VARIATIONS IN DISASTER AID ACQUISITIONS AMONG ETHNIC GROUPS IN A RURAL COMMUNITY

A Dissertation

by

Kim Blanca Galindo

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2007

Major Subject: Urban and Regional Sciences

VARIATIONS IN DISASTER AID ACQUISITIONS AMONG ETHNIC GROUPS IN A RURAL COMMUNITY

A Dissertation

by

Kim Blanca Galindo

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Approved by:

Co-Chairs of Committee,	Dennis Wenger
	Walter Gillis Peacock
Committee Members,	Donald Sweeney
	Jon Alston
Head of Department,	Forster Ndubisi

August 2007

Major Subject: Urban and Regional Sciences

ABSTRACT

Variations in Disaster Aid Acquisitions Among Ethnic Groups in a Rural Community. (August 2007)

Kim Blanca Galindo, B.A., Texas A&M University;

B.S., Texas A&M University;

M.S., University of Texas

Co-Chairs of Advisory Committee: Dr. Dennis E. Wenger
Dr. Walter Gillis Peacock

This research adds greater dimensions to the understanding of the recovery-aid acquisition process for households in rural communities with a racially heterogeneous and contentious population. The study population is divided into three categories based on ethnicity: Anglo, African-American, and Hispanic. The disaster-recovery process assessed if variations exist the disaster-aid acquisition process of households which correlate with ethnicity. During the investigation, researchers examined if the sources of disaster-aid a household was able to acquire was influenced by ethnicity. Relationships along ethnic lines were also examined in the types of aid acquired by the various groups. These measurements were undertaken to see if different paths to housing-

recovery resulted in differential rates of recovery. The societal context in which these processes took place has also been considered to establish if it affected the speed and efficiency of the recovery process.

This research has helped identify some common problems faced in the disaster-recovery process by resource strapped communities, which also lack the ability to effectively engage vertical and horizontal ties to promote speedy and equitable recovery after a major natural disaster. Results indicate that ethnicity plays a significant role in the disaster-aid acquisition process, but one that varies from expectations developed through a review of previous literature on this subject. These finding may be an indication that the ethnic variations examined in this case-study are an artifact of social-status and social-integration more so than because of any cultural construct of a particular ethnic group. The overreaching implications of this study show, however, that ethnicity is an important variable in determining the process and availability of major sources of recovery aid in the housing recovery process, particularly in a rural community.

DEDICATION

To

My father, Ramiro Galindo
Without whose constant intercession and reliance for help I would never have been able to complete this odyssey.

ACKNOWLEDGEMENTS

It is almost impossible to find the right words to properly express the depth of my gratitude and appreciation to the many people who have helped and supported me through out this long journey of educational achievement, which is a testament to the great love, patience and understanding of those friends I have been blessed to have in my life. I begin by thanking Bonnie Fisher, and her father, Dr. Vaughn Bryan, and Dr. Donald Sweeney for providing me the opportunity to pursue this dream. However, without the help and support of my sister and her husband, Lis and Ricky Soto, and my father, Ramiro Galindo, these opportunities could never have been realized.

This journey was never one I undertook alone. From the moment I began this program I have been accompanied by many friends. In particular I'd like to mention the invaluable support and assistance given me by Rhonda Collins, Vita Pariente, Nancy Holland and Travis Davidson, who endlessly read and reread countless editions of this dissertation. Additionally, I'd like to thank a few of my best friends who never allowed me to give-up and encouraged me to have faith in myself by believing in me, even when I didn't: Dawn Marshall, Meghan Wieters, Nancy Debono, Sudha Arlikatti, Miriam Olivares, and Yang Zhang.

Other friends I'd like to thank are Belita and Kreshna Gopal, Himanshu Grover, Prathiba Nathesan, Miriam Olivares, Jeslin Kaduvinal Varghese, and Dr. Alex McIntosh for their invaluable technical assistance, endless hours of patience and constant friendship without which I would be lost. Furthermore I'd like to thank Nicolas Radjasa, Rubaba Ismialova, Praveen Maghelal, Violtetta Cook, Ehsan Moghbelli, Nicolas Rouckout, and the many others who have touched my heart, for their companionship, trust, faith, trust and the richness and love they have added to my life.

In particular I'd like to mention the depth of my gratitude to my mentors and professors Drs. Walter Gillis Peacock and Dennis Wenger. I cannot adequately express my gratitude for their willingness to take me on as a student and stay by my side through out this long journey. Their constant encouragement and patience was more than could ever be expected by any student. Additionally, I'd like to make a special mention of Dr. Patricia Cole-Starr, it was through her mentorship, support and generous sharing of advice and insights that I was able to think through and formulate many of the original ideas backing this research.

TABLE OF CONTENTS

Page

Page

LIST OF FIGURES

Page

LIST OF TABLES

Page

Page

Page

CHAPTER I

INTRODUCTION: A CASE STUDY OF THE DISASTER AID ACQUISITION PROCESS IN A RURAL COMMUNITY

Introduction to research and grant

The objectives of this research are to understand the natural-disaster recovery processes that take a household impacted by a disaster from temporary emergency sheltering to the reestablishment of permanent housing and to compare variations among ethnicities in the recovery aid-acquisition phase of this process. It was part of a four-year collaborative project between Texas A&M University professor, Dennis Wenger, Ph.D., and Texas Woman's University professor, Brenda Phillips, Ph.D., who were the principal investigators for this research grant entitled, "Organization Based Post Disaster Sheltering and Housing of Low Income and Minority Groups," funded through the National Science Foundation. The research assessed many of the dynamic interactions between a disaster victim's experiences obtaining

---

This dissertation follows the style of the American Sociological Review.

aid from local help organizations and community policymakers during the sheltering and housing acquisition process.

Specifically, the research focused on a comparison of the resource acquisition process by three ethnic groups within a rural community. It defines the essential sources of recovery aid and the most helpful types of assistance during reconstruction. This research is supported by additional rich description concerning contextual variables, such as local history, culture, power structures and the existing ethnic and power relationships co-opted in the local disaster recovery process; and how they impacted the types of aid made available to different households based upon social and demographic variables. The narrative to this research shows how historical relationships have been propelled into the present; impacting the aid acquisition process and providing differential access to recovery aid based upon ethnicity, the complex social and economic opportunities borne from ascribed traits.

Background

Natural disasters unleash some of the earth's most powerful forces upon humanity. Whether it is a vast, densely populated area devastated by an unanticipated tsunami or a community overcome by river flooding, the process of recovery from either can be lengthy and laborious. Disaster recovery research has long focused on many of the dynamics

found within the turbulences brought on by Mother Nature, especially in the immediate aftermath of an event.

After the devastating effects of Hurricanes Hugo and Andrew in the latter part of the last century, and the terrorist attacks on the Twin Towers in New York City on September 11, 2001, national leaders began to take a greater interest in disaster situations. However, since these attacks targeted the economic sector, the recovery process was directed primarily at reconstruction of business centers. However, as with most disasters, especially natural ones, the seminal problems associated with the recovery process revolve around re-establishing permanent housing, an issue brought to national attention with the destruction of New Orleans, and subsequent diaspora of its residents throughout the country. In the case-study presented herein, one of the main problems (and perhaps most arduous) associated with this flood event, was the provision of adequate housing alternatives for this rural community. Moreover, this community, like most rural communities did not have the benefits wrought upon it from the national and international media which highlighted the conditions survivors found themselves in following the disaster (Scanlon 1992). Some of the beneficial consequences of media attention can be increased aid and organizational expertise, which can be used to highlight the recovery process. Rural towns often have to struggle more than urban areas for a limited pot of resources

and have less expertise in accessing such aid, thus delaying or lengthening the housing recovery process.

The act of finding suitable housing in times of disaster can range from providing short term emergency shelters (most commonly addressed by community resources), to having to deal with a full-scale housing disaster, which is reached when the victims' and community's capability are overwhelmed (Wenger, 1978). In this research the respondents were asked to retrace their movements from the moment of evacuation until the reestablishment of permanent housing. This longitudinal approach to housing recovery provides the opportunity to garner a greater understanding of the processes engaged by those having to reestablish themselves and allows one to analyze the ways in which local power structures and recovery groups help or possibly hinder households. Little research has been conducted to examine the recovery process or to provide extensive details concerning how assistance is obtained and used as people begin to rebuild their lives. This research will begin to shed light on these processes and continue to add to prior knowledge by taking the analysis one step further and show how local political dynamics directly affect a household's ability to access the appropriate type of aid in a timely fashion.

Switchback recovery study

The research will primarily focus on the process of housing-aid acquisition, with special attention paid to any differences that may reveal themselves along ethnic lines. The case study proposed herein is centered on a community, which is representative of many rural towns found scattered throughout the United States and is in turn, structurally similar to other communities found in developing nations. The structural similarities between Switchback (the pseudonym used for the town under study) and other communities include difficulties with resource acquisition and ties to the greater political networks around it. In addition, the town was fragmented, and had low educational and income attainment levels which further hampered recovery.

To assess the disaster recovery process in a rural community, information was obtained through several methods. First, the community was selected for study because it had a proportional ethnic mix and was going through a recovery process following a natural disaster. This was followed by a windshield survey and informal communications with individuals to assess the level of damage to the community and become familiar with the local dynamics of the town. Interviews were then conducted with key informants – political and business leaders within the community – to obtain their impressions of the process and get an understanding of measures undertaken by locals

to assist in the recovery. Finally, a household survey was developed to obtain recovery information from the perspective of the flood victims who were in the midst of the recovery process. The data was primarily analyzed in the production of two Ph.D. dissertations, the first one covering sheltering patterns, and the second one, the acquisition of aid to establish permanent housing.

Switchback was chosen for this research project because it is representative of many rural towns. It is somewhat isolated from sources of aid, media, training, and training facilitates that could help mitigate and prepare the community to face disastrous situations if and when they do arise. Some of the challenges faced by Switchback in its recovery efforts are uniquely rural in nature. A philosophic tendency common among rural areas, is self-reliance, which is often the keystone of one's identity. These issues can converge to influence the timing, distribution, transparency, and citizen participation in aid delivery to impacted households.

This dissertation will begin to address some of these issues. The introduction provides a brief review of various aspects contributing to the flood and the on-going social and financial costs it inflicted, including some of the barriers and challenges facing residents during the recovery process. Chapter II relates the history of flooding in the area and the actual flood event being studied, including both personal

accounts, as well as a meteorological summary of the event. Chapter III reviews the methodology used in this study, covering both qualitative and quantitative aspects of data collection. Chapter IV provides an overview of the most important literature accessed to elucidate the development of hypotheses and provide greater depth of knowledge of the many aspects affecting housing recovery following a disaster.

The dissertation continues in Chapter V with a detailed account of the interviews conducted and the respondents' self-description of the rural community featured in this case-study. They elaborate on the history of the town, providing insight into past and present relationships among ethnic groups. Additionally, portrayals of the current social and political climate within which recovery was being undertaken are examined. Chapter VI provides a quantitative analysis and interpretation of the data obtained though the survey, focusing primarily on the permanent housing aid acquisition process, and variation within this process along ethnic lines. Finally, Chapter VII will summarize the most relevant findings from data analyses and interpret them in light of the social and political context in which they happened. This chapter also will help define areas for future research.

CHAPTER II

THE SETTING

Flood history of the Guadalupe River in Central Texas

Switchback, a small rural town on the border of the Balcones Escarpment area in central Texas, is the focus of this case-study, which investigates a disaster recovery process. The town is situated in an area with a higher-magnitude of flooding potential than any other region in the United States. Rates of precipitation and discharge approach world maximum records due to the episodic intensity of rainstorms in the region and the rapid runoffs they produce, which are aggravated by clay deposits in the area that have very slow water absorption properties (Wisner, Blaikie, Cannon, and Davis 1994).

The Guadalupe River and many of its tributaries have been the site of intense flooding. In this region, Polar Air masses moving south will often collide with warm easterly winds coming in from the ocean and laden with moisture. This collision results in rainstorms, and on occasions, violent storms leading to excessive flash and riverine flooding. One of the first-recorded, disastrous flooding episodes was in August 7, 1900. The most severe rainstorm ever recorded in the continental

United States occurred on September 9-10, 1921, when two air masses collided over the central plains of Texas (Bunnemeyer 1921). A total of 38.2 inches of rain fell in a 24 hour period, exceeding the expected precipitation of an entire year, and becoming the world record for most rain in a 24- hour period. In this flood, it was the Pecos River which saw the greatest volumes of water, though the rains that spurred this event also affected the town of Switchback, causing severe local flooding. During this flood, peak instantaneous discharges approached more than 1.5 times the average water flow for the Mississippi River, the world's third largest river. Moreover, the contributing runoff area for this discharge was less than .03 % of the whole extent of the Mississippi's watershed (Caran and Baker 1986). This type of flood was estimated to have had a 2,000 year reoccurrence interval. Although, the peak discharge for this flood was exceptional, floods like this one, with comparable discharges to drainage area have been recorded for most river basins in Central Texas. The next devastating flood occurred on June 15, 1935. This event was later followed by the Walnut Creek flood of 1954 (Caran and Baker 1986). Such intense flooding episodes exact a heavy burden on local residents, and their livelihoods. The cost of attempting to mitigate the effects of some of these extreme events is often more than the agrarian societies in the area can support, though the losses can be crippling. Thus, life in this area is often associated

with high vulnerability, but this has not stopped people from living there due to the attraction of the natural beauty of the land.

One does not have to look far to find someone who remembers recent floods in this area. In 1977, a storm hit central Texas which resulted in 215 deaths and over 10 million dollars in property loss. In 1981, Walnut Creek flooded once again, and water levels rose 15 feet over normal flows (Archer 1998; Bunnemeyer 1921; Caran and Baker 1986). In 1993, another flood hit parts of Seguin, Del Rio, and the lower Rio Grande valley. However, the remainder of this chapter will be devoted to the flood of 1998, which occurred when Sandy Creek and the Guadalupe River were once again inundated by rains resulting from a clash of air masses high above the Texas Plains.

The 1998 Flood

Switchback, a rural community of 6,700, is situated at a bend on the Guadalupe River that makes the town particularly susceptible to flooding. The flood had been precipitated by rains which had been coming down for days. The neighborhood streets and low-lying areas had also begun to flood. This was South Central Texas where flooding was common, especially in the spring and fall, when flash floods would

come tearing across the streets, inundating the roadways. It happened every year, no one worried much about it.

Yet, this was different. The previous week's forecasts issued by the National Weather Service warned of one of the worst floods in recorded history. An unusual combination of meteorological conditions was forming: a cold front had come in from the north, a low-pressure system was emerging from the south, and two Pacific hurricanes, Madeline and Lester, had spawned off the West coast of Mexico. The hurricanes brought in huge amounts of moisture that were destined to fall on the Texas plains. To make matters worse, a ridge of high pressure had formed to the east stalling the moisture-laden air over central Texas (2005). The small town of Switchback was about to be inundated. While this wouldn't be the first time Switchback had found itself under water, this time was to be the worst flooding in its history.

By Sunday morning, October 18, 1998, three days before predicted flood levels were supposed to be reached, the Guadalupe River had jumped its banks in the northern portion of the county. The river was at 13.7 feet by 6 p.m. that evening. The river flow at the Switchback gauge was 3-4 times greater than the 100-year peak discharge (Shultz 2002). According to the USGS, a river will jump its banks when a ratio of 2 to 1 is reached. For instance, with a twenty-

foot-deep river, forty feet of water flow will cause the river to cut its own course, disregarding switchbacks.

The local sheriff recounted that by 6 a.m. the following day, Monday, October 19, the river had risen to 32 feet. At about the same time, the sheriff's office received a call from a game warden in Gonzales County, which is immediately north of DeWitt County, he spoke of a "wall of water coming down to Switchback." At approximately 7:30 a.m., the Switchback fire department, sheriff's office and police department began alerting individuals in outlying areas about the rising water. Personnel from the police and fire departments were dispatched into the threatened neighborhoods to warn residents, urging their *immediate* evacuation. Evacuation alerts were issued. They gave some households as few as ten minutes to evacuate, while the lucky ones had only up to three hours. Others never received evacuation notices.

Several lucky families had been listening to the radio and evacuated their belongings as they heard reports of communities up-river being flooded. Schools in Switchback were cancelled. At 8:23 a.m., the National Weather Service, unaware of current events, sent a teletype to the county sheriff that Switchback would experience a river crest of 40 to 41 feet on Wednesday, within 2 days, matching the previously predicted warnings. However, at 9:00 a.m. that same Monday, the reading at the bridge in Switchback was already 41 feet

and rising. The river finally reached its highest crest at 12:30 a.m. on Tuesday morning, October 20, at 49.78 feet, 29.78 feet above flood stage, and 8.78 feet above what the National Weather Bureau (NWB) had predicted. Moreover, the floodwaters arrived two days earlier than forecasted.

At 10:00 am on Monday, October 19, water rushed into the town of Switchback with such force that it spilled over natural barriers in the community. These barriers consist of elevated railroad tracks that run east and west and the main street, Esplanade, that runs north and south. These barriers, in effect, create a levy within the town boundaries protecting the more affluent, middle-class neighborhoods, while the poorer neighborhoods in the northwest and southwest of town were flooded. Within an hour a wall of water came rushing into town, as the drainage ditches to the south were simultaneously backed-up by the rain waters and runoff that had swollen the river and filled the flood plain.

These drainage ditches were built in the 1950s, by the U.S. Army Corps of Engineers, in response to another severe flooding episode. The drainage ditches, originally designed to redirect excess runoff from rain into the Guadalupe River south of town, actually caused a backup of water, because they had not been maintained nor properly designed (KI98-09 1999). The ditches were designed so that excess rainwater

would flow up-stream into the Guadalupe, against the natural flow of the river. However, this became a serious design flaw when the force and the amount of the water already within the river prevented the ditches from working as planned. Instead, this caused the excess rain water to backup into town. Within hours, the flood waters reached the southeast neighborhood of Switchback and reportedly rose 10 feet on some streets. All in all, homes that had experienced 2 to 18 inches of water in past floods were now under 4 to 12 feet of water. The town of Switchback was the single most seriously impacted community in this flood, succumbing to damage or destruction of a large percentage of its housing stock. The flooding was so severe that on October 21, 1998, the President declared the area a national disaster.

