- Pick-up emergency radio at Wal-Mart.
- TV confusing because Seattle-centric; prefer information from locals and members of social network (e.g., friends, family members and colleagues).
- Outreach from PTA; assume role other than fund-raising.
- Create incentives.
- Flyers on peoples' doors and brochures in the mail.
- Checklists that describe what to do in specific types of events.

Factors that Motivate Preparedness Behavior

When respondents were asked what motivates them to get prepared for a disaster or earthquake, children and past experience in a disaster were the most frequently cited reasons. Having elementary-aged school children seems especially important as it necessitates other types of planning related to disaster planning and put as parents in touch with an organization (the child's school) that engages in planning and drills. The presence of young children is clearer a behavioral driver. Most people who were highly prepared had lived through at least one disaster and it is clear that this experience motivated them to become more prepared.

Preparation Kit Findings

While many respondents did state that they had “stuff” (e.g., food, water and clothing) that could help them survive a disaster, most also stated that they did not have everything in one easy-to-access place within the home. Moreover, only a couple of respondents—a Chief of Police and former Marine— had “grab and go” kits that could be easily transported and used in the event of an evacuation.

Many respondents were interested in acquiring kits but it is clear that the acquisition must be convenient and relatively inexpensive. The kit would be expected to include food, water, a blanket and/or plastic that could be used to create a small temporary shelter and stay warm. Perceptions of acceptable pricing generally varied between \$30.00 and \$100.00. There was also a belief that the poor should be provided with free kits by the government.

Appendix B—Focus Group Moderator’s Outline

Thank you for participating in the focus group this evening. We’re going to talk about disaster planning. That is, how you, your family and others within your social network prepare for a natural or willful disaster, such as a terrorist attack. I want to emphasize that there are no right or wrong answers in this group. Rather, we’re here to be honest within one another about what is, as we all realize, a rather sensitive topic. Ultimately, the group is designed to help us, as a group, come to a better understanding of how average people like you and I think about and prepare for disasters. We’re all equals here.

Let’s start with introductions. I’d like for each person to briefly introduce themselves and tell us what kind of things, if anything, you have set aside or done specifically to prepare for a disaster. I’ll start us off [moderator introduction].

General Preparedness and Barriers to Kit and Communication Plan Adoption

1) Now that we’ve all said what we have done to prepare, I’d like to get sense of whether each of you thinks that you have done everything you need to do in order to be prepared for a disaster. To what degree do you think your actions have adequately prepared you and why? **[probe for associations between specific items, actions or communication planning and a perception that one is highly prepared]**

Okay, now let’s switch gears a bit.

[moderator distributes a list with everything OEM recommends for a disaster kit and communication plan]

Take a look at the list I just gave you. It consists of everything that experts think are essential to be adequately prepared. It’s not exhaustive, just the essential basics. I’d like for each of you to identify items on this list that you did not mention during the introduction and write down things that you did mention which may not be on the list.

2) Why do you think you have not set aside these other items or created communication plans with loved ones to prepare for disaster?

- Barriers to kit adoption
- Reasons that certain kit ingredients were not included
- Barriers to developing a communications plan
- Barriers to developing a mobile (e.g., car kit) plan

Motivations for Becoming Prepared

Now, I'd like for each of you to think of a time in your life in which you have planned for the possibility of something bad happening in the future. This could involve buying healthcare or life insurance or, perhaps, taking actions to make sure that elderly loved ones are sufficiently cared for.

3) What is it that motivated you to prepare for the possibility of something bad happening in the future? **[probe for preparation triggers and language that is associated with being prepared]**

4) What would motivate you to engage in more disaster planning?

5) What would it take to get you to spend part of your weekend putting together a disaster kit with others in your household? **[probe for motivation triggers that could drive more preparation behavior]**

6) Are there certain times of the day, month or year when you feel the plans you have made might not be very effective? **[probe for situational barriers to optimal preparedness such as holidays when guests are in the home or times when child's friends are visiting]**

7) What would make it easier for you to prepare for disaster in these special or unique situations?

Workplace Preparedness

Now I'd like to focus some on disaster preparation in the workplace.

8) Do you think that you and your co-workers are prepared for a disaster?

8) What have you done to prepare?

10) Do you have any special words or symbols that you use at work when talking about or planning for an emergency or disaster? **[probe for language and symbols that could be used in brochures distributed in the workplace]**

11) Have you prepared to "remain in place" in certain situations? If yes, what types of situations? How is this similar or different to your home preparation?

10) Have you planned to evacuate in certain situations? If yes, what types of situations? How is this similar or different to your home preparation?

11) What else do you think that you should do to prepare?

12) Why do you think you have not already taken these actions?

13) What would motivate you to become more prepared in the workplace?

Communication Planning and Planning within Neighborhood Networks

Now I'd like to talk for a while about how you talk and prepare with friends, family and neighbors for an emergency or disaster.

14) Have you and your family members had any discussions to address specifically what you would do in the event of a disaster? [**probe for disaster and preparedness language that is used in these discussions**]

15) What motivated these discussions?

16) What keeps you from having more discussions with family members about what to do in a disaster?

17) What would make it easier for you to have these discussions?

18) How would you try to communicate with your closest friends and relatives if there were a disaster? What would you do if this method didn't work?

Now let's talk about discussions you've had with neighbors about what to do in a disaster.

19) Have you done any disaster planning with your neighbors?

20) What makes engaging in this kind of planning difficult?

21) What would make it easy for you to do more planning? [**probe for planning event triggers as well as language and imagery that respondents associate with pleasant and easy planning**]

Preparedness Communication Channels

Now I want to talk some about how you communicate with one another about emergencies and what kind of information you feel is useful in helping you prepare.

22) What forms of information have you used to help you learn about and prepare for an emergency? [**probe for Internet, brochures, written media, video and audio media, and in-depth vs. cursory information**]

23) What kind of information is easiest for you to use? [**probe for Internet, brochures, written media, video and audio media, and in-depth vs. cursory information**]

24) Is there anything in these materials that really made you stop and think about the possibility of disaster? If yes, what? [**probe for language and imagery that could be used in preparation and motivational materials**]

25) Are there any special words or symbols that you associate with emergency or the need to immediately prepare for the possibility of a disaster? What makes you really stop and think about emergency? [**probe for information that could be used to create motivational signs and messaging**]

COMMUNITY PREPAREDNESS

Now that we've talked in some detail about your personal preparedness and that of your family and co-workers, I'd like to focus the discussion on the larger community that you live in.

26) Do you think that your community as a whole is adequately prepared for a disaster?

27) What needs to be done to improve the level of preparedness within your community?

28) What would be the best way to organize your community to become more prepared?

Appendix C—Key Person Questionnaire

Hello, my name is _____, and I am calling on behalf of the emergency management services of King, Snohomish and Pierce counties. We are conducting a study about community and business emergency preparedness. This call is for research purposes only and does not involve sales of any kind. Am I speaking with **[NAME OF BUSINESS OR COMMUNITY LEADER]**?

[IF NOT CURRENTLY SPEAKING TO BUSINESS OR COMMUNITY LEADER ASK] May I please speak with **[NAME OF BUSINESS OR COMMUNITY LEADER]**? **[IF NOT CONVENIENT ARRANGE TO CALL BACK]**

In this study we will be asking for your views on issues related to your communities or businesses preparedness for emergencies such as natural disasters or man-made disasters. Before we can begin, however, I have to ask you some qualifying questions.

S1. Does your place of employment or organization reside in King County, Pierce County, or Snohomish County?

1. Yes **[CONTINUE WITH SURVEY]**
2. No **[THANK AND TERMINATE]**

S2. What is your job title?