This opened the door for national resources to be brought to the area, administered primarily by the Federal Emergency Management Agency (FEMA 1998b). The flooded area covered most of central Texas and was considered one of the most significant hydrological events in recent history (Shultz 2002). Once federal assistance has been requested and an area has been declared a national disaster, the Federal Emergency Management Agency (FEMA) is required to enter and render aid. Its mission is to encourage and influence better disaster planning and preparations by government at every level. However, FEMA has little authority to carry out this work (Giuffrida 1985), and as

communities scramble to rebuild, they often recreate the same vulnerabilities that existed before the disaster event. A lack of experience in dealing with these types of scenarios by the leadership in Switchback led to some disillusionment and unrealistic expectations as to what could be expected from FEMA and other aid agencies (KI98-04 1999; KI98-21 1999). Additionally, various respondents asserted a need for a more progressive style of leadership in the community, essentially one that involved a comprehensive and inclusive vision that would assist and involve all ethnic groups in the town (KI98-04 1999; KI98-19 1999; KI98-23 1999).

The losses incurred by the flood were devastating, and particularly affected the local housing stock. The flood damaged or destroyed 1,076 housing structures in Switchback; of these, 643 were a complete loss (Briffett 1998). Community-wide, 43 % of the housing structures were damaged or destroyed, 26 % of which had at least four feet of water in the structure, in effect, making the house unlivable and destroying the residence. Housing became an immediate issue.

The Switchback Disaster Recovery Center, which was one of the organizations that kept its doors open the longest, until December 21, 1998, received almost 2,400 applications for aid. Of these, 740 people received rental assistance amounting up to more than $2 million, ($2,184,708), but only 19 households within the county were eligible for

Small Business Administration Loans (equaling $881,800). Two hundred and fifty-five families received almost $2 million ($1,939,219) in grants from the Individual and Family Program (FEMA 1998a). Many businesses were also affected by the rising waters. Eighty-eight sustained substantial water damage and 55 of them had not reopened as of January 1999.

While Switchback was proportionally hit the hardest of all towns in this flood, the devastation did not stop there. The Presidential disaster declaration originally covered twenty counties in central Texas, including DeWitt County, where Switchback is located, and brought in over $6 million of aid to the area (FEMA 1998a). The original area was extended to include 43 declared counties, and by the end of the year over $200 million dollars worth of aid had been allotted for this and other smaller disasters in Texas. More than 24,000 people applied for this aid (FEMA 1998c; FEMA 1999). No deaths were reported within the town of Switchback though within the drainage area of the Guadalupe River, which incorporates over 10,000 square miles within central Texas, 31 deaths were attributed to the flood (Shultz 2002). Overall, this flood was one of the worst in Texas history, resulting in nearly $30 million dollars disbursed through Small Business Administration Loans (SBA), $107,106 in unemployment assistance due to the flood, and $16,521,898 for Family and Individual Grants, which go to help those

with serious unmet needs that are not eligible for aid through other means. In all 23,852 families and individuals applied for disaster recovery aid, among which 2,397 were from Switchback (FEMA 1998a; FEMA 1998c).

Prior to the flood, Switchback had been a stagnant town. Only one or two new homes were built per year (KI98-21 1999). This meant little available housing stock for people to replace destroyed residences and virtually no pre-existing construction industry in town to help them rebuild. During the week following the crest of the flood over 1,200 residents stayed at designated emergency shelters. As many as 200 victims remained in the shelters during the first two weeks following the disaster. There is no record of the additional number of people who sought shelter with friends and relatives, which studies have shown is normally where the majority of people prefer to go during a crisis (Bolin and Stanford 1991; Drabek and Boggs 1968; Quarantelli 1991). Many people were forced to find shelter in their private vehicles, or for the luckier ones, in the back offices or warehouses of their employers (KI98-19 1999). Due to the lack of available housing in the area, disaster relief services were forced to keep public shelters open nearly nine weeks, until the second week in December. By all accounts, this was a horrendous disaster that greatly affected the town.

The flooding that occurred within the city of Switchback resulted, in part, when the river jumped its banks and cut a new path for itself. This type of occurrence, while not common, could have been predicted since it is a natural process that happens on rivers which are not highly engineered, such as the Guadalupe in central Texas. Rivers are dynamic systems which take the path of least resistance, and when the water volume and pressure become too great, they will cut a new path for themselves. Very often, poor and marginalized rural residents, reside in the highly vulnerable lands of the flood plain, and that is yet another reason they are often so badly affected by floods. However, in Switchback, the lowest income flood victims' did not reside in the flood plain, and were, hence, ineligible to obtain flood insurance, even if they could have afforded it. "Uninsured people with no savings lose twice in a flood disaster: they lose the goods which are essential to life and they lose the time which they have to spend working to replace them" (Wisner, Blaikie, Cannon, and Davis 1994). The flood at Switchback provides a unique opportunity to study disaster recovery processes in an ethnically diverse, rural setting. Though this flood was not of massive proportions on a global scale, it was a significant event in Texas and could have had severe, long-term consequences that negatively affected the livelihood and well-being of a rural town, already stressed by chronic poverty and isolation. Various studies have cited the added

vulnerability to disasters of rural towns (Miller and Simile 1992; Pereau 1991; Summers 1991; Sundet and Mermelstein 1996), which often do not have redundant systems to help in the rebuilding and recovery processes nor the available tax base from which to draw in times of emergencies. Furthermore, they rarely garner the attention that larger communities can achieve in the competitive bid for external aid.

CHAPTER III

METHODOLOGY

Introduction to the methodology

This chapter discusses the methodological approach used in the study. It addresses the survey design, instrument, survey sample, field operations, and methods for data analysis. In addition, the chapter discusses the constructs and definitions of the independent and dependent variables along with issues of concern regarding the study.

This research follows a case study format that combines inductive and deductive reasoning, while focusing on the aid-acquisition process for housing restoration following a natural disaster, and the social context in which it is undertaken.

The research was conducted to build upon previous work developed in the hazard recovery field. It addresses the process of aid acquisition on the household level and variations that might exist with that experience, especially along ethnic lines. Data collected and analyzed using these methods provide insights for the development of theories that can help direct future studies on ethnic differences in disaster recovery processes, particularly in rural or isolated settings.

This study used existing data collected in the summer of 1999 as part of a four-year research grant entitled Organization Based Post Disaster Sheltering and Housing of Low Income and Minority Groups, which was funded by the National Science Foundation (NSF) (Phillips and Wenger 1997). The research examined the perceptions and experience of victims, organizations, and community policymakers in the area of post-disaster sheltering and housing. Three different communities were selected on the bases of geographic diversity within the Southwest region. The criteria used for site selection were community size, demographic diversity, and differentiation in the type of hazard that disrupted the social structure and functions of the community.

This dissertation is based on one of those sites, a rural community in central Texas referred to as Switchback, for the purpose of this study. It was selected as a research site for three reasons: 1) it is representative of rural communities that experience a major disaster from a known threatening source, in this case, the nearby river; 2) the three main ethnic groups (Anglo, African-American, and Hispanic) in the United States were fairly evenly represented within the victim population; and 3) the president declared the area a national disaster, thus providing access to national levels of reconstruction support. The data were derived from two primary sources: the first was through in-depth interviews with key informants conducted by the principal investigator,

Dr. Dennis Wenger, and his graduate student at the time, Patricia Starr-Cole. The second source of information came from a ten-page household survey entitled Emergency Sheltering and Temporary Housing Following Disasters. The principal data collectors for the household surveys were Patricia Starr-Cole and Kim Galindo.

Methods of data collection

Various methods of data collection were utilized in this study, providing both qualitative and quantitative levels of analysis and understanding of the disaster recovery process.

Qualitative data collection

The qualitative component of this research was conducted through multiple approaches. The first of these was a windshield survey to determine levels of damage and provide a rough estimate of the size and nature of the community. This was followed-up by more formal ways of obtaining data, such as a review of the local socio-cultural history and flooding experiences in the area. Community leaders were then identified for in-depth interviews, and both the assessments and impressions of the town were discussed by research members throughout the data collection process. Additionally, during the administration of household surveys, researchers were exposed to many

of the impressions, emotions, and stressors which were affecting the local residents as they recovered. This added a certain depth of understanding and knowledge of the local recovery process for the researchers to take into account, and which provided a richer understanding of the quantitative data, derived from the household surveys.

Formally, the qualitative data were collected primarily through information from key informant interviews that were used to provide a rich description of the context in which recovery was taking place. Cole and Wenger had previously collected qualitative data in the beginning of the same year that the survey was conducted through a series of in-depth interviews with key informants from the community and local recovery groups (Starr-Cole 2003). These informants provided various perspectives on the dynamic processes within the town, including housing development, economic opportunities, the political landscape, and organized recovery efforts. Three separate trips were made exclusively to conduct interviews: the first two occurred a few months before the distribution of the survey, and the last trip for key-informant interviews took place upon the one-year anniversary of the flood.

A snowball technique was initially used to identify key leaders within the town in both the political and economic spheres. This technique is a non-random method of developing a sample population.

It begins by identifying one person in the group under investigation, and asking that person to recommend others who meet the criteria one is looking for who would be willing to participate in the research. In this way, all or most of the people within the study population can be identified and a comprehensive sampling frame developed. Because the population, community leaders, under study for these interviews was limited, the snowball technique was used until saturation - when the same people began to be referred repeatedly – was achieved.

Interviews were conducted within the town of Switchback, and scheduled at the convenience of the informant, except for the interviews with the Texas Department of Emergency Management and FEMA, which are headquartered in the greater Dallas/Fort Worth area. Each interview was taped and transcribed by Starr-Cole. It is these transcriptions, plus personal involvement by the author with the process of survey administration, and a review of historical documentation of the locality, that form the basis for the description of Switchback and the historical and contextual setting presented in Chapters II and V. Each informant was advised that his/her responses would be kept confidential and anonymous. However, since the town under study is a small community in which most people know each other, it is difficult to provide this level of protection for any individual. Because it could be possible to identify someone based on their response or the attitude

expressed in the response (Barrett 1991), the anonymity of the town is preserved through the use of the pseudonym, “Switchback,” and no individuals will be identified by their real names. Switchback is the same name used by Cole for her studies of this community.

In addition, all interviews were coded to preserve the anonymity of the informants. In referencing or quoting from any of the interviews a code is used to specify the interview that includes the abbreviation KI (for Key Informant), the year of the flood, and the number of the interview, but no factual name is ever given. A total of 38 key informant interviews were conducted, 12 of these were community leaders working in a volunteer capacity to help with the recovery process, 10 were city or county employees directly involved in recovery issues, the remaining informants were a combination of private businessmen, state/federal employees, or representatives from non-profit agencies, who provided an array of services within the town. All code books, surveys and interviews are stored in the Department of Landscape Architecture and Urban Planning at Texas A&M University, College Station, Texas.

Quantitative data collection through household surveys

In order to draw a representative sample for this study, the population had to be defined. Because the focus of this research is on housing recovery, a sample frame was devised for those areas of town

that had experienced significant damage. The total population for study consisted of all households residing in neighborhoods that were directly affected by the flood waters, and the new mobile home parks established after the disaster. Most individuals within these neighborhoods were directly affected by the flood through personal loss, although natural topography diverted flooding from some houses within these neighborhoods. In these few cases residents may have provided shelter to their neighbors or family, and were thus included in the population sample, though they experienced no housing loss.

The population of Switchback households came from a compilation of two sources: (1) the Southwestern Bell telephone book published in January 1998 and (2) the Red Cross preliminary damage assessments collected during the first 48 hours following the flood. Business listings and out-of-town addresses were not included. In addition, in November 1998 and January 1999, the research team visually inspected all affected areas and listed streets and specific blocks within the flooded areas. The researchers cross-referenced the list of affected streets with the total population to obtain specific addresses. From this list, which produced a sampling frame of 1077 damaged houses, a systemic random sample was drawn by choosing every ninth name and corresponding address. The original sample consisted of 500 households, roughly 49 % of the affected population. Reports provided

by DeWitt County stated that 679 houses were destroyed, 320 homes sustained major damage and 25 homes had minor damage. This gives a total of 1,024 homes affected by the flood, only 3 % of which were covered by insurance.

Because of vacant or uninhabitable housing units and destroyed or missing housing units, the researchers had to make substitutions in the original sample frame. To accommodate this need, a second systemic random sample was created from the original sampling frame. Elements within the original sampling frame that were not selected for the initial sample were listed in alphabetical order by street name, and then by ascending order of street address. A systemic random sample was then drawn following the same procedures as in the first instance. If an address from this second list was not viable or was vacant and in need of substitution, then the researcher chose the closest house address to the right. A vacancy was declared if the household did not receive water, or if no one answered the door after three different attempts were made to deliver the questionnaire. Since two random samples were drawn and the adjacent structure was used as a substitution, it cannot technically be considered pure random sample, however it will be treated as such for the purposes of this study. Because of time and resource constraints, in addition to the vacant households, only 301 households could be surveyed. This was after

subtracting 464 households from the original sample of 765 which were deemed uninhabitable

The response rate for this study was very high considering the constraints associated with disaster recovery surveys that provide no remuneration for participation, and often face the difficulties of locating the original inhabitants of an area. Of the occupied households contacted, thirty-six households did not respond to the survey. Of those that did not respond, 16 refused to participate in the study after the initial contact by the research team, and 20 agreed to participate but never completed the survey. Thus, only 265 households completed the survey. This elicited a response rate of 88%, once non-eligible households were removed from the sample frame. However, according to the AAPOR guidelines, which would include the uninhabited households that could not be contacted, the return rate would be measured at approximately 25%. The number of total observations for this study was further reduced when 15 of the respondents did not self-select either an ethnic affiliation or selected "other," and therefore had their responses eliminated because this study focuses on ethnic variations in the recovery process. These respondents were eliminated from the data base, after several preliminary tests using chi-squares and basic percentages were conducted to ensure that their elimination would not skew results in any significant way. The numbers of non-ethnically

affiliated respondents were low and did not significantly alter the findings.

Field operations

In the summer of 1999, research team members went door-to-door and dropped off survey packets. At the initial meeting, team members introduced the project, showed the potential respondents the survey packet, and discussed the concept of anonymity and confidentiality. Because Switchback had a small population, and the educational level of the community was low, the researchers thought that these discussions were necessary to earn the trust of the respondents and to answer questions the residents might have about the study not included in the survey packet.

A team member reviewed the sample instructions included in the survey packet with the resident. Residents were informed that participation in this research was completely voluntary, and that there would be no compensation for their participation in the study. Each team member asked adult household members whether they would be interested in participating in the survey. If they agreed to participate, they were given two choices: either (1) to complete the questionnaire on their own, or (2) to complete it with the assistance of the team member as a scheduled interview. If the resident answered that they would fill

the questionnaire out themselves, then the team member instructed the respondents to place the completed survey in the enclosed white envelope, seal the envelope and place the envelope outside their front door for collection. The team member and respondents agreed upon a time for completing the survey. A team member picked up the completed survey within twenty-four hours after the agreed upon completion time. Upon pick-up, the team member numerically coded the envelope in order to track which households responded.

If a survey was not picked up from a household that agreed to participate in the study, a team member re-established contact with the household. Once the respondent was re-contacted, if a survey was not found outside within twenty-four hours from the last contact, the sample element was considered a refusal. The research team took great caution to offer every opportunity for a household to respond to the survey without pressuring the resident.

The survey instrument

The survey questionnaire collected data on the entire process victims experienced in attempting to maintain and re-establish a roof over their heads, beginning from the moment of evacuation until they returned to permanent housing. The survey followed a linear progression that guided respondents in recounting the events of the

flood and the subsequent actions they undertook as they proceeded from emergency shelters to permanent housing. The survey began by asking respondents if they were affected by the flood as well as what percentage of their house and property had been damaged by the flood; respondents answered using a fixed choice scenario estimating to the nearest quartile the amount of damage sustained. They survey then proceeded to explore shelter and temporary housing options utilized by respondents.

Patricia Starr-Cole (2003) undertook analysis of the first part of the questionnaire in her examination of both emergency and temporary shelter patterns for respondents, and how these differed along ethnic lines. The second part of the questionnaire is analyzed in this dissertation. It closely examines responses from the survey dealing directly with the aid acquisition process and the subsequent satisfaction with the aid received. The aid acquisition process is examined in terms of: (1) how information for aid was acquired, (2) what sources and types of aid were accessed and (3) how satisfied respondents were with the aid they received.

A household survey packet was distributed at every household sampled. It consisted of: (1) a cover letter; (2) a pamphlet; (3) a survey instrument; and (4) a large white sealable envelope these are contained in Appendix A. All parts of the survey packet were printed in both

English and Spanish. The cover letter introduced and legitimized the research institution and explained the study. The letter assured the respondents that their responses would be treated anonymously and confidentially. The pamphlet answered some common questions and potential concerns associated with any research study and addressed why a specific household was chosen and how the data would be handled. The ten-page survey instrument, entitled "Emergency Sheltering and Temporary Housing Following Disasters," was printed in booklet format, and was administered to an adult residing in the home. No attempt was made to obtain a stratified sample based upon gender or age.

The household survey consisted of 31 opened and closed-ended questions addressing, among other things: (1) demographic characteristics of the household; (2) percent of disaster losses sustained; (3) emergency and temporary sheltering patterns, which included the sequence, duration, and number of household movements post-disaster; (4) types and sources of aid received in the disaster recovery process; (5) satisfaction levels with assistance received; and (6) the level of reconstruction and/or re-establishment of permanent housing. Table 3.1 presents the list of variables and related survey questions used in this study.

Table 3.1 List of variables and related survey questions

Data Sought	Survey Question Number
Household Demographic Characteristics	31
Damage to Property Sustained	1, 2, 3
Sources of Disaster Assistance	23, 25, 26
Level of Recovery Achieved	28, 29
Final Post-Disaster Housing	17,18, 19, 20, 21
Satisfaction with Pre and Post-Disaster Housing	22, 24, 27

Constructs and definitions

The research was based on previous literature that guided many of the questions asked. This literature also provided a framework for the establishment of various terms and theoretical constructs that underlie much of the development of the survey instrument. Those terms and constructs are defined in the following pages.

Phases of Housing Recovery - The research considered four phases of housing recovery based on Quarantelli's Model: emergency sheltering, temporary sheltering, temporary housing, and permanent housing (Quarantelli 1978). This research is focused primarily on the latter stage.

Household Movement - Household movements included entry into a sheltering and housing location, regardless if the new location was within the same phase of housing recovery.

The Housing Recovery Process - Definition of the housing recovery process included compilation of household movements into and out of sheltering and housing locations. The process began when the household evacuated their original pre-flood home and ended when long-term, or permanent, housing was re-established.

Ethnicity - The study analyzes three ethnicities: Anglo, African-American, and Hispanic. Respondents classified their households by one of the three ethnic choices provided in the survey. The term Hispanic refers primarily to Mexican-Americans, as established through observation and key informant interviews, though no direct questions were asked of respondents to specify their country of origin.

Household Income - Respondents reported their income from a fixed choice classification scheme ranging from below $5,000 per year to above $70,000 per year. The survey divided the income ranges into $5,000 increments. In order to compare means, these income ranges were redefined by the mid-point of each category.

Ages - Respondents reported their age in an open-ended question on the survey. Although age is directly related only to the respondents, it is also an indicator of the household position in the family life cycle.

Education - Respondents reported their highest year of education completed from a fixed-choice classification ranging from less than a high school diploma to post-graduate studies.

Household Size - Respondents reported the size of the household prior to the disaster and after the disaster, specifying the number of children under the age of 18 in each case.

Damage Sustained - Respondents reported separately the amount of damage to their property and their belongings from a fixed-choice scale ranging from no damage (0 % loss) to complete damage (100% loss). The study separated damage estimates for both contents (appliances, clothing, food, etc.) and structural damages to the residence. Data were only collected on damages to physical assets, and did not attempt to estimate losses in other areas, such as cost of goods, economic losses, or emotional and psychological damages incurred.

Sources of Disaster Aid - Respondents reported the organization(s) from which they obtained disaster assistance from a pre-determined list of 18 sources for aid that included an "Other" category. These sources were derived from interviews with key informants, who reported the various organizations that were locally active in the recovery process.

Types of Aid - Respondents were asked to state the form in which aid was provided from a list of five possible types: (1) rental assistance, which could be interpreted as temporary housing or assistance paying for housing; (2) replacing belongings; (3) rebuilding materials; (4) labor and services; or (5) Other. "Other" often came in the form of food or emotional support, though some respondents also mentioned occasionally receiving advice and information. In cases where straight monetary aid was provided, researchers asked about the primary use of such monies, whether it was used to hire the labor and services of a contractor or electrician, purchase rebuilding materials, pay for sheltering costs (rental assistance), purchase new belongings, or whether the money was used for other needs.

Variation in Types of Aid - Since specific information was not gathered on the exact amount of aid each household received, an index was formulated to attempt to evaluate the comprehensive nature of an aid

source by calculating the mean number of types of aid provided by each source or obtained by each household. This measurement, however, still falls short of evaluating the full effectiveness of any aid sources because it does not address the amount of aid received, or whether the stated aid source was able to provide all the help needed. For example, a neighbor may help another neighbor by cleaning up debris for a short while (labor and services), giving excess aid received (replacing belongings or rebuilding materials) or offering sandwiches one day, but the total effect of the aid provided would be minimal in comparison to the need. Thus the neighbor who had provided three to four different types of aid would appear, at first glance, to be a good source of recovery aid, although only minimal aid was actually provided. On the other hand, an insurance company may have provided enough financial support so that complete recovery could be achieved. This source could provide money which is inherently flexible enough to be able to be used in a variety of ways to obtain various forms of aid. This would be shown through the measurement for variation in types of aid. Even though this measurement does not provide complete information on the full effectiveness of the aid sources, researchers did find that there were differences among aid sources.

Satisfaction with Disaster Assistance Received - Respondents reported their overall satisfaction with the amount of housing assistance they received using a fixed-choice Likert scale ranging from very dissatisfied to very satisfied. This question addressed their overall satisfaction with the housing aid they received. The question was positioned midway through the survey, after items on sheltering and before items covering the housing restoration process. A second group of questions on satisfaction with the types of disaster aid received followed items on housing restoration. In these questions respondents reported their satisfaction with the types of aid for housing recovery received from each of the following categories: rental assistance, replacement of belongings, rebuilding materials, and labor and services. Residents answered all these questions using a similar fixed-choice Likert scale ranging from very dissatisfied to very satisfied.

Final Post-Disaster Housing - Respondents were asked where they were residing at the time of the survey from a list of locations that included an "Other" category if they stated they had not returned to their pre-flood home.

Satisfaction with Pre- and Post-Disaster Housing - Respondents reported their overall satisfaction both with the location where they lived

before the flood and with the location where they resided at the time of the survey using a fixed-choice Likert scale ranging from very dissatisfied to very satisfied. The study uses the difference in these satisfaction ratings (satisfaction level for post-disaster housing minus satisfaction level for pre-disaster housing) to determine whether the victim assesses the housing re-established after the disaster as better, the same, or worse than their pre-disaster housing.

Methods of data analysis

This section will review the survey questionnaire structure, the relevant data collected and the types of data analysis used in this study. Various methods were used depending on the type of information solicited from the respondents and the types of patterns this study was attempting to determine from the data collected. As noted earlier, the survey included both open- and close-ended questions. Questions with fixed choices were primarily used for data interpretation and analysis in this study. For example, among the first questions addressed in the survey was the level of damage sustained to the house. To ascertain this information, residents were asked to report the percentage of damage incurred to both house structure and contents of the home where residents lived at the time of the event. Respondents were asked to choose among five categories: no damage, 25 % damage, 50 %

damage, 75 % damage, and total loss/100 % damage. However, a respondent may have sustained 25% damage to the structure and 75% damage to the contents. For purpose of analyses, these damage levels were weighted and then combined to develop a new variable, "Total Damage Sustained," where structural damage was weighted twice as much as content damage because of the added loss in value associated with the loss of housing structures, and the added difficulty of replacing or reconstructing a structure versus the replacement of damaged contents. The formula used was as follows:

Total Damage = (.66 X structural damage) + (.33 X content damage)

The new variable, Total Damage, was then used as a base measurement for recovery efforts, which allowed researchers to control for damage, along with other demographic variables, when measuring recovery levels among ethnic groups.

The respondents to the household questionnaire were drawn from a randomly selected sampling frame which attempted to capture all households directly affected by the flood. Because the sample population was randomly selected, parametric analyses could be conducted to provide a quantifiable description of the processes undergone through the recovery process. Since the main emphasis for

this research is to look at variations in aid acquisition patterns between ethnic groups, differences among ethnic groups were examined using a variety of statistical techniques. The data analyses were broken down into two primary sets, questions dealing with the aid acquisition process, and those dealing with satisfaction with the process. In each set of analyses, a comparison is made between Anglo (majority group) and minority groups, and then further broken down to show distinctions among minority groups and how each group compares to Anglos. This approach provides depth to the understanding of the many processes involved in recovery and how contextual aspects, such as the history of the town, group membership, and physical location, affect the recovery process for different ethnic groups.

Upon completion of the initial contingency tables, further tests were conducted to give greater specificity to the findings. Because many of the questions used a fixed choice format resulting in nominal or ordinal data, much of the data had to be recalculated to use the mid-point of each category so that multivariate analyses could be run. For example, statistical comparisons between minority and majority groups were made using t-tests. Comparisons between Anglos Blacks and Hispanics were undertaken using one-way analyses of variance (ANOVA). The ANOVA compares the variance within a sub-sample group relative to the variance between sub-sample groups. If the variance

among the groups is large compared to the variance within groups, then there is evidence to indicate that a significant difference exists among the sub-sample means (Sincich 1987). However, this analysis does not reveal exactly where the differences lie if there are more than two groups being compared. To determine this, a protected t-test was conducted using Fisher's Least Significant Difference to assess where significant variations lay between ethnic groups, if any. Finally, to further these analyses the data were tested using linear regressions when applicable and logistic regressions when dealing with strictly binary-dependent, variable data. All data analyses were conducted using an SPSS statistical software package.

Demographic characteristics of sample and population

As mentioned previously, two sample populations were used for this study: (1) key-informant community leaders, and (2) households directly affected by the flood. All key-informants lived in Switchback, except those who headed up large NGOs or governmental aid agencies such as FEMA, DEM, and the Red Cross. No key-informants suffered losses as a direct consequence of the flood; however, several had families directly affected by the flood, and all were indirectly affected either through an extension of their job duties, job tenure, or because of volunteer efforts to organize and assist the community in the recovery

process. Only one person on the key-informant interview list belonged to a minority; all other acknowledged leaders of the recovery process were Anglos. However, a shared ethnicity was not enough to unite these leaders. There appeared to be an ideological division among the leaders that closely paralleled their length of residency in town. This was discerned through content analysis of the answers, since a question on length of residency was not directly asked of any of the informants. This division and its implications are discussed in greater detail in Chapter V.

Ethnicity

The ethnic breakdown of the 265 respondents reveals that 32% considered themselves Anglo, while 28% considered themselves African-American and 35% Hispanic, with 5% not providing this information. These percentages changed only slightly when 15 respondents were removed from the analysis, leaving an ethnic break down of 34% Anglos, 29% African-American, and 37% Hispanic within the sample population. An ethnic breakdown of Switchback of 1990 census data is presented in Table 3.2.

Table 3.2 1990 Census summary of ethnic variation in Switchback

Race and Ethnicity	Persons	Percent
Anglos	2050	31%
Black	1304	19%
Other race	1128	17%
Hispanic Ethnic origin:	2218	33%
Total	6700	100%

Source: (Census 1990b)

A comparison of sample and census ethnicity data indicate that the sample is very comparable to that of the town, though it should be noted that African-Americans are somewhat over represented. According to the Census data, Anglos comprise 31% of the population and they represented 32% of the sample size. Likewise, African-Americans only comprise 19% of the population, but are 29% of the sample population and Hispanics are 33% of the general population and 37% within our sample. The over representation of African-Americans in our sample is a function of the de-facto segregated neighborhoods within the community.

It should also be noted that the goal of this survey was not to obtain a representative sample of Switchback. Rather the goal was to obtain a representative sample of households impacted by the flooding event and still remaining in the community. Hence, the over-representation of minorities also suggests that minorities were disproportionately impacted by the event – a topic that will be systematically examined in later chapters.

Ethnic distribution within switchback

The overall demographic statistics suggest an ethnic integration within the community that did not exist because of the demarcated, and ethnically, segregated, residential-neighborhoods. Results from the survey data show that the northern and eastern parts of the town and those areas nearest the river are primarily inhabited by Anglos, while minorities predominate in the south and western portions of the town as presented in the map below, Figure 3.1, displaying data on neighborhood segregation. The map further shows how Anglo neighborhoods were partially protected by an elevated railroad line that cut through town. The railroad is demarcated by a solid line that runs as a right angle through the town protecting the north eastern quadrant of the community. This part of town was almost exclusively settled by Anglos, with most Anglos living in the eastern and northern sections of town.

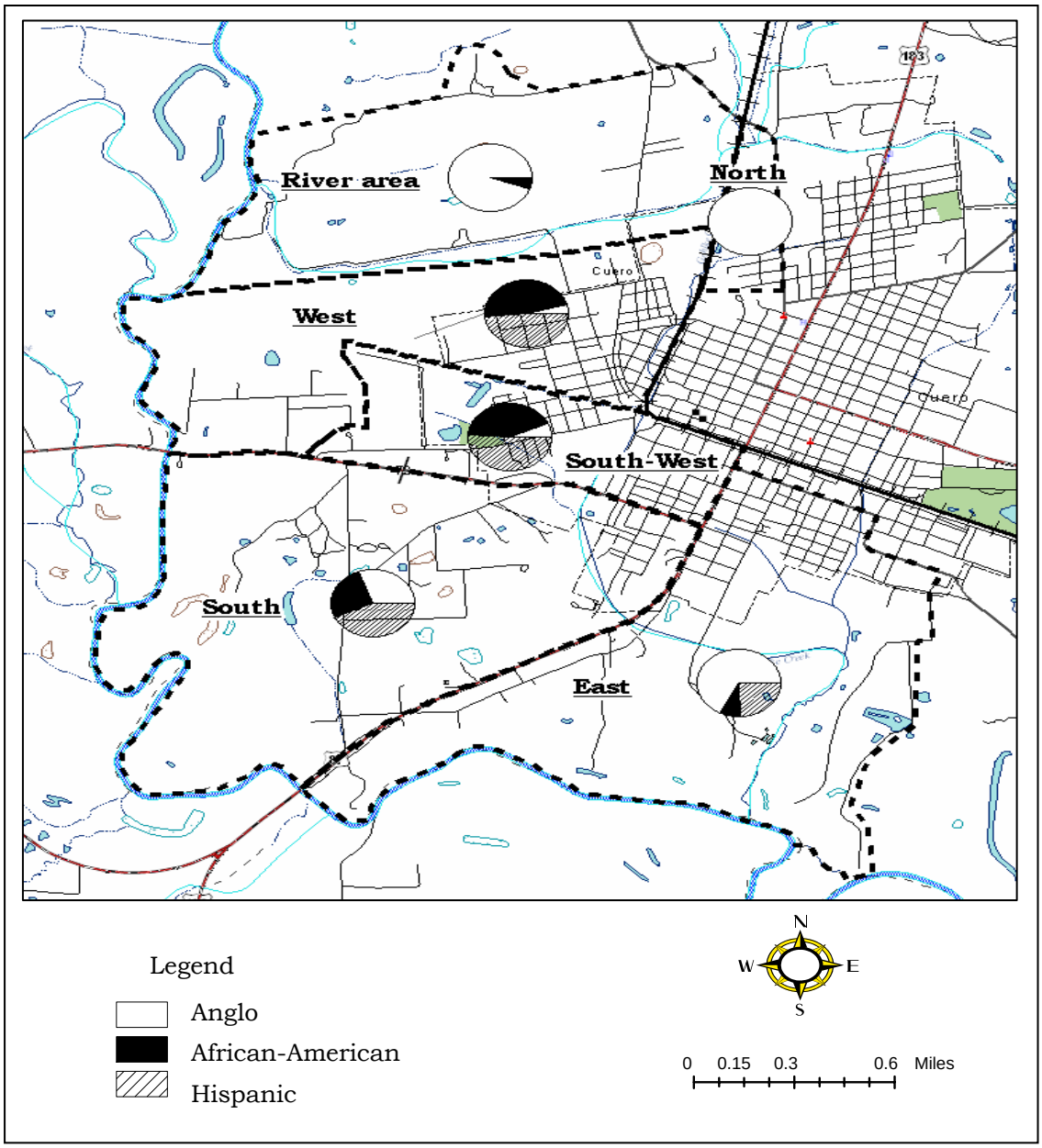


Figure 3.1 Map of neighborhood segregation

The flooding of the town displaced nearly a third of the population. To help accommodate all the displaced people, four mobile home sites were established, and FEMA initially reported bringing in 34 mobile

homes as temporary housing for the flood victims. Such a minimal initial response was due to the extensive need for housing throughout the central Guadalupe basin and because of a lack of awareness of the severity of the housing problem in the town by state and federal agencies (FEMA 1998a). Additionally, 46 travel trailers were brought to either private or commercial sites to help alleviate the housing shortages. However, local informants stated that as of February 1, 1999 there were 374 temporary housing units in Switchback provided by FEMA; 251 of these were travel trailers, and 123 were mobile homes, with an additional unknown number purchased from local dealers in an effort to reestablish housing (KI98-23 1999). FEMA later amended their initial report, stating it had provided almost 500 mobile homes and almost 300 travel trailers, to replace 46% (about 600 homes) of the housing stock that had been damaged or destroyed within Switchback. The final count, six months after the flood, was 519 mobile homes and 355 travel trailers (KI98-28 1999).

Not surprisingly the introduction of new housing and the creation of mobile-home parks did not change the overall nature of the ethnically segregated housing patterns in the town. Figure 3.1 and Figure 3.2 provide some indication of the ethnic segregation within the town. Figure 3.1 shows a geographic layout of the town. The dotted lines indicate the separation in neighborhoods, as discussed herein. The

solid line in the northeast quadrant represents the elevated railroad lines that cut through town and helped protect the northern Anglos sections of town, which were not as affected by the flood. The pie charts within each neighborhood give an indication of the ethnic diversity of survey respondents from those areas of town. This map help illustrate the ethnic segregation within Switchback: most Anglos lived in the North and East sections of town, while minorities lived almost exclusively in the southern and western sides of town. Figure 3.2 shows the distribution of each ethnic grouping across the affected residential areas, based on survey responses. Each bar represents the percentage of the ethnic groups located in that neighborhood. This provides an overall representation of how ethnic groups are distributed within the community's neighborhoods.