1. Senior Executive (Chairman, President, any Executive)
2. President
3. Vice President
4. Manager
5. Other **[SPECIFY]**

Before we begin, here is some terminology that we'll use in the interview. When we talk about disasters or emergencies in this interview, we will mean something that is a large-scale event that could affect your place of employment, neighborhood, town, city, or even a larger area. For example, an earthquake would be considered a disaster or emergency, but something like a car accident, while serious for the people involved, is more closely aligned with an accident. **[MAKE SURE RESPONDENT UNDERSTANDS DEFINITION]**

1. Which of the following most accurately describes the type of facility in which you work? **[ROTATE 1 – 7] [READ LIST]**
 1. Free standing building such as a retail establishment
 2. A building or structure containing multiple businesses or activities, such as a mall, strip mall, or office building
 3. A manufacturing plant

4. A high-rise office building of 10 or more stories **[ASK Q2]**
 5. A temporary or portable structure, such as a trailer on a construction site
 6. Mostly work outside, not in a building
 7. Work at home or have home office
 8. Other **[SPECIFY]**
 9. Don't Know/ Refused
2. **[ONLY ASK IF Q1=4]** How many stories or floors does your place of work have?
[RECORD NUMBER]
 3. What actions have your place of employment or organizations taken to prepare for the possibility of a disaster or emergency? **[VERBATIM]**
 4. "Remaining in place" is the term used for the idea of remaining where you are and taking care of yourself and possibly your co-workers when any sort of natural or man-made emergency occurs while at your place of employment. Which of the following have been done in your workplace to prepare for remaining in place when instructed?
[ROTATE 1 – 6] [READ LIST]
 1. Have flashlights and first aid kits available in workplace
 2. Have an employee communications plan to follow
 3. Water and food are stored for use in the event of an emergency
 4. Have blankets stored for use in case of an emergency
 5. Have an all hazards tone alert radio available
 6. None
 7. Other **[SPECIFY]**
 8. Don't Know/ Refused
 5. On a scale of 0 to 10 where 0 is "Not at all prepared" and 10 means "Extremely well prepared", how would you rate the level of preparation of your workplace if you had to remain in place during an emergency?

[IF ANSWER IS 0-3 OR 8-10 ASK Q5a. OTHERWISE SKIP TO Q6.]

- 5a. Why did you answer the way you did? **[VERBATIMS]**

6. How long do you feel people at your workplace could remain in place in an emergency situation before you would need outside assistance? **[VERBATIM]**
7. Some types of emergencies require people to evacuate to safe locations. Let's talk now about how prepared your workplace is to evacuate to another location if an emergency occurs. Which of the following has your workplace done to prepare for an evacuation in the event of an emergency? **[ROTATE 1-4] [READ LIST]**
 1. Discussed evacuation procedures
 2. Have an employee communication plan to follow
 3. Designated an escape route away from worksite
 4. Drilled on evacuation procedures
 5. None
 6. Other **[SPECIFY]**
 7. Don't Know/ Refused
8. Using the same 0 to 10 scale as before, where 0 is "Not at all prepared" and 10 means "Extremely well prepared", how would you rate the level of preparation in your workplace to evacuate to another location if necessary?

[IF ANSWER IS 0-3 OR 8-10 ASK Q8a. OTHERWISE SKIP TO Q9.]

- 8a. Why did you answer the way you did? **[VERBATIM]**
9. At your workplace, which of the following steps for emergency preparation have been taken? **[ROTATE 1 - 8] [READ LIST]**
 1. Offered classes such as first aid, CPR, or disaster preparation
 2. Evacuation plans in place
 3. Training in what to do in the event of fire or earthquake
 4. Training in what to do in the event of a hazardous chemical release
 5. People have been assigned preparedness responsibilities
 6. Drilled on specific procedures for a particular type of emergency such as earthquake or fire
 7. Not aware of any workplace preparedness plans
 8. Aware of some workplace preparedness plans
 9. Other **[SPECIFY]**
 10. Don't know/ Refused
10. Thinking about the level of preparedness of your workplace right now, which type of situation would present the greatest difficulty for you in an emergency situation, remaining in place, or evacuating to another location?
 1. Remaining in place
 2. Evacuating to another location
 3. Both the same difficulty
 4. Don't know/ Refused