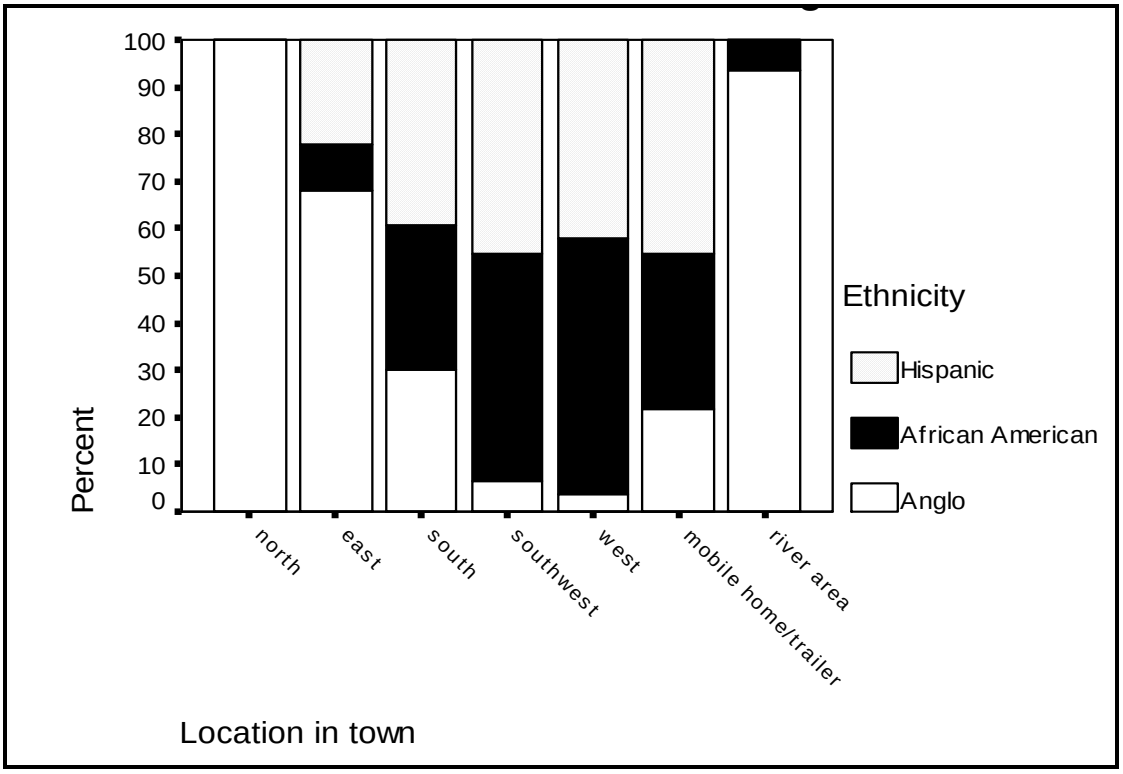


Figure 3.2 Ethnic concentration within neighborhoods

As previously mentioned, Figures 3.1 and 3.2 illustrated how various neighborhoods within the city were dominated by either minority or Anglo households with few areas exhibiting true ethnic diversity at the neighborhood level. The north, east, and river-area neighborhoods are dominated by Anglos, although Hispanics (about 15%) are beginning to migrate into some of the eastern areas of town. The eastern sections of town are neighborhoods in transition: many of the Anglo residents in this area are elderly, often living on social security and pensions, while the Hispanics moving into this area are considered middle-class within the community. The southwest neighborhood is a mixed minority

neighborhood primarily with African-Americans and Hispanics. In the southwest neighborhood, the proportions of the Hispanic and African-American households are fairly evenly distributed, and there are very few Anglos. The most ethnically integrated neighborhood in Switchback is the southern portion of the town, primarily composed of some elderly Anglos, and middle-class Hispanics and African-Americans, though still marginally dominated by Hispanic households. The southern part of the city and the trailer parks are two of the few truly integrated neighborhoods, with approximately equal percentages of African-American, Anglo, and Hispanic; however, the trailer parks are a manifestation of the flood, since they did not exist prior to that event. These are households that had been relocated after the flood due to the extensive damage to their homes, and in most cases these residents probably came from one of the minority dominated neighborhoods, though precise information on their pre-flood housing location was not collected. Within the mobile home category of households, Hispanic was predominant, followed by African American and finally Anglo-American.

Demographic data

The following discussion provides a summary of some demographic variables utilized in the analysis of the data, and as a comparison against the general population of the town. Table 3.3

provides the basic descriptive statistics for the sample and each ethnic group. Those variables that have an asterisk next to the name show that there was a significant difference between ethnic groups on that measurement using an F-test from an analysis of variance. From this table one cane see that significant differences existed between ethnic groups for the mean age of household, income, education, marital status or head of household, and monthly rent or mortgage. In all cases, except for housing costs, minorities carried a heavier social and economic burden. These differences will be discussed in further details in the following sections. Additional tables are presented from both the survey data and census data to provide the basis for greater depth in demographic comparisons of the study sample and those of the town population (See Tables 3.3-3.19).

Table 3.3 Demographic summary of households sampled

Ethnicity		Age of respondent**	Income per year**	Single-headed household **	Monthly rent/ mortgage prior to flood**	Education in years**	Length of residency in years
Anglo	Means	57 years	$29,573	1.57	$119.54	12.59	25.84
	N	84	75	82	78	83	83
African-American	Means	52 years	$18,532	1.39	$132.66	12.12	27.79
	N	73	63	72	65	73	73
Hispanic	Means	47 years	$17,860	1.57	$91.67	10.72	26.04
	N	93	78	88	90	90	91
Totals	Means	52 years	$22,123	1.52	$112.43	11.77	26.49
	N	250	216	242	233	246	247

** indicates chi-square significance at the 0.05 level, * indicates significance at the 0.10 level

Source: Survey Data and percentages for ethnicity

Household and family variations

Table 3.4 through Table 3.8 present the size of the household and the number of children under the age of 18 living there. These variables are used as a proxy for the stage of the life-cycle of the household and the potentials stresses and responsibilities present, though it does not clearly take into account the possibility of multi-generational families nor clustered families (where more than one family is sharing a household); these questions were not directly asked. That information, however, is contained in the data provided by the US Census Bureau and is combined with type of household (see Table 3.4). The census data are presented for comparison purposes so one can view how survey

respondents compared with the population at large, though it should be remembered that the sample was not drawn to be representative of the town at large, but only of those affected by the flood waters.

One can see that within the sample population Hispanics have more children than Anglos and about the same number of young children as African-American, yet the number of persons living in Hispanic families is larger than in either ethnic group. This could suggest that Hispanics have a greater tendency to live in clustered families or that adult children are less likely to leave home. What is clear is that the household density is higher for Hispanics than other groups. Furthermore, it is useful to compare these statistics with the age of respondent and marital status to provide a more comprehensive image of household variations. Through these comparisons one can see that Hispanic households, by and large, were on average younger and larger than Anglo or African-American households, and therefore shouldering more of a burden for the maintenance and support of children. This added responsibility is compounded by the lack of income generated through the household (see Table 3.4 and Table 3.5).

Table 3.4 Household type from U.S. census

Household type	Households with 1 or more persons under 18 years	Percent of total households	Households with no children	Percent of total households
Total households	935	36.35%	1637	63.65%
Married-couple family	626	24.34%	661	25.70%
Male householder, no wife present	42	1.63%	40	1.56%
Female householder, no husband present	258	10.03%	121	4.70%
Male Non-family householder		0.00%	273	10.61%
Female Non-family householder		0.00%	542	21.07%

Source: (Census 1990a)

Table 3.5 Types of household in survey

	Anglo	African-American	Hispanic	Total
Single head of household	35 42.7%	44 61.1%	38 43.2%	117 48.3%
Married - couple	47 57.3%	28 38.9%	50 56.8%	125 51.7%
Totals	82 100%	72 100%	88 100%	242 100%

SOURCE: Survey data

A variable, "Type of household," was constructed as an additional socio-economic indicator of household status. To create this variable, responses of "single", "Married but separated," "Divorced" or "Widowed" are collapsed into single head of household assuming that the household was maintained by one person. In contrast, responses of "married" were assumed to indicate the support of two adults. It is recognized by researchers that these are approximations of "type of household" but are

used to attempt to provide greater depth of understanding to the socio-economic conditions under which recovery is taking place, and not actually a measure of the marital situation of the head of household. The reliability for this variable may not be very high. This new variable crosstabulated by ethnicity is presented above in tables 3.4 and 3.5 and graphically in Figure 3.3.

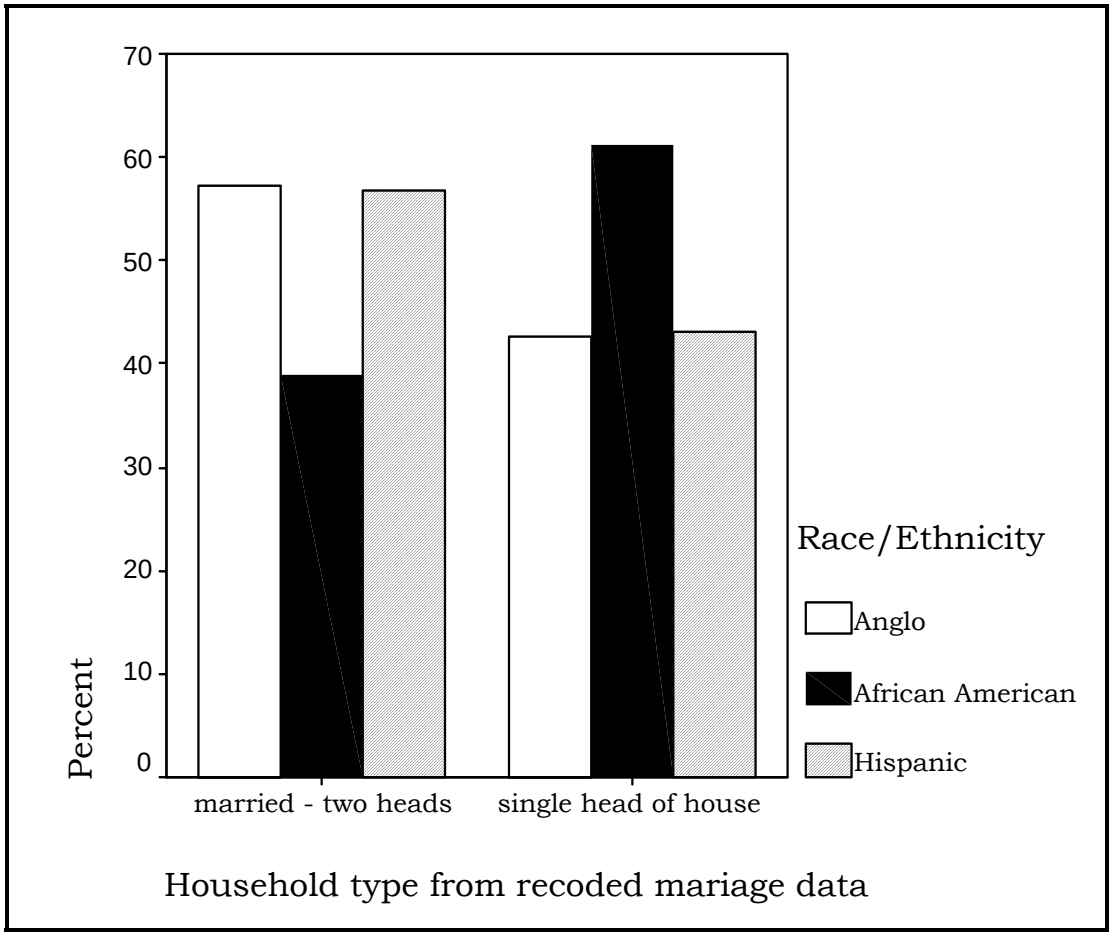


Figure 3.3 Marital status of head of household by ethnicity

The data presented above revealed ethnic variations in a number of household demographic characteristics. The most significant difference among ethnic groups is between African-Americans as compared to both Anglos and Hispanics. Over 60% of African-Americans lived in non-married households and hence are likely to be headed by only a single adult, while nearly 60% of Anglos and Hispanics stated they were married and thus assumed to be in a family with two heads-of-household (see Figure 3.3).

Table 3.6 Household size

Number of persons in household	Anglo	African-American	Hispanic	Total
1	22 26.8%	17 23.6%	9 9.8%	48 19.5%
2	34 41.5%	19 26.4%	24 26.1%	77 31.3%
3	9 11%	18 25%	25 27.2%	52 21.1%
4	7 8.5%	12 16.7%	11 12.0%	30 12.2%
5	9 11.0%	2 2.8%	13 14.1%	24 9.8%
6	0 0.0%	2 2.8%	6 6.5%	8 3.3%
7	0 0.0%	1 1.4%	2 2.2%	3 1.2%
8	1 1.2%	1 1.4%	1 1.1%	3 1.2%
13	0 0.0%	0 0.0%	1 1.1%	1 .4%
Totals	82 100%	72 100%	92 100%	246 100%

SOURCE: Survey data

Ethnic variation in the average household size and number of children 18 years old or younger are presented in Table 3.7 and Table 3.8. Anglo households have the smallest average size amongst the three ethnic groups (it was common to find households comprised of only one person). The Hispanic households were found to have the largest average size at 3.39 individuals. Interestingly, the average household size of both Anglo and African-American households were comparable, being significantly less than that of the Hispanic households (see Table 3.7). Similar patterns were also observed in the data relating to the number of children below 18 years in the household, thus indicating that Hispanic households were probably younger and at an earlier stage in the family life cycle (see Table 3.8). On average, the surveyed households were found to have only about 0.42 children below 18 years old, indicating the possibility of a dying town, which was neither able to retain its youth nor to attract others. Hispanic households were found to have the highest average number of children below 18 years (0.55), perhaps indicating a higher birthrate or younger households, signifying they were in the childbearing stage of the family life-cycle. Of course, another possibility is that the children of Hispanic households are not as likely to move out of town as the other ethnic groups; hence Switchback may be maintaining this segment of its population.

Table 3.7 Average household size before the flood

Ethnicity	Number of people living in the house before the flood	Children under 18 living at home
Anglo	2.4146	.6154
African-American	2.6944	.7206
Hispanic	3.3913**	1.0455*
Averages	2.8618	.8077

** indicates significance at the 0.05 level, * indicates significance at the 0.10 level

Table 3.8 Number of children under the age of 18 in household at time of flood

Number of children under 18	Anglo	African-American	Hispanic	Total
0	55 70.5%	44 64.7%	40 45.5%	139 59.4%
1	8 10.3%	7 10.3%	26 29.5%	41 17.5%
2	6 7.7%	12 17.6%	10 11.4%	28 12%
3	8 10.3%	2 2.9%	7 8.0%	17 7.3%
4	1 1.3%	3 4.4%	2 2.3%	6 2.6%
5	0 0.0%	0 0.0%	2 2.3%	2 .9%
6	0 0.0%	0 0.0%	0 0.0%	0 0.0%
7	0 0.0%	0 0.0%	1 1.1%	1 .4%
Totals	78 100%	68 100%	88 100%	234 100%

SOURCE: survey data

Variations in age

Some of the difference in family size can be explained in terms of the age distribution of respondents (see Table 3.9 through Table 3.11). Assuming that the respondent was the head of the household, a higher age (above 50) suggests that the respondent is less likely to have young children at home. The average age of the Anglo respondents was almost 58 years (see Table 3.10). Intuitively, at this age there is significantly less chance of having young children at home. Similarly, the average age of the African-American respondents was 52 years, again signifying a low probability of having young children at home. The Hispanic respondents had an average age of less than 50. The fact that Hispanic headed households, on average, were younger than other ethnic groups, may explain why there would have been more children under the age of 18 living at home. However, it should be expressed, once again, that no specific measures were taken by interviewers to single out heads of household or their age. The ages reported are those of the respondent and any children living in the home, not necessarily that of the head of household. From personal observations during the data gathering process, it is believed that the majority of surveys were answered by one of the adult heads of household.

Table 3.9 Summary of age distribution from census data

Age of Respondents	Anglo	African-American	Hispanic
Under 16 years	176 2.63%	376 5.61%	771 11.51%
16 through 20 years	77 1.15%	101 1.51%	169 2.52%
21 through 29 years	95 1.42%	151 2.25%	318 4.75%
30 through 39 years	243 3.63%	178 2.66%	298 4.45%
40 through 49 years	261 3.90%	219 3.27%	197 2.94%
50 through 59 years	312 4.66%	111 1.66%	168 2.51%
60 through 69 years	351 5.24%	116 1.73%	146 2.18%
70 and up	624 9.31%	170 2.54%	151 2.25%
Totals	2139 31.93%	1422 21.22%	2218 33.10%

(Census 1990a)

Table 3.10 Age of respondents

Number of children under 18	Anglo	African-American	Hispanic	Total
16 thru 20		1 1.5%	5 5.7%	6 2.5%
21 thru 30	7 8.6%	3 4.4%	7 8.0%	17 7.2%
31 thru 40	10 12.3%	8 11.8%	15 17.0%	33 13.9%
41 thru 50	10 12.3%	17 25.0%	24 27.3%	51 21.5%
51 thru 60	13 16.0%	12 17.6%	12 13.6%	37 15.6%
61 thru 70	14 17.3%	10 14.7%	15 17.0%	39 16.5%
71 and up	27 33.3%	17 25.0%	10 11.4%	54 22.8%
Totals	81 100%	68 100%	88 100%	237 100%

SOURCE: Survey data

Table 3.11 Average age by ethnicity

Ethnicity	Average Age
Anglo	56.70
African American	52.15
Hispanic	46.53
Overall Average	51.59

One of the first concerns after realizing that there were ethnic differences in the age of respondents was that Hispanic households might be younger because of recent immigration into the area, but when the lengths of residency in the area were compared by ethnicity, there were no significant differences among ethnic groups (see Table 3.12 and Figure 3.4) Most respondents to this survey were long-time residents of the community. Thus, they were probably well adapted to the local culture and knowledgeable of the existing power-structures.