11. In your opinion, what are the primary barriers to preparedness at your workplace? **[VERBATIM]**
12. What would motivate your workplace to take action to prepare responses for different types of emergencies? **[VERBATIM]**
13. Thinking about the specific community you live in. Using a scale of 0 to 10 where 0 means “Not prepared at all” and 10 means “Extremely well prepared”, how prepared do you think your community is to deal with either a natural or man-made disaster or emergency?
14. There are two basic categories of disaster or emergency situation — natural, like an earthquake, flood, or a tsunami; and man-made, like a chemical release, or a terrorist act. Of these two basic categories, which do you believe the community is best equipped to deal with?
 1. Natural
 2. Man-made
 3. Both equally
 4. Neither one
 5. Don't know/ Refused
15. Think for a minute about emergencies in general and the possible difficulties the community might have in dealing with them. Overall, what would you consider the worst possible type of disaster that your community could encounter? **[DO NOT READ LIST]**
 1. Earthquake
 2. Terrorist attack
 3. Chemical release or explosion
 4. Building collapse
 5. Infrastructure failure
 6. Winter storm
 7. Flooding
 8. Disease outbreak or epidemic
 9. Volcanic Eruption
 10. Other **[SPECIFY]**
 11. Don't know/ Refused

16. What type of communication or support would make you feel satisfied your community is prepared to deal with emergencies? **[ROTATE 1-4] [READ LIST]**
1. Reporting in the news media on household and neighborhood preparedness activity
 2. Messaging from local government emergency management planners about their preparedness activity
 3. In-person visits by government emergency management planners at meetings of civic or business associations or neighborhood community groups
 4. Contact with Red Cross or other non-governmental emergency service providers
 5. Other **[SPECIFY]**
 6. Don't Know/ Refused
17. What messages do you recall having seen or heard regarding emergency or disaster preparedness and what was the source of this information? **[VERBATIM. PROBE FOR SOURCE OF INFO. TRY TO GET INFORMATION ABOUT THE TYPE OF MESSAGE AND WHERE IT WAS SEEN/HEARD/READ, AND DID HE/SHE DO ANY PREPAREDNESS ACTIVITIES AS A RESULT]**
18. Are you aware any actions your neighborhood or community club, civic organization, or church has taken to be prepared in case of a natural or man-made disaster? **[VERBATIM. PROBE FOR SOURCE OF INFO. TRY TO GET INFORMATION ABOUT THE TYPE OF MESSAGE AND FROM WHICH ORGANIZATION IT WAS SEEN/HEARD/READ, AND DID RESPONDENT DO ANY PREPAREDNESS ACTIVITIES AS A RESULT]**
19. Thinking about access to information, where do you think the presence of preparedness material would be most helpful in assisting preparedness activity in the community? **[ROTATE 1-9] [READ LIST]**
1. Media messages giving information and directing to other resources
 2. Information with annual business license or property tax mailings
 3. Information from insurance providers
 4. Civic center or satellite government office
 5. On a website
 6. At neighborhood community center
 7. At place of worship
 8. At grocery or drugstore
 9. At hardware or home improvement store
 10. Other **[SPECIFY]**
 11. None
 12. Don't know/ Refused

I just have a few more questions for classification purposes.

20. Which of the following ranges describes the number of employee's that your organization currently employs?
 1. 1 to 50
 2. 51 to 100
 3. 101 to 150
 4. 151 to 200
 5. 201 to 250
 6. over 250
 7. Don't know/ Refused

21. What is the zip code of the city or community where you work?

22. What is the zip code of the city or community where you live?

23. What city do you work in?

Appendix D—Resident Survey Questionnaire

Hello, my name is _____, and I am calling from Hebert Research, a research firm in Bellevue. We are conducting a study about emergency preparedness. This call is for research purposes only and does not involve sales of any kind. May I speak with the head of the household please? **[IF NOT CONVENIENT ARRANGE TO CALL BACK]**

In this study we will be asking for your views on issues related to preparing for emergencies such as natural disasters or man-made emergencies.