Table 3.12 Mean length of residency by ethnicity

Ethnicity	Years of residency	Std. Deviation
Anglo	25.8434	11.7008
African-American	27.7945	10.0384
Hispanic	26.0440	11.8354
Overall Average	26.4939	11.2737

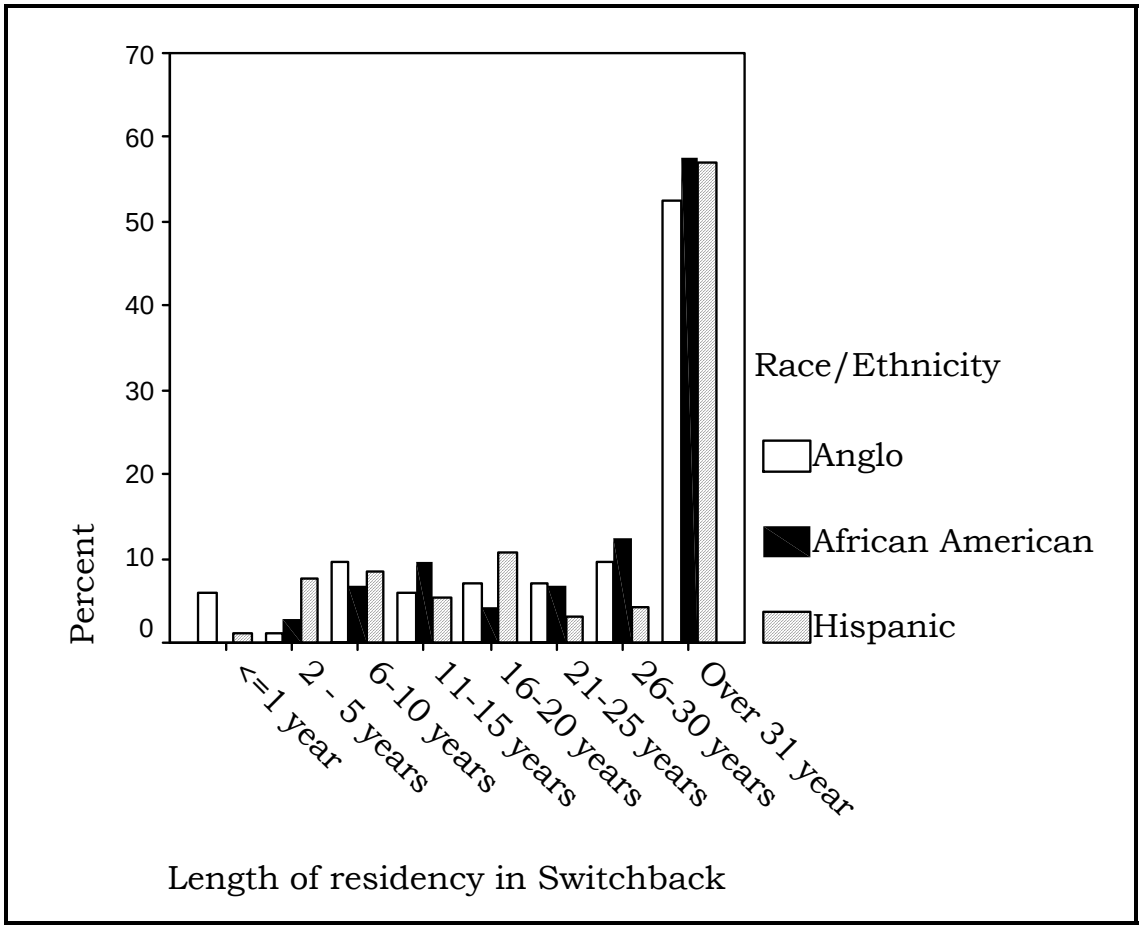


Figure 3.4 Length of residency of respondents

Gender

One additional note of interest often addressed in social science surveys, but not specifically covered in the research design for this study since the unit of analysis was the household, is the effect of gender on the disaster recovery process. A brief analysis was conducted to identify if there were any significant differences in the sex of the respondents among ethnic groups (see Table 3.13). Previous research has pointed to

a greater burden placed on women in the recovery process, and especially on households headed by single-females (Enarson 1999; Hoffman 1999a). While there is little information provided in this study on gender variations, it is worth noting that there were no significant differences in the sex of respondents along ethnic affiliation. The majority of respondents in all ethnic groups were female. Previous research has often attested that women are often the ones left to deal with issues of aid acquisition through the use of both formal and informal networks, application processes, and the securing and presenting of supporting documentation, in addition to other regular duties such as reestablishing a sense of normalcy, taking care of children and spouse, and maintaining family cohesion (Anderson 1994; Bolin and Stanford 1999; Domeisen 1997; Fothergill 1996; Hoffman 1999a; Hoffman 1999b; Morrow 1997; Mustafa 2003; Rossé 1993; Vinas 1998). Because there was no intent to specifically identify the sex of the head of household, or even if a household was headed by one or more persons, no conclusions can be drawn with this information. The elevated frequency of female respondents could simply have been an artifact of the data collection method resulting from the time of interviews and the method of data collection.

Table 3.13 Sex of respondent

	Anglo	African-American	Hispanic	Total
Male	33	21	24	78
	39.3%	29.2%	26.1%	31.5%
Female	51	51	68	170
	60.7%	70.8%	73.9%	68.5%
Total	84	72	92	248
	100%	100%	100%	100%

Ethnic variations in education and income

The following set of charts indicates that the ethnic distinctions evident within this community are reflected in ways that go beyond skin pigmentation and could have consequences for the subsequent resources available to each ethnic group during its recovery process. Figure 3.5 and Table 3.14 through Table 3.17 show the percentage each ethnic group reported on levels of education and income with size of family. Figure 3.5 shows that the overall educational attainment for the town was not very high. This low level is particularly evident among Hispanics, where only one respondent claimed to have a college degree. A little less than 50% of the Hispanic respondents had not even attended high school, while another 30% stated they had a high school degree or GED, yet it was also previously seen that they had the largest households. African-Americans respondents, on the other hand, had an educational attainment between that of Hispanics and Anglos.

Interestingly, more African-Americans seemed to have dropped out of high school and never obtained a GED or diploma than the other ethnic groups, and yet a greater number of them have also achieved a higher level of education than Hispanics, thus showing a greater bifurcation in educational attainment within this group. Anglo respondents were the most educated. Overall, 40% of the Anglo population reported having a post-secondary degree: some college, graduated from college, or post-graduate education, whereas this is true for a little less than 30% of African-Americans and 13% of Hispanics (see Figure 3.5).

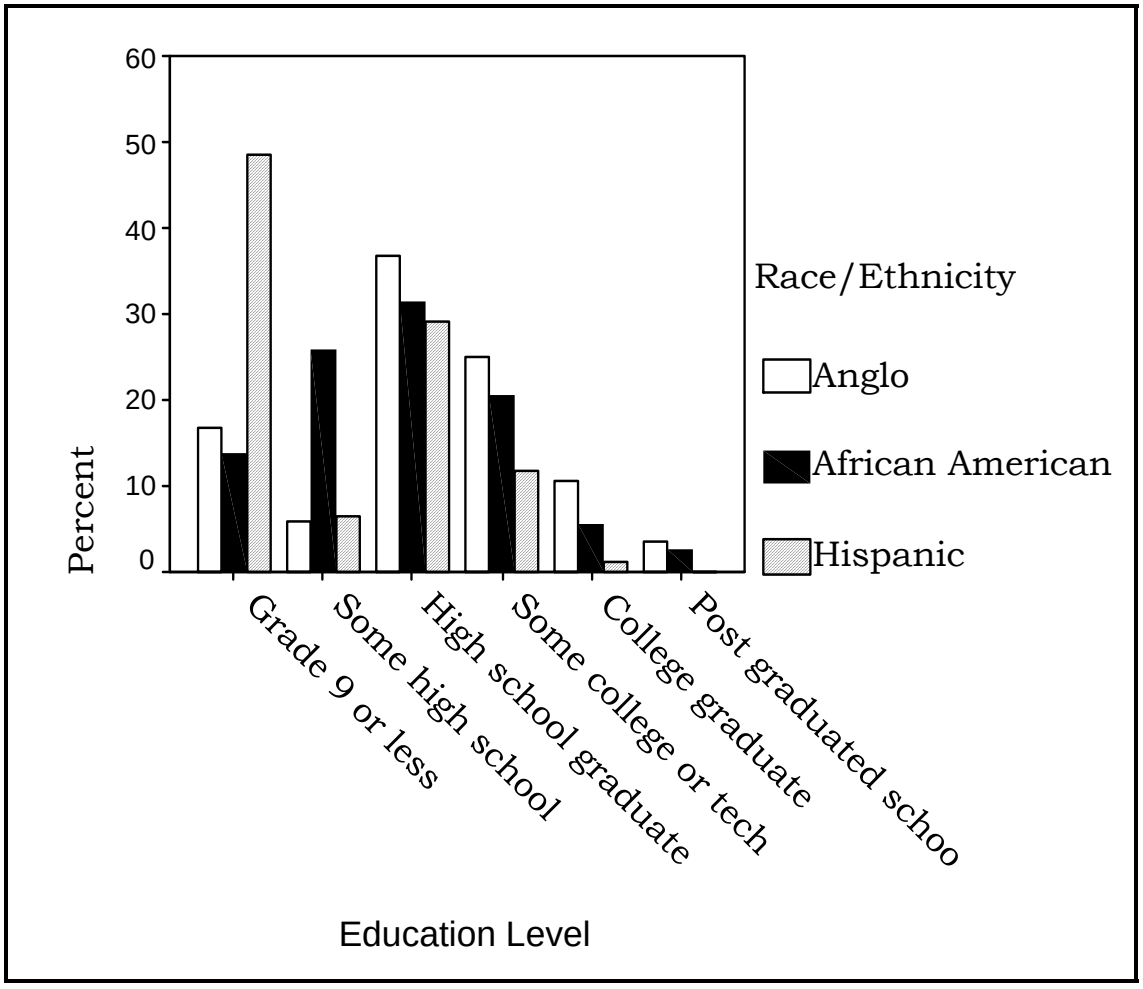


Figure 3.5 Educational attainment of respondents

Closely associated with income or income potential is education. The following tables examine the educational attainment of the survey population and that of the town. Approximately 59% of the sample earned a high school diploma or higher, but only a little over 7% had a college degree or higher (see Table 3.14). When looking at high school completion rates in the population at large, Anglos are twice as likely to finish high school or its equivalent than Hispanics, and more than 1.8

times more likely to get a high school degree than African-Americans. When comparing the sample population with the statistics from the Census Bureau one can see that levels of lower educational attainment were overrepresented in the sample, while higher levels of education were under-represented, however these differences were most marked among African-Americans (see Table 3.14 and Table 3.15).

Table 3.14 Educational level of survey respondents

Education Level	Anglo	African-American	Hispanic	Total
Grade 9 or less	14 16.7%	10 13.7%	45 48.4%	69 27.6%
Some high school	5 6.0%	19 26.0%	6 6.5%	30 12.0%
High school graduate/GED	31 36.9%	23 31.5%	27 29.0%	81 32.4%
Some college or technical school	21 25.0%	15 20.5%	11 11.8%	47 18.8%
College graduate	9 10.7%	4 5.5%	1 1.1%	14 5.6%
Post graduate school	3 3.6%	2 2.7%	0 0.0%	5 2.0%
No Answer	1 1.2%	0 0.0%	3 3.2%	4 1.6%
Total	84 100.0%	73 100.0%	93 100.0%	250 100.0%

SOURCE: Survey data

Table 3.15 Educational attainment based on age and ethnicity from census data

Education Level	Anglo	African-American	Hispanic	Other	Educational attainment for 18 year olds and up
Less than 9th grade	176	193	501	211	1081
	9.54%	24.46%	43.95%	37.21%	25.05%
9th to 12th grade, no diploma	268	298	235	128	929
	14.53%	37.77%	20.61%	22.57%	21.53%
High school graduate (includes equivalency)	670	215	288	190	1363
	36.31%	27.25%	25.26%	33.51%	31.59%
Some college, no degree	378	64	52	25	519
	20.49%	8.11%	4.56%	4.41%	12.03%
Associate degree	29	7	13	4	53
	1.57%	0.89%	1.14%	0.71%	1.23%
Bachelor's degree	170	12	25	9	216
	9.21%	1.52%	2.19%	1.59%	5.01%
Graduate or professional degree	154	0	0	0	154
	8.35%	0.00%	0.00%	0.00%	3.57%

(Census 1990a)

The low educational level of the town is reflected by a correspondingly low income level for Switchback in general. The income distribution for each ethnic group, as seen in Figure 3.6, closely parallels that of education. Anglos have significantly higher average household incomes than either of the two minority groups whether comparing Anglos against all minorities or against each ethnic group (see Table 3.16 and Figure 3.6). Specifically, Anglo households had an average household

income of $29,573 per year, as opposed to Hispanics who had a mean income of $17,859, and African-Americans who had a mean income of $18,531. The combined average income for minority households was $18,160. As mentioned above, in all cases, the Anglo income level was significantly higher. However, the average income levels of the two minority groups were not significantly different from each other (see Table 3.16 and Table 3.17). These differences are displayed in Figure 3.6 and Table 3.16 where it is shown that there were more minorities in the lower income brackets than Anglos, and more Anglos in the highest income brackets. In general, one can see that the majority of households studied had income levels below $23,000. Additionally, we can couple this information with previous demographic data presented to ascertain that these same households often had to contend with more children, and were larger in size; thus it can be assumed that they had to accomplish more (feeding, housing, recovery) with less income than their Anglo counterparts did. However, it must also be remembered that households were relatively small with few children across all groups.

Table 3.16 Mean income by ethnic group

Ethnicity	N	Income	Difference between Anglo and Hispanic	Difference between Anglo and African-American	Difference between African-American and Hispanic
Anglo	75	$29,573			
African American	63	$18,531	$11,714**	$11,041**	$672
Hispanic	78	$17,858			

** indicates significance and the .05 level or greater

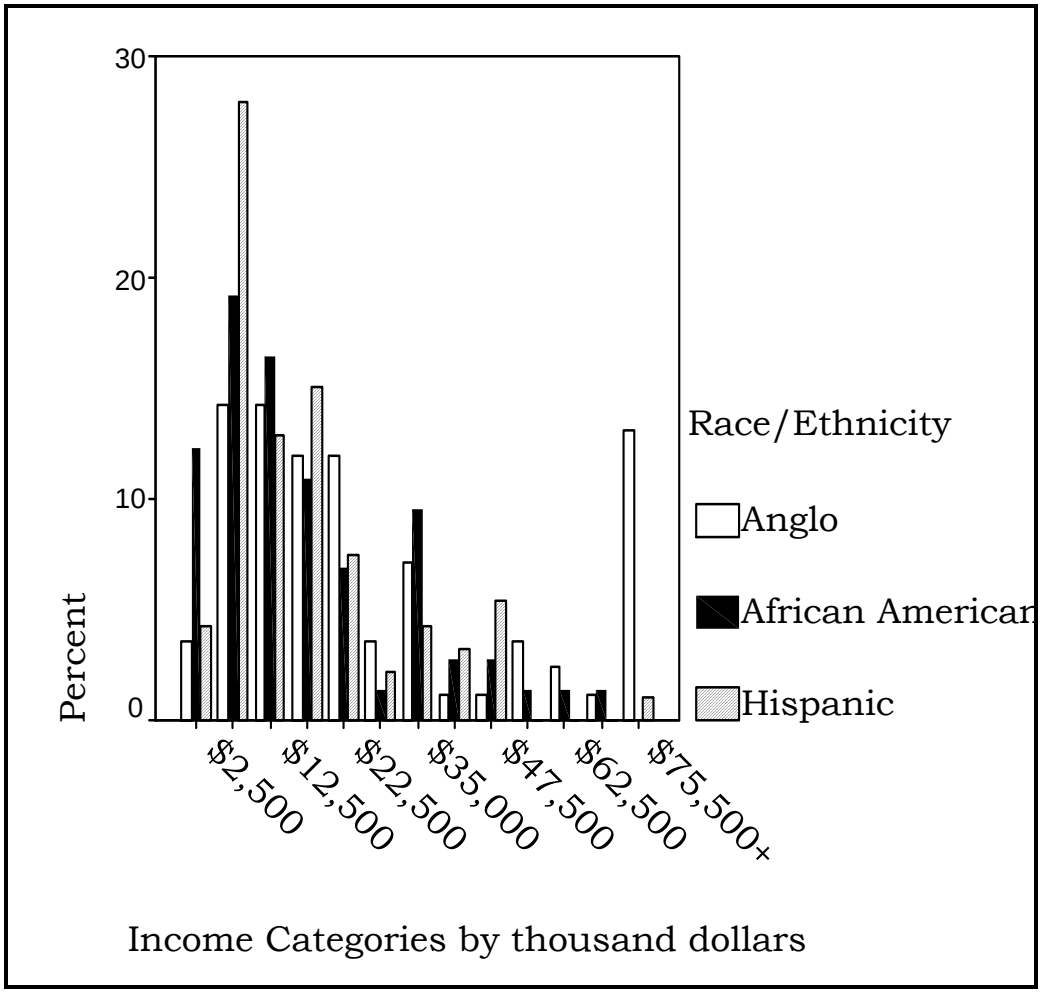


Figure 3.6 Income categories of respondents

In general, Switchback is a very poor community when compared with the national average of $40,816 per year (Report 2000), but there are still significant income disparities among ethnic groups even when compared within the community itself. A breakdown of income shows that over 31% of the respondents in the survey have a household income under $10,000, and that the average household size in the sample is 2.9 people (see Table 3.17 and Table 3.18). The original question regarding income asked respondents to give an approximation of their household income by checking the category that most closely matched their own. Fourteen different categories were presented, but because researchers had observed very few households in the higher income groups, several categories were collapsed, resulting in only eight different groupings, the last three of which generally corresponded to middle class, upper-middle class and high income levels for the town. As one can see from Table 3.18 and Table 3.19 when comparing the sample population with the census data, there were few households in the upper income bracket within Switchback, and these were primarily Anglos. The few minorities represented in the upper income groups are African-American, none of which were captured in the survey population.