Before we can begin, however, I have to ask you some qualifying questions.

S1. Do you reside in King County, Pierce County, or Snohomish County?

1. Yes **[CONTINUE WITH SURVEY]**
2. No **[THANK AND TERMINATE]**

S2. Do you or does anyone in your immediate family work for any of the following types of employer?

1. A planning group or department in a city or county government in King, Pierce, or Snohomish County
2. A fire or police department in King, Pierce, or Snohomish County
3. An Emergency Medical Service, also known as EMS or EMT, located in King, Pierce, or Snohomish County
4. Any market research firm in King, Pierce, or Snohomish County

[IF YES TO ANY THANK AND TERMINATE]

Before we begin, here is some terminology that we'll use in the survey. When we talk about disasters or emergencies in this survey, we will mean something that is a large-scale event that could affect not only your home and family, but could also affect your place of employment, neighborhood, town, city, or even larger area. For example, an earthquake would be considered a disaster or emergency, but something like a car accident, while serious for the people involved, would not be considered because it is relatively smaller in scale. **[MAKE SURE RESPONDENT UNDERSTANDS DEFINITION]**

24. First, let's talk about your overall feelings about emergencies or disasters in general. On a scale of 0 to 10, where 0 means "Extremely anxious or fearful" and 10 means "Extremely comfortable or secure", how would you rate your feelings regarding the possibility of a disaster or emergency?

[IF ANSWER IS 0 – 3 OR 8 – 10 ASK Q2. OTHERWISE SKIP TO Q3.]

25. Why did you answer the way you did? **[VERBATIM]**

3. There are two basic categories of disaster or emergency situations — natural disasters like an earthquake, flood, or a tsunami; and man-made like a chemical spill, or a terrorist act. Of these two basic categories – natural or man-made, which causes you the most concern?
 1. Natural
 2. Man-made
 3. Both concern me equally
 4. Neither one concerns me
 5. Don't know
 6. Refused

4. Think for a minute about emergencies in general and the possible difficulties in dealing with them both at home and at work. Overall, considering where you live and work, what would you consider to be the worst possible type of emergency that you could encounter? **[DO NOT READ. PRECODES.]**
 12. Earthquake
 13. Terrorist attack
 14. Chemical spill or other type of industrial accident
 15. Winter storm
 16. Flooding
 17. Disease outbreak or epidemic
 18. Tsunami
 19. Meth Lab in neighborhood
 20. Volcanic eruption
 21. Other **[SPECIFY]**
 22. Don't know
 23. Refused

5. In general, which type of disaster or emergency do you personally feel best prepared to deal with, natural or man-made, and why? **[VERBATIM]**

6. “Remaining in place” is the term used for the idea of staying where you are and taking care of yourself and possibly your family when any sort of disaster emergency occurs. Which of the following have been done in your household to prepare for remaining in place in a disaster or emergency situation? **[ROTATE 1 – 9] [PRECODES.]**
 1. Taken a class for training on first aid, CPR or disaster preparation
 2. Developed a household escape plan
 3. Discussed disaster or emergency preparedness with household members
 4. Have out of area contact for all household members to contact when separated
 5. Have secured household objects from falling
 6. Know how to turn off utilities
 7. Have an All Hazard Tone Alert radio