Table 3.17 Selected statistics of households in survey

Statistics	Income per year	Number of people living in the house before the flood
Mean	$22,122.70	2.8618
Median	$1,750.00	2.00
Standard Deviation	$1,922.43	1.6725
Variance	369.5744	2.7971
Total Observations	216	246

SOURCE: Survey data

Table 3.18 Annual income of respondents' household

Income Groups	Anglo	African-American	Hispanic	Sample Total
Less than $5,000	3 4.0%	9 14.3%	4 5.1%	16 7.4%
$5,000 to $9,999	12 16.0%	14 22.2%	26 33.3%	52 24.1%
$10,000 to $14,999	12 16.0%	12 19.0%	12 15.4%	36 16.7%
$15,000 to $24,999	10 13.3%	8 12.7%	14 17.9%	32 14.8%
$25,000 to $34,999	10 13.3%	5 7.9%	7 9.0%	22 10.2%
$35,000 to $49,999	11 14.7%	12 19.0%	14 17.9%	37 17.1%
$50,000 to $74,999	6 8.0%	3 4.8%	0 0.0%	9 4.2%
$75,000 to $99,999	11 14.7%	0 0.0%	1 1.3%	12 5.6%
Sample totals	75 100%	63 100%	78 100%	216 100%

SOURCE: Survey data

Table 3.19 Household income by ethnicity

Income Groups	Anglo	African-American	Hispanic	Other	Population Total
Less than $5,000	104 9.37%	127 25.50%	180 27.86%	77 24.52%	488 19.00%
$5,000 to $9,999	155 13.96%	129 25.90%	91 14.09%	49 15.61%	424 16.51%
$10,000 to $14,999	95 8.56%	86 17.27%	93 14.40%	45 14.33%	319 12.42%
$15,000 to $24,999	195 17.57%	81 16.27%	114 17.65%	63 20.06%	453 17.64%
$25,000 to $34,999	193 17.39%	45 9.04%	83 12.85%	41 13.06%	362 14.10%
$35,000 to $49,999	207 18.65%	6 1.20%	78 12.07%	32 10.19%	323 12.58%
$50,000 to $74,999	114 10.27%	12 2.41%	7 01.08%	7 2.23%	140 5.45%
$75,000 to $99,999	13 1.17%	0 0.00%	0 0.00%	0 0.00%	13 0.51%
$100,000 or more	34 3.06%	12 2.41%	0 0.00%	0 0.00%	46 1.79%

(Census 1990a)

When comparing the averages for the sample population, they are not completely representative of the community as a whole, because the flood disproportionately affected low income and minority neighborhoods. At the same time, the flood also hit some of the most prestigious and upper-end neighborhoods in town, in effect impacting the two extremes of the socio-economic curve. The survey sample is intended to mirror the affected areas and not the entire community population. Additionally, many elderly residents lived in the affected area, so the summary of socio-economic indicators may not be completely reflective of the social status of individuals in the community

as a whole, especially if they are elderly and living on a fixed income. On the other hand, because a high-income and a moderate-to-high income neighborhood were also affected, more victims in the sample have a high school diploma than would be expected for Switchback as a whole, and the sample included over twice the number of people with college degrees or people who had attended some college than would be expected for the town based on Census data (see Table 3.15).

Overall, these demographic data depict the portrayal of a typical rural community with lower-than-average mean incomes and low educational attainment. Most of the homes were of older construction and not very large. Moreover, the town was still trapped within a social and geographic history of segregation, which deeply affected the damage rates and recovery efforts for those most severely impacted by the disaster.

Discussion of the study

The data reported here are from a small community of about 6,700 residents in south central Texas. As with any small community, there are locals and outsiders. The researchers who operated within this community were outsiders. Although the exact effects that being an outsider had on the collection of data are not known, the elements of trust and openness between the researchers and respondents are more

sensitive in a smaller community than a larger town. The researchers spent several weeks earning the trust of the respondents and the community. Thus, the answers received on the surveys are believed to be as reliable as any survey conducted in a larger community could be.

However, a few deficiencies appeared in the questionnaire that were not caught before the data was processed. These included the lack of a question that specifically asked whether the home the respondents lived in before the disaster event was owned or rented. Because of the nature of the assistance process and homeownership patterns in Switchback, it is believed that many of the people interviewed were renters. But it is difficult to quantify the exact number of renters verses homeowners. Additionally, some homeowners may have been confused about how certain aid was obtained or its source. In the flurry of promises and aid programs following the disaster, many people applied for aid from one place and later received aid from what appeared to be another place, a practice that sometimes left homeowners confused. For example, FEMA aid is administered as a grant processed through the State. Thus, when the family received a check, they were not sure if the money came from the State or FEMA. Aside from these types of confusions, the recall capabilities invoked for the survey were deemed to be reliable.

The methodology used in this research attempts to gather rich description relating to the context within which the recovery process took place, while simultaneously gathering quantitative data on the household recovery processes. This comprehensive approach to the recovery process was possible because of the size of the town, while the ethnic diversity also allowed for the comparison of ethnic variations in housing restoration. Although the information obtained was not complete or perfect, it provided a comprehensive overview of the town, and allowed researchers to understand many of the dynamic processes present in housing recovery following a disaster within a rural setting. These results will be presented in the following chapters.

CHAPTER IV

LITERATURE REVIEW

Introduction to disasters

From a sociological perspective, an established definition for a disaster refers to stresses placed on social systems or organizations by events which occur for a short duration of time, and with little forewarning (Bates and Peacock 1989; Peacock and Girard 1997; Peacock and Ragsdale 1997; Wenger 1978; Wenger 1977) In other words, disasters occur when more stress is placed upon a system, than the system is able to handle, due to the destruction of resources and social organizational elements. One of the most important resources a person has is one's home. This is the base for all daily operations, and often a primary asset. However, if an individual's home is demolished, the loss would be considered a personal disaster, and not a societal one. It is when many individuals within a community have experienced such a loss, that disasters are mentioned, and for which a large scale recovery is called. The following sections will review previous research on community recovery, and some of the key components which influence the process of housing recovery. In particular, this chapter reviews

literature on organizational dynamics within a disaster recovery scenario, resource acquisition, and some of the barriers encountered at both the community and household levels.

Housing recovery

The following provides a brief review of the findings of significant studies addressing the multiple issues involved in housing recovery and its importance to a community. In order to better comprehend the analysis of community recovery, many researchers have begun by trying to understand the processes associated with the reestablishment of permanent housing. Community recovery begins with the re-establishment of the physical infrastructure, which accommodates the social and economic networks that take place at the familial level, and allow people to re-engage in the normal and routine activities of daily life (Bates 1982; Bates and Peacock 1989a; Bolin 1976; Bolin 1994; Geipel 1982; Johnson 2002; Kates and Pijawka 1977; Kreimer 1980; Peacock and Ragsdale 1997). Therefore, one of the fundamental building blocks of community recovery is the establishment of permanent housing, which provides the shelter and space from where the daily routines of community residents' emanate. This includes activities such as the re-establishment of normative relations with family, friends and neighbors; a return to employment activities; integration within the community;

and the renewed pursuit of prosperity, among others. Permanent housing acquisition if often seen as the dichotomous opposition to temporary sheltering, and it is one of the first solid steps in the forward progression towards recovery. Housing recovery is often seen as the foundation for all further recovery efforts, and has, therefore, been a seminal focus of disaster recovery studies.

A discussion of terminology is a seminal component to all social science research. The goals of this research are to deal specifically with the processes involved within disaster recovery practices in rural communities. Thus, the term recovery must be defined. According to Bates and Peacock (1989), disasters require the abandonment of normal behavioral patterns, usual forms of social organization, routine allocations and use of resources. Starting from this premise, a logical determinant of recovery would be the re-establishment of normal behavioral patterns, routines and allocation of resources. Functional recovery is, therefore, seen as the replacement of the functional equivalent of the population's needs in homes, jobs, capital, stock and urban activities (Wright, Rossi, Wright, and Weber-Burdin 1979a). In an attempt to keep the many ways of viewing recovery from becoming too convoluted, and also as a way to acknowledge that the definition used for recovery in this paper is a simplified notion, recovery, for the purposes of this research refers to the re-establishment of a location

from which routine social behaviors can derive, and not necessarily to the re-establishment of one's original home or its equivalent. The term housing restoration will be used interchangeably with the term recovery within the context of this research. The emphasis of functionality upon the term recovery comes from Bate's and Peacock's (1989a) work which defines recovery as the process by which a system re-establishes a stable relationship with its environment through the reorganization of its social life after having experienced a structural failure. This definition contrasts with a more holistic sense of total recovery that had been previously developed by them, and is not being used in this research.

One of the most holistic and comprehensive definitions of disaster recovery was proposed by Bates and Peacock (1992) with their development of a Domestic Assets Index, which could be used cross-culturally and with households at different levels of economic attainment. The Domestic Assets Index approach attempts to measure disaster recovery based on the economic potential for advancement that a household could have attained within a set time period had a natural disaster not occurred. Thus, they not only measure whether a household was able to replace its belongings, but compare how a household has faired at time X compared to where its economic progression could have been had a disaster not occurred. This approach is a holistic effort, first put forth by Bates in 1982 to measure

not only the losses incurred by the disaster, but also to take into account the potential loss of time and effort invested by a household into the recovery process, which may have prevented them from accumulating greater household wealth. This measure, however, does not directly address the specific activities involved in the process of recovery.

Recent American disasters have demonstrated that the loss of housing is the single greatest component of all losses, and housing recovery may be the most critical element in overall family and community recovery (Bolin, 1994a; Bolin, 1994b). Of the costs associated with natural disaster recovery, 50% are directly related to housing restoration, while another 20% are attributed to loss of productivity due to employee displacement. Specifically, from 1989 to 1994, five American disasters resulted in thirty-eight billion dollars in damages to residential structures (Comerio, 1998). In order to better comprehend the analysis of community recovery, many researchers have begun by trying to understand the processes that are engendered in the re-establishment of permanent housing.

Recovery has been studied at and measured in many different ways. Researchers have looked at housing recovery as a way to determine the impact of a disaster on the family unit, as a way to study different levels of aid acquisition, as a predictor of social change, and in

terms of economic and psychological recovery (Bates and Peacock 1992; Bolin 1986; Bolin 1994; Perry and Lindell 1978; Phillips 1993). The multitude of approaches towards the reconstitution or replacement of housing is, in part, a factor of the longer time frame needed to compile information and the slower processes involved in housing recovery efforts. However, little systematic attention has been given to the processes people go through in their efforts to reestablish permanent housing (Bates 1982); (Davis 1978); D'Souza 1982; Berke et al, 1991). One of the first theorists to address the question of the housing re-establishment process was Quarantelli (1978) who advanced the idea that housing recovery took place in four stages: (1) emergency sheltering, (2) temporary sheltering, (3) temporary housing and (4) the reestablishment of permanent housing. This idea has unidirectional implications that do not take into account many issues altering the progression of events, such as culture, age of victims, location of housing, and recovery resources available to the community.

In American society, the process of recovery is normally a function of local market forces, and is given its impetus through the capitalistic system of private insurance, savings and governmental loans. However, when the prerequisites for this process are missing or sorely depleted (i.e. private insurance, personal savings, and access to financial assistance) then housing recovery must take place through other means.

Housing disasters exist not strictly based on the number of houses damaged or destroyed, but instead, a housing disaster results when there is no reasonable alternative housing available within the community for victims, and/or there is no capacity to finance within a reasonable time frame the repair or reconstruction of units lost. Therefore, even small numbers of housing units lost in a community may create a housing disaster if those housing units are concentrated in a particular segment of the housing market (Comerio, 1998), or if the community is not able to finance new construction in a timely manner. Other studies have also pointed to the fact that housing recovery cannot rely exclusively on market forces because it is often the lower socio-economic sectors of the victim population that lack the savings, insurance, knowledge and/or ability to garner the aid necessary to rebuild (Wu and Lindell 2004). It is in cases such as these that the housing recovery process is least understood.

Organizations oriented for disaster response and recovery

A common phenomena associated with disasters is the convergence of donations, volunteers, monetary donations and aid in many different forms as people from within and outside of the community attempt to help. If the fundamental necessities for the traditional, market economic recovery are not available to a household,

then it may find itself in need to turn to these alternative forms of assistance to be able to recover. This is where the role of non-profit organizations and local community leadership comes into play. As people donate assistance, the community needs to be able to have a way of processing the incoming aid, while simultaneously assessing the needs of its population to help disseminate that aid. In cases where the community is economically disadvantaged the role of local leadership and non-profits becomes even more complicated since they must not only help sort and deliver recovery aid, but must also help procure that aid Peacock and Ragsdale (1997) examine the nature of community recovery through an ecological perspective and conclude that certain groups and organizations come to dominate different aspects of the recovery process and exert inordinate control over network activities. These factors ensure that not all social entities are on an equal playing field. These social-ecological dynamics play out not only between communities, but also within communities, perpetuating issues of inequality associated with political participation, representation, and power in populations impacted by disasters. While these dynamics may not have received the attention they warrant, a general consensus within the disaster literature points to the added vulnerability associated with rural communities and their recovery processes (Comerio 1997; Kamel and Loukaitou-Sideris 2004; Peacock, Killian, and Bates 1987; 1997;

Wright, Rossi, Wright, and Weber-Burdin 1979b). Many of the issues presented in this case study are directly related to the observations made by Peacock and Ragsdale, since local leaders were in competition with other communities as they sought out assistance for local flood victims, even as flood victims themselves were simultaneously competing for access to the scarce resources in town. The following section reviews previous research in the area of organizational dynamics during the disaster recovery process.

Horizontal and vertical ties

The challenges faced by rural communities to effectively engage all the various participants in the recovery process are immense. They must be able to not only garner the support and help of local residents, but also vie for access to resources that are offered at the regional, state and national level. Post-disaster ties tend to reflect those that existed prior to the disaster event (Rubin 1985). Thus, if strong regional, state or national ties did not exist before the disaster, they will probably not exist post-event, and obtaining assistance from these sources could prove difficult. One of the greatest challenges following a disaster is getting the proper resources to the proper location at the proper time. This logistics endeavor requires the ability to draw on both vertical and horizontal ties within the community.

Vertical ties refer to relationships between units at different levels of organization or management, such as is found among those of city, state and nation. These types of vertical relationships can also be found in various types of organizations from private, for-profit to governmental, nonprofit and even household levels. The strength of these vertical ties can directly impact the ability of units lower in the hierarchy to access external resources for recovery (Dash, Peacock, and Morrow 1997; Sundet and Mermelstein 1996; Wenger 1978). It is the transactions between the hierarchical units which lend dynamism to the organizational systems. Some of the mediating characteristics that affect the dynamic relationships include the magnitude of the disaster and its effect on the demand and supply of products and services, the history of collaboration and cooperation between organizational units, the size of the organizational units and their degree of bureaucratization and complexity. External factors that also affect system dynamics are geographic features, technology, political participation, power relationships, the nature of media coverage and the effectiveness of the relief bureaucracy (Dodds and Nuehring 1996).

Transactional stress theorists view responding systems as active and dynamic; they approach the recovery process from a systems perspective and stress the idea of feedback loops that allow the organizational components to re-adjust themselves towards a rational

approach for the desired goals (Dodds and Nuehring 1996). In rural communities, vertical ties are often weak since regular demands are not as great, thus decreasing the frequency and strength of relations with agencies higher up in the organizational ladder.

The second type of relationship, horizontal ties, refers to relationships that exist among units at the same level or scale of complexity within a hierarchy, such as those found among households within a community or among communities at a similar level within a regional system. An example of community level horizontal ties would be a local contractor willing to loan his equipment for relief services to the local school district. The ability to access and use horizontal ties can be affected by a series of different issues including the extent of damage caused by any particular disaster, the regional extent of the damage, resources availability, accessibility to the area and a sense of shared community within a locality, which might propel people to expand and/or extent their normal range of activities or services beyond normal, routine roles (Dash, Peacock, and Morrow 1997; Martinez-Brawley 1990; Morrow 1997; Wenger 1978). The ability of any locality or entity to bring cohesion and engage participants in a positive way enhances that entity's access to resources and its ability to recover efficiently (Wenger 1978).

In a community that lacks strong vertical integration between communities and outside organizations problems can arise, particularly when weak vertical integration is combined with a weak system of horizontal integration, resulting in the loss of local control over recovery programs. Berke, Kartez and Wenger (1993) called communities facing these challenges Type IV communities: they had both weak horizontal and vertical ties. These types of communities face significant obstacles to successful recovery as they lack access to external resources, and even if those vertical connections can be activated, they still lack a viable, local horizontal structure to effectively receive aid and influence the recovery process.

Leadership

Local leadership has been espoused as one of the most critical elements in the recovery process. In a study on the subject, Rubin (1985) examined the relationship of local leaders as they related to both the circumstances in the town going through the recovery process and in its relationship to both state and federal agencies that come to provide assistance in the recovery process. She concludes that "Leadership is an essential and almost sufficient condition of efficient recovery" (p.20). However, leadership is a complex phenomenon. Rubin looked at three different aspects of recovery: the presence of leadership,

the ability to act, and knowledge of the situation. She concluded that the most important aspect of these three was good leadership; she states that with good leadership came the ability to act, and that knowledge of how to work in a recovery situation could be quickly picked up. In a more in-depth look at leadership, she noted two different aspects: the first was the phenomenon or presence of leadership itself (and the importance of that trait in the community) and second was the exercise of leadership (what was done and what resulted). Rubin (1985) characterizes effective leadership as necessitating a flexible, creative style of problem-solving and decision-making, coupled with a well-articulated vision for the community. A good leader will be able to attract and motivate competent assistants and other decision makers.

Culture's impact on disaster recovery

Disasters shake our very psyche due to the devastation brought upon our known surroundings and the loss of our life work. The disappearance of both personal belongings and community surroundings can lead one to question the very precepts and values that are the foundation of life. These precepts and values are the founding concepts from which both material and social culture are derived, and which help us both understand and cope with such devastating losses. Culture is a set of patterns and their concomitant behavioral norms

that are learned from one moment to the next and passed from one generation to the next (Barrett 1991; Brislin 1993; Hofstede 1980; Roth 1970; Schneider 1957; Starr-Cole 2003; Sundet and Mermelstein 1996; Wallace 1957). Culture extends and is expressed in many different forms and expectations during recovery (Clifford 1956; Oliver-Smith 1986; Oliver-Smith 1991a; Oliver-Smith 1992).

Polleta (1999) emphasizes the importance of culture in disaster recovery by highlighting previous experiences and how these would affect victims as they seek aid in the recovery process. As people attempt to rebuild their "mazeways" or cultural patterns, they will first seek assistance in those places where they had found it before, such as with family, friends, etc. From these resources they will extend outward to attempt to discover new avenues of resources if needed. Respectively, if they have not found aid from a certain sector, or if they associate negative experiences with that sector, then people will actively eschew those interactions. Comerio (1997) and others have found that past negative experiences with government agencies both in their country of origin and in the United States have often led many new immigrants and particularly Hispanics to avoid the formal sector (Comerio, Landis, and Rofé 1994; Dash, Peacock, and Morrow 1997; Drabek 1986; Hirschon and Thakurdesai 1979; Kamel and Loukaitou-Sideris 2004; Kasapoglu and Ecevit 2004; Morrow 1997; O'Donnell and Giovannoni 1999; Oliver-

Smith 1979; Oliver-Smith 1990; Perry and Mushkatel 1986; Polletta 1999; Trainer and Bolin 1976; Wright, Rossi, Wright, and Weber-Burdin 1979a).