8. Have designated a particular room in the dwelling to stay in during a disaster or emergency
 9. Have an accessible household “remaining in place” supply kit containing water, food, radio and personal need items
 10. Don’t Know
 11. Refused
7. On a scale of 0 to 10 where 0 is “Not at all prepared” and 10 means “Extremely well prepared”, how would you rate the level of preparation of your household if you had to remain in place during a disaster or emergency?
 8. How many days do you feel your household could remain in place with an emergency situation before you would need assistance with water, food, and other basic needs?
[RECORD IN FULL DAYS, NOT FRACTIONAL]
 9. Some types of emergencies require people to evacuate to safe locations. Let’s talk now about how prepared your household is to evacuate within 15 minutes to another location if an emergency occurs. Which of the following has your household done to prepare for an evacuation in the event of such a command? **[ROTATE 1-8]**
[PRECODES]
 1. Prepared a checklist of items to take
 2. Have grab ‘n go kit with pair of eyeglasses, necessary medications, toiletries
 3. Made photocopy of identification and credit cards
 4. Have set aside small amount of cash
 5. Have grab n’ go kit with entertainment items for household members
 6. Have set aside supplies for special needs of infants or elderly
 7. Water and snack food set aside
 8. Pet necessities taken into account
 9. Don’t know
 10. Refused
 10. Using the same 0 to 10 scale as before, where 0 is “Not at all prepared” and 10 means “Extremely well prepared”, how would you rate the level of preparation of your household to evacuate to another location within 15 minutes if necessary?
 11. Thinking about the level of preparedness of your household right now, which situation would present the greatest difficulty for you in an emergency situation, remaining in place, or evacuating to another location?
 1. Remaining in place
 2. Evacuating to another location
 3. Both the same difficulty
 4. Don’t know
 5. Refused

12. Which of the following have you implemented or dedicated to disaster preparedness?

[ROTATE 1-5] [PRECODES]

1. Gathered home supplies such as water, food, and blankets
2. Have secured household items from falling
3. A household communications plan
4. A dwelling escape route
5. A workplace escape route
6. Don't know
7. Refused

12a. Which of the following have you participated in related to disaster preparedness?

1. Neighborhood or Block Watch program
2. Talking or planning w/ neighbors
3. Joined Citizen Corps
4. Received Community Emergency Response Team training
5. First aid training
6. Don't know
7. Refused

Now let's talk specifically about the preparations for disasters and emergencies at your place of work.

13. What is your employment status?

1. Employed
2. Unemployed **[SKIP TO Q.18]**
3. Retired **[SKIP TO Q.18]**
4. Refused

14. Which of the following most accurately describes the type of facility in which you work? **[PRECODES] [SINGLE MENTION ONLY]**

1. Free standing building
2. A building containing multiple businesses, such as a mall, strip mall, or office building
3. A manufacturing plant
4. A high-rise office building **[SKIP TO Q.15]**
5. A temporary or portable structure
6. Mostly work outside, not in a building
7. Work at home
8. Not employed
9. Don't know
10. Refused

15. **[ASK ONLY IF Q.14=4]** On what floor is your main place of work? **[RECORD NUMBER]**

16. At the place where you work, which of the following steps for emergency preparation have been taken? [**PRECODES**] [**ROTATE 1 - 5**]
1. Discussed what to do in the event of a fire or earthquake
 2. Employees and co-workers have been assigned responsibilities
 3. Practiced drills on specific procedures for emergencies such as drop, cover, and hold during an earthquake
 4. Dedicated provisions such as water, food, and blankets
 5. Dedicated emergency flashlights, batteries, and radio
 6. Heavy objects have been secured
 7. Instructed on exit routes from work area to outside building
 8. My place of work does not have a specific plan for dealing with emergencies
 9. Don't know
 10. Refused
17. Using the same 0 to 10 scale as before, where 0 is "Not at all prepared" and 10 means "Extremely well prepared", how would you rate the level of preparation of your place of work for a man-made emergency, such as a major chemical spill or terrorist act?
18. Do you have dependent children less than 18 years old living in your household, who attend school in King, Pierce, or Snohomish Counties?
1. Yes
 2. No [**SKIP TO Q21**]
 3. Refused
19. Using a 0-10 scale, where 0 is "Not at all comfortable" and 10 means "Extremely comfortable", how comfortable would you be if your child(ren) had to remain at school for 24-72 hours due to a disaster or emergency?
20. To your knowledge, what types of emergency preparedness procedures are in place in your children's schools? [**DO NOT READ**]
1. Evacuation procedures
 2. Fire drills
 3. "Drop, cover, and hold" earthquake drills
 4. Other [**SPECIFY**]
 5. Don't know
 6. Refused

Now think about the community you live in, regardless of whether that is a town, city, or unincorporated area.

21. Thinking about the county you live in. Using a scale of 0 to 10 where 0 means "Not at all prepared" and 10 means "Extremely well prepared", how prepared do you think your county is beyond police and fire services to deal with either a natural or man-made disaster or emergency?

22. What kind of assistance would make you feel satisfied that your household is prepared for dealing with disasters or emergencies? **[PRECODES.]**

1. Checklist for home supplies
2. A form to enter names and numbers for a communication plan
3. Television messages giving you information and directing you to other resources
4. Radio messages giving you information and directing you to other resources
5. Information in a newspaper
6. Information with monthly utility bill
7. Information in a neighborhood or community club newsletter
8. Other **[SPECIFY]**
9. Don't know
10. Refused

22a. Thinking of informational resource locations, where would the availability of checklists and guides for preparedness be the most useful to you? **[PRECODES.]**

1. At the grocery or drugstore
2. At hardware or home improvement store
3. Place of worship
4. Neighborhood or community center
5. On a website **[SKIP TO 22b.]**
6. At a library
7. Civic center of satellite office

22b. **[ASK ONLY IF Q.22a=5]** What type of website?

1. Weather website
2. Newspaper site
3. TV website
4. Radio website
5. City website
6. Other **[SPECIFY]**
7. Don't know
8. Refused

23. Do you recall having seen or heard any messages on TV, radio, or publications about where to look for information about preparedness, or about things you should do to prepare your household? **[VERBATIM. PROBE FOR SOURCE OF INFO. TRY TO GET INFORMATION ABOUT THE TYPE OF MESSAGE AND WHERE IT WAS SEEN/HEARD/READ, AND DID HE/SHE DO ANY PREPAREDNESS ACTIVITIES AS A RESULT]**

24. Are you aware of any actions your community, neighborhood, or church has taken to be prepared in case of a natural or man-made disaster? **[VERBATIM. PROBE FOR SOURCE OF INFO. TRY TO GET INFORMATION ABOUT THE TYPE OF MESSAGE AND FROM WHICH ORGANIZATION IT WAS**

SEEN/HEARD/READ, AND DID RESPONDENT DO ANY PREPAREDNESS ACTIVITIES AS A RESULT]

25. In your opinion, what could be the key drivers or motivators that would enable people to take action to prepare for different types of emergencies? **[VERBATIM]**
[POSTCODES]

26. Who in your household would most likely take charge of preparing for emergencies?
[VERBATIM] **[POSTCODES]**

I just have a few more questions for classification purposes.

27. Into which of the following age ranges do you fall?

1. 18 to 24
2. 25 to 34
3. 35 to 44
4. 45 to 54
5. 55 to 64
6. 65 or older
7. Don't Know
8. Refused

28. What is your marital status?

1. Single (include divorced/widowed)
2. Married (include committed relationship)
3. Don't Know
4. Refused

29. With what ethnic group do you identify yourself?

1. White/Caucasian
2. Hispanic or Latino
3. Asian American/Pacific Islander
4. Native American
5. African American
6. Other **[SPECIFY]**
7. Don't know
8. Refused

30. What is the zip code of the city or community where you work?
[VERBATIM] **[POSTCODES]**

31. What is the zip code of the city or community where you live?
[VERBATIM] **[POSTCODES]**

32. What city do you live in?

[VERBATIM] [POSTCODES]

33. What city do you work in?
[VERBATIM] [POSTCODES]

34. Which of the following most accurately describes your place of residence?

1. Single Family detached home **[SKIP TO Q35]**
2. Apartment, Condo, or town-house
3. Mobile/manufactured Home **[SKIP TO Q35]**
4. Other **[SPECIFY]**

35. Do you live in a high-rise building of 10 or more stories?

1. Yes
2. No

36. Gender **[POSTCODE FROM VOICE]**

Thank you very much for taking the time to speak with us.