Minorities in disasters

One of the consequences of cultural pattern development is the physical layout of a town. In Texas, the physical expression of cultural ethnic segregation has been the development of neighborhoods dominated by one ethnicity. Often the non-Anglo ethnicity is relegated literally to "the other side of the tracks" (Arreola 2002). For Hispanics, land use patterns have often been focused on the family and the idea of home ownership (Arreola 2002). Hispanics have shown a preference for living in extended family neighborhoods (Phillips 1993; Saenz and Thomas 1991). Often uncles will live next to each other and not wander far from the grandparents, who are the nodal point of the family. This close proximity of family facilitates mutual assistance when needed, but may also create added vulnerability in cases of wide-spread disasters, where entire neighborhoods are destroyed (Morrow 1997). This leads to the question of whether the added vulnerability will push people to go against cultural norms and seek recovery assistance from organizations they would not normally approach.

Research in this area has had mixed results. As mentioned previously, some studies have shown that minorities prefer to avoid official sources of aid, but others have stressed the tendency victims have to reconnect with familial relationships in an effort to return to a pre-disaster status quo, even when social norms have broken down (Rogers 1995). Minorities often find themselves disproportionately hurt when experiencing a housing disaster. The area of town where the working class lives is often of mixed-use zoning, where residential, industrial and/or agricultural areas are in very close proximity. "At best, working class and minority towns are often forgotten or ignored communities containing inhabitants and property that few would claim, at worst, they become the foundation for a 'cycle of poverty,' rationalized or justified by the deficiencies of their inhabitants" (Dash, Peacock, and Morrow 1997). The residential proximity to industrial-use lands make these neighborhoods more vulnerable to man-made hazards, such as toxic spills or explosions (Rogers 1995). These same lands are, also, often more vulnerable to natural hazards since they are deemed less desirable. Minority neighborhoods are often placed in low-lying areas, flood plains, and other vulnerable spots. Study after study has shown that the poor and minority neighborhoods are relegated to the most vulnerable areas in a town and are the populations to be worst hit in the

case of a disaster (Baldassaro 1975; Bolin 1986; Bolin and Bolton 1986; Kreimer 1978; Phillips 1993).

The Bolin and Bolton article of 1986 supported previous findings showing that the levels of damage to housing units were directly related to ethnicity due to (1) pre-existing residential patterns determined by ethnic segregation; and (2) reduced quality of housing structures frequently found in ethnic groups. Because segregated minorities are disproportionately located in low-valued neighborhoods, and the economic resources critically needed for housing recovery may not be available, minority victims may face additional obstacles in the housing recovery process when compared to their Anglo counterparts[i] (Bolin, 1982; Bolin & Bolton, 1986; Kilijanek & Drabek, 1979; Nigg, 1995; Peacock, et al., 2000). Additionally, minorities are least likely to have adequate insurance coverage (Bolin & Bolton, 1986; (Peacock, Chris Girard, and Gladwin), and because their extended kin groups have fewer resources to offer (Nigg, 1995; (Morrow 1997), they must rely on external aid, which may be difficult for them to obtain due to cultural and economic barriers (Dash, 1995). Quarantelli (1991) predicted that the problems associated with sheltering and housing victims in American society would worsen in the future because of changes in (1) the household composition (increased ethnic diversity); (2) age distributions (the populace is aging); and (3) social expectations about disaster help

and relief (whether assistance is a right or privilege and equally distributed).

Furthermore, minorities often find themselves disproportionately hurt when experiencing a housing disaster. They have to overcome additional barriers in the recovery process, thus reducing their resiliency and the likelihood of a quick recovery due to: (1) a reduction of affordable housing units in the community; (2) increased levels of housing losses within ethnically diverse neighborhoods; (3) pre-existing socio-economic characteristics of the victims; and (4) societal trends within the community (Bolin 1986; Pereau 1991; Phillips 1993). Working-class Hispanics, in particular, have been described as comprising a subculture characterized by an overt distrust of official agencies, a strong reliance on extended family and fictive kinship networks, a conservatism that puts emphasis on self-reliance and hard manual work over intellectual accomplishments, and a reluctance to assimilate new languages, especially if it is seen as a threat to their primary language, which compounds and reinforces barriers to recovery-aid acquisition (Bolin 1993; Bolin and Bolton 1986; Bolin and Stanford 1990a; Bolin 1982; Bolin and Stanford 1991; Comerio 1997; Drabek 1986; Kamel and Loukaitou-Sideris 2004; Morrow 1997; Peacock and Zhang 2005; Saenz and Thomas 1991).

It is, however, sometimes difficult to discern if the differences in recovery methods are due to socio-economic status or to cultural preference within minority ethnic enclaves. Peacock (2000) found that when minority status is essentially nullified in a locality, such as Cubans in the Miami area, due to the strength of their business and familial ties, there was no statistically significant difference in recovery when compared to Anglos. However, negative consequences were found for African-Americans and non-Cuban Hispanics, especially where issues with insurance adequacy were concerned

Since previous research has shown that minority households are likely to have inadequate insurance and simultaneously be less likely to access aid from federal programs targeted to those in need despite suffering greater impacts (Bolin 1986; Bolin and Stanford 1990; Peacock and Girard 1997), it raises the question as to how and how quickly minority residents recover after a major disaster. It has been previously noted that minority residents have had a greater reliance on family and non-profit organizations for recovery than Anglo Americans (Bates 1982; Bolin and Bolton 1986; Bolin 1994; Bolin and Stanford 1999; Comfort 1986; Dash, Peacock, and Morrow 1997; Enarson 1999; Hoffman 1999b; Kreimer 1978; Peacock and Girard 1997; Peacock and Ragsdale 1997; Pereau 1991; Phillips 1993; Trainer and Bolin 1976; Young 1954). Other research has contradicted these finding and shown that Anglos

actually receive more aid from family and friends than do ethnic minorities (Erickson, Drabek, Key, and Crowe 1976). It was speculated that because Anglos are generally in better economic situations than many ethnic minorities, they were more able to help their friends and family through the losses incurred in a natural disaster.

Characteristics of rural towns

In a longitudinal study determining the long-term effect of natural disasters on the local economy, Wright, et al. (1979a) determined that disasters had a minimal statistically significant effect on most local economies, because they happened rarely and if they were major events those localities were able to obtain large amounts of external aid. However, they also concluded that when extreme disaster cases tend to take place in rural or semi-rural communities, which do not have many local resources on which to base recovery and because of their small size, they can be substantially impacted by a single event to a much greater degree than urban centers.

In general, most rural communities have little leverage in competing for scarce resources, especially against larger and often better organized neighbors, and are thus less able to assist their residents through the recovery process. In the end, many communities begin to compete for larger pots of money, attention, and other types of aid

provided by entities at a higher vertical level, where tight relationships and knowledge of the system are beneficial for effective aid acquisition. Most disaster plans do not address issues of recovery, and therefore the recovery phase of disasters are conducted with a "learn as you go" approach, as communities attempt to muster the resources and guidance to reconstruct, often recreating previous vulnerabilities and inequalities into the system. A community-level time-frame, which outlines the housing recovery process and takes into account these issues, is needed. Disaster recovery is a complex social process, requiring an understanding of how barriers affect the differential access to aid, which in turn, influence the acquisition of shelter and housing alternatives for residents, particularly minority victims, as they proceed through the housing recovery process. This is contrary to a commonly held belief that "housing will take care of itself" through market forces, as stated by a public official during the recovery phase of Hurricane Andrew (Peacock, et al., 2000:171–172). The fact that nature does not distribute its fury equally results in the uneven dispersement of damage and destruction to housing units throughout the community. This requires that some neighborhoods or services receive a greater capital investment than may have been planned for or expected, and can further complicate local politics and planning schedules (Cochrane, 1975; Haas, Kates, & Bowden, 1977; Peacock, Morrow, & Gladwin,

2000). Quite often, the housing units of low income and elderly victims receive the brunt of the damages and destruction because of their structural inferiority, quality, age, and/or location in hazard-prone areas (Bolin, 1982; Cochrane, 1975; Haas, et al., 1977; Miller & Nigg, 1993; Moore, 1958; Peacock & Bates, 1982; Peacock, Killian, & Bates, 1982). Such high rates of damage and destruction translate into difficulties in realizing a successful housing recovery process for the disadvantaged segments of the populace (Bolin, 1985; Bolin & Bolton, 1983; Bolin 1993a).

Compounding the organizational difficulties faced by rural communities, many of them also are burdened by culturally conservative attitudes that promote a certain distrust of outsiders and a tendency to be wary of new influences (Martinez-Brawley 1990). These attitudes lead to greater isolation, making it that much more difficult to reach out and obtain the assistance needed in the aftermath of a disaster. The influence of outsiders also can accelerate change and lead to power struggles and increasing tensions within the community as the status quo is no longer sustainable (Clanton 1996; Picou, Marshall, and Gill 2004; Polletta 1999; Prater 2002; Quarantelli and Dynes 1976; Stewart 1991; Turner 1996). Many of these communities do not have access to the resources needed for a quick recovery, nor the ability to attract and retain the resources needed for long-term recovery efforts

that are found in more developed metropolitan areas. The lack of resources often encountered in rural communities is often compounded by the social divisions that commonly exist within these tightly knit communities. In the struggle to obtain resources needed in the recovery process, class divisions and power differential among groups are often exacerbated, which can culminate in increased tensions throughout the town. In America, as elsewhere, these class differences often correlate closely with ethnic and educational differences (Drabek 1986; Girard and Peacock 1997; McWhorter 2003; Pereau 1991; Phillips 1993; Rogers 1995). Should contentious social relations develop within a community, they can inhibit the effectiveness of the recovery process (Peacock and Girard 1997). When such a schism appears within the society, it is often mirrored on the larger political scene.

Hypothesis guiding research on ethnic differentiations in the aid acquisition process

Few studies have examined variations in the aid-acquisition process among ethnic groups, and among those studies which have, the discussions have almost always been cast as one of majority vs. minority group, with little insight provided about the differences among minority groups and how they compare with the majority group. It is not clear if or how ethnic and cultural traits affect the ability and speed of the

recovery process for minority residents, or if the differences would still be present in a rural setting where the insularity of market forces do not make many options available to any ethnic group. Without the knowledge of how victims proceed through the housing recovery process, the presumption that all victims recover at the same pace is implied. However, research has proven that not all victims recover at the same pace (Cochrane, 1975; Nigg, 1995). This research hopes to shed light on some of those differences, but is framed by the literature, and thus the hypothesis guiding it are framed in the terms most commonly found throughout previous studies: majority (or Anglo) and minority (normally Hispanic or African-American). The data analysis of the housing restoration processes will be guided by the research hypotheses. The first hypothesis addressed in this research attempts to discover ethnic differences in the aid acquisition process. However this research will go beyond differentiating only between Minority and Anglo. A more thorough comparison of the three major ethnic groups will be included within each discussion.

The hypothesis has been broken down into two subsections to better analyze the data. The original hypothesis, as stipulated below, indicates that ethnicity would be a factor in the variation of types of aid accessed (i.e. rental assistance, replacing belongs, rebuilding materials,

labor and services or other), and the number of sources of aid accessed, and that this in turn, would affect housing recovery rates.

Hypothesis: Ethnicity affects housing-recovery/restoration aid

Ia) Sources of housing recovery and restoration aid accessed:

Ha: Anglos will receive aid from fewer sources than ethnic minorities for their recovery process.

Ha: Hispanics will rely primarily on family and informal networks for recovery aid.

Ha: African-Americans will rely primarily on family and their church community for recovery aid.

Ib) Types of housing recovery and restoration aid received:

Ha: Anglos will receive a greater variety of types of aid than ethnic minorities in their recovery process.

Ha: Hispanics will receive a greater variety of types of aid from family than other ethnic groups.

Ha: Hispanics will receive the highest levels of aid in Labor and Services from family than other groups.

These hypotheses will be tested in Chapter VI with the quantitative analysis of the survey data.

CHAPTER V

QUALITATIVE DATA

History of Switchback

An understanding of the history of Switchback largely explains the ethnic diversity in the town and how the different ethnic groups relate to each other. Switchback was founded in 1831 through the purchase of a land grant from the state of Coahuila and Texas; at the time, Switchback's administrative center was in the town of Indianola, on the Texas coast (1972). The Mexican government had granted permission to the Empresario Green DeWitt to settle 400 families between the Guadalupe and Lavaca Rivers. However, it was through the efforts of Gustav Schleicher and Robert Kleberg, and their Switchback Land and Immigration Company, that the town took off (Roell 2001). The town was officially incorporated in April of 1875 when it was chosen as a half-way point for the rail lines that connected San Antonio and the ports of Houston. In 1875 and 1886, two fierce hurricanes hit the town of Indianola. Following these tragic disasters, many German immigrants emigrated from Indianola, moving further inland, spurring the growth of Switchback (Larson 2000).

The local economy continued to grow, stimulated by the railroads and agricultural investments. Switchback became a leader in the turkey-raising industry in south central Texas and became one of the largest poultry markets in the Southwest. It is known as the "Turkey Capitol of the World", a reputation it established by promoting the Switchback Turkey Trot, a yearly event which began in 1912 (Roell 2001). The city also supports cattle, dairy, and meat-packing industries and produced pecans, cottonseed oil and products, and feeds. Switchback is situated near the beginning of the Chisholm Trail, which was one of the main routes used by cowboys to drive cattle to market (Commerce 1999). It has continued to promote its agrarian traits, and the county has one of the most populous cattle densities in Texas (Shaw and Wise 2004). It grew and maintained a healthy economy until the mid-twentieth century, when the population peaked at 7,800 in 1969. After this time, improvements in trucking and the highway system conspired to reduce rail traffic and the corresponding industries which had grown up in Switchback around the railroad, such as holding pens and feed lots for animals on their way to market (Roell 2001). Nonetheless, agriculture continues to be the primary industry of the county, though both the turkey and cotton industries have seen dramatic declines.

"Switchback" lies at the convergence of three U.S. highways and is the largest city in the county and its county seat. Switchback is named after a nearby Creek, where the local Indians' practiced killing wild cattle that got stuck in the mud of the creek bed (Roell 2001). The town's social history is reminiscent of the violent nature from which it got its name.

The town's historical ties to cotton and agriculture meant that slavery had been an important social and economic factor in the town. Much of Switchback's agricultural economy originally depended on slave labor which worked the cotton fields in the area. During the Civil War, Switchback, as part of the state of Texas, sided with the southern states and fought for secession. After the Civil War, the history of ethnic segregation continued to impact the community through the development of ethnically charged local feuds which split the town apart. The Sutton-Taylor feud, one of the longest and bloodiest in Texas, originated over the violence of the Taylor clan towards some Blacks in the area during the period of reconstruction (Sonnichsen 2001). The alienation and subordination of the African-American population continued throughout the twentieth century with the application of Jim Crow laws that had some of the most far-reaching consequences through the ethnic separation of the school system (Shaw and Wise 2004).

The Switchback Independent School District was formed in 1873, though many locals were not able to attend after primary school, due to the distance of their homes from the higher level schools (Shaw and Wise 2004). The town's historical ties to cotton and agriculture meant people resided close to their fields, and not in urban centers. It also meant that slavery had been an important social and economic factor in the town, and some descendents of these slaves still live in the area. Other original settlers in Switchback were of Spanish descent, and its proximity to the Mexican border has assured that the town historically has had a sizable Hispanic presence. Switchback, thus, has a rather uniform distribution of the three major ethnic groups that are present in America: Anglo-Americans, African-Americans, and Hispanics. Anglo, African-American, and Mexican-American students were not integrated and had to attend different institutions. This tradition of social and political separation continues into the present as is reflected by the settlement patterns in the area and the local power structures.

Demographic overview

Switchback, like many rural towns in Texas, appeared to be slowly dying prior to the flood. Historically its fate has been intimately tied with the rural nature of the county, and as the significance of break-points in transportation systems have decreased, so has the need for

rural communities. By 2000 the population had decreased by 16 % from it's all time high, for a total of 6571 (Census 2000). The population loss went against a mid-census population projection for a slow growth to 6,758 (Agriculture 2004), from 6,700 which was the total population in 1990 (Census 1990a). Disasters have tended to exacerbate previous social patterns, and it appears that this may also be the case in here (Bolin and Stanford 1991; Kates and Pijawka 1977; Wright, Rossi, Wright, and Weber-Burdin 1979a). Despite the US Census' projected population growth, there had previously been a 40 year-continual population decline in the area, which the floods may have exacerbated, by halting any potential growth that had been projected.

The last census before the flood gave an ethnic breakdown for the community of nearly one-third Anglo, one-third Hispanic, and one-third African-American and other. Personal observations in the town, including interviews with residents revealed that there were very few ethnicities represented in the town other than the three mentioned above. It is speculated that many of the respondents who claimed "other" on the census may have done so to express a mixed ethnic heritage. However when comparing the 1990 census with the 2000 census, demographic changes begin to appear. In 2000 there was a growth in the percentage of Hispanics, while Anglos and African-Americans decreased, thus illustrating the push-pull effect of rural

emigration, and how these pressures may affect ethnic groups differently.

Table 5.1 Changes in ethnic composition in Switchback

Race and Ethnicity	1990	2000
Anglo	48.61%	47.89%
African-American	17.78%	16.56%
Hispanic	33.10%	34.73%
Other	0.51%	0.81%
Total	100%	100%

Source:(Demographer 2006)

Though the town had been projected to experience a slight growth, the county as a whole was expected to lose population during this same time frame, from 18,840 to 18,481 by 1995. From a financial perspective, this has negative consequences for the county since property taxes for county residents are higher than for city residents. In the city, a resident pays $0.284 per $100 in property value, while county residents pay $0.483 per $100 in property value (1999). The tax burden for the county comes from a work force which only slightly outnumbers the size of Switchback itself. The US Census bureau statistics describe an active labor force of 2,604 people in the town of Switchback, 9.70 % of which are unemployed (Census 1990b). The median household income for this area is only $16,132 (Census 1990b). The Median age for males in the area is 37, and for females 41; these figures are higher

than the national average, which indicates that the area is not able to retain its own youth, much less attract others.

Further demographic information obtained from the 1990 US Census indicates that two-thirds of the population in Switchback is over the age of 25, yet only 8.6 % (370 persons) of the population has a bachelors degree or higher, and over one thousand people have less than a ninth grade education. The low educational attainment in the area is in part explained because of its rural character and aging populations. Many of the elderly respondents to the questionnaire stated that they had only attended primary school, because when they were young, the secondary schools were too far for them to walk to, or they would have had to attend a boarding school. This was especially problematic for many of the female respondents who indicated that "in their time" that was not an option, since women were needed at the home, and it would not have been seemly for a young girl to be walking alone. An additional constraint that severely hampered educational attainment was the segregation of the school system, and the low population densities which made transportation difficult. Not until the 1940's were the rural school districts integrated, and it wasn't until the abolishment of the Negro School was closed in 1968 that ethnic integration began to be a concern (1972).

Previous sociological research had shown that there is a direct correlation between educational attainment and income. In the case of Switchback, this can be seen through the high poverty levels in the area. Nearly a third of the town (1,949 persons) is considered to be below the official poverty level established by the federal government (Census 1990a). At first glance one might be inclined to think that much of the low income and low educational attainment in this rural community, which lies close to the Texas/Mexico boarder, may be explained through the encroachment of undocumented workers into this country. Undocumented workers illegally crossing the Texas/Mexico boarder often come from some of the lower social strata in their own societies, and migrate to the United States in search of a better life and greater opportunities, such as education, which there were not able to obtain in their native country. However, population statistics indicate that Switchback is not one of those places. Ninety-nine % of the population indicates that they are native to the area, with only 84 individuals being foreign born, and between 1980 and 1990 there were no new foreign-born immigrants to the town (Census 1990a).

Housing overview

The housing stock in Switchback also indicates this downward trend. As of 1990 there were 2,880 homes in the area, but Key informants reported an inhabited housing stock of 2572. Even though these numbers allude to an over-supply of more than 300 hundred houses, all key-informants agreed that there was a lack of adequate housing in the area, and this was a major problem affecting Switchback's potential for growth (KI98-01 1999 ; KI98-03 1999; KI98-07 1999; KI98-13 1999; KI98-14 1999; KI98-18 1999; KI98-19 1999; KI98-21 1999; KI98-27 1999; KI98-32 1999). During the 1990's 310 new houses were built, but it was still not able to adequately address the housing shortage issue. Previously, Switchback had maintained a steady housing construction rate of about 400- 500 new homes per decade going back to the 1930's. In addition, they had also been able to retain and preserve many of their older homes. As of the 1990 census, Switchback had 628 homes which were built before 1939; although, only a small fraction of these have been properly preserved, maintained, and renovated to provide a comfortable living situation that could meet modern standards.

The age of many of the homes not only represents the lack of new movement into the town, but also the impoverishment of the local community. Several or the survey respondents expressed the depth of

their loss because their homes were in effect family heirlooms, often personally built by one of their ancestors. This attachment to place was compounded not only by emotional affiliation, but also because of economic constraints. Having an unleveraged home lowers housing costs. Of the 2572 occupied households in the town, most were single families; only 125 households included one or more non-relatives. In Switchback, 1,017 homes did not have a mortgage and reported a median housing cost of $158, while the median household mortgage for those with one was $492/month (Census 1990a). Over 62 % of families living in their own homes reported spending less than 20 % of their income on housing costs (Census 1990a). Within Switchback there were 858 rented units, of these only 36 charged more than $500/mn and 74 units charged no cash rent; the median rent was $268/mn. Of the 858 rented units, 300 charged more than 35 % of the renters' income, while 230 units cost less than 20 % of renters' income (Census 1990a). The differences in housing costs and ownership, however, do not paint a complete picture of the housing situation.

Many of the homes in the minority neighborhoods were very old, having been passed down from one generation to the next; the average age for some of these houses was 50 years or more, with an average value of $15,000 to $35,000 (KI98-01 1999 ; KI98-02 1999). These values were so low, that county officials did not bother to pursue

individuals for property taxes when they went unpaid; hence, it was often difficult to know whether someone really owned a home or not. "People have lived in those houses and they don't even know who owns it. They have passed down the houses for the past fifty to one hundred years and nothing ever gets probated. You cannot get a clean title on almost anything in that flooded area in the low-income part of town. It's just a title nightmare for real estate" (KI98-21 1999). It was often difficult to know whether someone really owned a home or not. One of the issues the flood brought to the forefront was the lack of adequate attention paid to land titles and property taxes. As people attempted to get recovery aid from SBA or the local bank by taking-out a mortgage, it became evident that many people were living in "their" own home, but had no title to that property. Inheritance papers were often not completed and someone's home was still under the name of the deceased relative, or taxes had not been paid on a property and the municipality had foreclosed on the house, but never bothered to evict the residents (KI98-13 1999).

Issues like these hampered the recovery effort, and added confusion and complexity to an understanding of the social and economic context within the town before the disaster struck. After the disaster, the low property values severely hampered the individual household recovery efforts, because recovery aid from FEMA grants are

based on a percentage of the original home's value. The inconsistency of and lax attitude toward formal procedures indicates a preference for a-moral familial relationships and an aversion to contractual or formal relationships, which predominate in the Anglo culture.

Cultural, economic, and ethnic differences are spatially represented in the settlement patterns, which are derived from local historical processes and economic activities, both related to the town's agricultural roots and the socio-economic disparities associated with differential access to land ownership. One interesting aspect made clear by the census data is that all 1191 African-American residents in the county live within the city limits of Switchback, while only about half (2,218) the Hispanics in the county live in Switchback, and only a fourth (3,257) of the whites in the county live within the city limits. Historically, Anglos have dominated economically and politically through their control of the means of production, whether those are agricultural, retail or services based industries. These power differentials have found expression in the development of highly segregated neighborhoods, which seem to belie the ethnic mix within the town.

The significance of the research

The flooding of Switchback is of importance because it provides an opportunity to compare rates of recovery among people of different

ethnicities in a rural population following a natural disaster. Switchback presents an opportunity in which to compare behavioral variations among ethnicities in the recovery process and how these variations affect that process. Because all this occurs in a small, rural town that is not situated near a metropolitan area and is somewhat isolated from the interconnected, modernized world, it has not been imbued with many of the progressive ideas of ethnic integration and social welfare that have dominated political discussion in large cities. This research compares the aid-acquisition processes of the three main ethnic groups in Switchback to observe how traditional social interactions and ethnic affiliations affect the overall recovery process in rural towns.

The story of Switchback provides a natural laboratory for the many processes involved in social organization and interactions that are engendered as a community re-establishes itself following a major disaster. The study herein focuses on three main variables- ethnicity, reconstruction processes, and leadership. Concepts of social organization and rurality are used to provide a framework for the discussion of how these variables affect the recovery and reconstruction efforts that took place following the flooding of 1998.

Ethnicity, the reconstruction process, and community organization

Though Switchback has representation from the three major ethnic groups in the larger population, it is a community which always has been divided. De facto ethnic and political segregation exists through the establishment of ethnic neighborhoods and the lack of ethnic representation in the existing power structures. This research attempts to investigate how the lack of ethnic integration within Switchback affected the recovery process both at the household level and through the development of leadership or advocacy groups which promote greater equity and growth within the town.

Central to the reconstruction and recovery efforts would be the local leaders' ability to access attention and acquire the resources necessary to help rebuild the destroyed town. This challenge was compounded by Switchback's rural nature, and the fact that it is not phenomenologically important to the state nor national history, neither are there any well known personalities which could draw attention to it.. Scanlon (1985) states that a town's ability to garner media attention is directly related to its rate of recovery. This is because the media can be a crucial component in the ability to strengthen or create both horizontal and vertical ties that can be a conduit for vital resources in times of crisis. Rural communities often experience the severity of natural disasters to a greater extent than most localities in more

modernized places (Oliver-Smith 1990a). They do not have access to the resources found in more developed, metropolitan areas, nor the ability to attract and retain those resources for long-term recovery efforts that are needed (Miller and Simile 1992).

One of the monumental challenges facing Switchback after the disaster was its ability to engage both its vertical and horizontal ties. The inter-communal horizontal ties refer to Switchback's ability to activate those relationships which will garner it assistance from other communities. This happened through the large cash donation given to the community with no spending criteria, from its unofficial sister-city in Minnesota, and the "loan" of nurses and other medical staff from the neighboring city, Victoria (KI98-05 1999). These were nursing students and medical professionals that lived in Switchback, but worked in Victoria. Intra-communal horizontal ties relate to a phenomenon referred to as expanding roles, in which citizens and enterprises expand their "normal" assigned roles by providing aid to the recovery process, which goes beyond what would normally be expected (Dynes 1970). An example of intra-community horizontal ties would be the local school district opening up its pantries and gymnasium to act as a shelter during the emergency sheltering period, as happened in Switchback. It lacked both strong vertical and horizontal ties (KI98-07 1999).

The activation of horizontal ties is facilitated by the development of a "therapeutic community" in which both the affected and unaffected residents pull together to help each other and provide the needed physical, emotional, and financial support. The ability of any locality or entity to bring cohesion and engage participants in a positive way enhances that entity's access to resources and its ability to recover efficiently (Wenger 1978). However, to maintain a sustained and focused therapeutic community is a difficult task, especially in a town that has been historically divided, such as Switchback.

In addition to the ethnic segregation, another main detriment to the maintenance of strong horizontal and vertical ties is the "Texas" or rural mentality of "pulling oneself up by your own boot straps." It goes back to the notion of being self sufficient and independent; it is one of the hallmarks of rural culture (Martinez-Brawley 1990). Of interest is how the city would be able to pull in new resources and strengthen existing ones, especially when competing with other towns that were affected by the same flood conditions, to achieve housing recovery in an efficient and equitable manner.

Historically, faith-based organizations and local congregations have been seminal actors in the development and maintenance of therapeutic communities (Watkins 2000). A complicating issue facing the delivery of church services in many rural towns, including

Switchback, is that often many of the churches servicing smaller congregations cannot offer to sustain a full-time pastor who can act as a catalyst and administrative support for disaster recovery efforts. This community supported a large number of churches for its relatively small population; meaning that most of the churches could not afford to support a full-time pastor. Investigators observed that this seemed to be particularly true within the African-American neighborhoods. Most pastors servicing the churches in those neighborhood were itinerant, thus not providing the stability and investment into the local community required to organize and administer any type of effective recovery effort. This may have further hampered recovery efforts for African-Americans since previous studies have shown that this minority group tends to rely on community networks and churches in particular during times of crises (Bolin and Bolton 1986).

A further complication related to resource limitations in rural communities is the social divisions often found within these societies. Class divisions and disempowered minority groups can often lead to tense community relations. These tensions relate directly to issues of social organization that reflect the power and class structures in society. In America, as elsewhere, these class differences often correlate closely with ethnic and educational differences (Drabek 1986; Girard and Peacock 1997; Pereau 1991; Phillips 1993; Rogers 1995). Socio-

economic and political power differentials can lead to bellicose social relations within the community, which can inhibit the effectiveness of the recovery process (Peacock, Chris Girard, and Gladwin 1997). When such a schism appears within the society, it is often mirrored on the larger political scene.

Leadership and its impact on the recovery process

The context within which the recovery process takes place is very important and can greatly assist or hamper household efforts. In this regard, the researchers also attended to issues of local leadership and previous local experience with disasters to provide a more detailed understanding of the challenges faced by this community in its recovery efforts. Research conducted in various other countries has attested to the importance of the local leadership and local culture in the disaster recovery process (Dash, Peacock, and Morrow 1997; Oliver-Smith 1990; Peacock and Girard 1997; Wright, Rossi, Wright, and Weber-Burdin 1979b). Although Switchback is a town with a repeated disaster history, the local government did not have an adequate emergency management nor disaster recovery plan. It was not adequately prepared for the event when it struck. Peacock, Killian, and Bates (1987) point out that "households residing in small, rural and politically removed communities experience greater difficulties in overcoming the

debilitating effects of a natural disaster," thus necessitating strong leadership to help counterbalance some of the effects brought on by location and size.

As was the case in Switchback, often the local leadership is not familiar with disaster recovery processes or federal assistance programs, but in their enthusiasm to assist those in need they over-promote these types of aid, allowing people to believe that the "Feds" will come in with their shining armor to rescue everyone. This idealization of federal government assistance, coupled with the lack of knowledge of fiscal responsibility, often leads to conflict among vertical linkages, as the local leadership attempts to strengthen ties with federal agents, often by-passing the state and regional liaisons. In a survey of various communities, Rubin (1985) discusses the relationships and barriers to recovery which result from the lack of recovery experience among local leaders and their dependence on national agencies. In Switchback, these issues came to the forefront during the recovery process as the local leadership was not able to effectively capitalize on the disaster to improve and strengthen vertical ties without creating additional conflicts.

The ineffective use of vertical ties was particularly well-demonstrated in relation to discussion on how the recovery process should proceed. At stake were two conflicting visions for the future of

Switchback. The first consisted of revitalizing Switchback through the recruitment of industry, the second through the development of a tourist industry. The problem with the first vision was that Switchback had limited human resources from which industry can draw if they should move to town; the second was the tight housing market that limited residency options for those wanting to immigrate. The first vision of Switchback was supported by the "new-comers," those that had moved there within the last decade and were younger to middle-aged adults. The second vision was promoted by the "old guard," people who had been raised in Switchback and who wanted to preserve the rural character of the town (KI98-13 1999; KI98-20 1999; KI98-21 1999). However, both factions feared that a loss of population would severely deteriorate the tax base and lead to even further decline of the community, if the displaced people could not find local housing.

In order to address the housing problem, which everyone agreed upon, the city council proposed to develop a piece of land owned by the local development board (KI98-39 1999). The development board had wanted to put in a camping and recreational area on the outskirts of town for a long time, but lacked the funds to invest in the infrastructure needed to develop the area. The idea proposed by the city government was for FEMA to develop this area, which could then be used for the temporary placement of mobile homes, and thus provide for long-term

sheltering needs. However, this scheme would require FEMA to invest in infrastructure development, which is not under its purview, and would take at least six months or more to complete before the first mobile home could even be brought in; the opposing faction within city government feared that by that time, many displaced people would have sought housing somewhere else or moved out of town (KI98-21 1999; KI98-28 1999).

The community had great difficulty understanding FEMA's reluctance to invest in this project, which then led to an obstreperous relationship between FEMA and the local government (KI98-28 1999). Switchback's insistence on working directly with FEMA and trying to develop this project increased the tension between Switchback's city government and the State, which was supposed to be the connecting link between the cities and the federal government (i.e. FEMA). In the end, since no zoning restrictions prohibited FEMA from placing mobile homes on people's private lots, FEMA refused to develop the park and placed temporary housing measures on private property; on the same lot as the house that needed repairs when possible. This solution has been shown to be the most preferable by most residents in past disasters, since it allows them to maintain close vigilance on their property and provides the convenience of easy access to the site for repair (Johnson 2002). The insistence of the Switchback Development Corporation for

FEMA to build infrastructure on their property, while simultaneously postponing the establishment of mobile homes and separating people from their houses, left many people feeling that the local government was more interested in the future revenues that could come from that park, than in the immediate needs of the victim population, most of whom were minority residents (KI98-08 1999).

Peacock, and Ragsdale (1997) discuss and speculate on the socio-political dimensions of recovery, and in particular the competitive nature of the different recovery players as they each attempt to effect the recovery process. In this case study, the local governmental body, which consists of a Mayor, City Manager and City Council, is one that has never been representative of all the people, and was divided by divergent visions as to how recovery should progress and who was responsible for the housing (KI98-28 1999). Contention existed among city leaders before the flood hit. The "old guard" faction of the city council, led by the mayor, was interested in pursuing a vision of development for Switchback that focused on strengthening tourism in the area by establishing an RV park to promote Switchback among winter residents from the north and people interested in hunting leases (KI98-21 1999). Many of the newer Anglo residents to Switchback wanted to improve the human resource capacity by increasing educational opportunities in the area and thereby assisting minority and

low-income populations through the development of an improved employment market which would increase social equity in the town (KI98-20 1999). The one issue all sides appeared to agree on was their concern with the slow housing market, but there was no clear consensus as to how to approach the problem (KI98-02 1999; KI98-06 1999; KI98-14 1999; KI98-16 1999; KI98-20 1999; KI98-21 1999; KI98-27 1999).

Major problems facing housing growth in Switchback were the chronic poverty in the area and that few people in town were eligible for housing loans. Those houses that were on the market were often seen as over-priced and out of step with the local market demands. Most community leaders generally agreed that low-income people did not understand the house financing or banking process and would not be capable of assisting with any solutions. This is demonstrated through statements such as the following:

> For the most part, the areas that were flooded were low end. I mean, low in income, education wise, intelligent wise, and real low in income. … And these people have been here for 150 – 200 years and they have just been like a little clan. They are inbred and never gone anywhere and never done anything. People have kept them subdued with low pay and no material assets. And basically a hell of a lot of this is not too far out of slavery. And even Hispanics, they have a higher intelligence level down there [South Texas] and higher work capabilities than they do in Switchback (KI98-21 1999).

The lack of confidence in the minority population and the divergent views regarding Switchback's future fueled the embers of conflict among community leaders. One of the biggest problems with the local government's advocacy of the use of federal funds for the infrastructure development of the industrial land for tourism was that these plans were not developed with a broad range of support nor participation, giving the appearance that the Anglo leadership was trying to subvert recovery funds for the development of projects which would ultimately go towards the use, improvement, and profit of this same group, while doing nothing to improve social equity (KI98-07 1999; KI98-23 1999)

Various researchers have pointed out that social disparities and class structures often are accentuated in the aftermath of a disaster (Dash, Peacock, and Morrow 1997; Oliver-Smith 1990; Rogers 1995), and it would appear that this was also the case in Switchback. Polleta (1999) adds to this analysis with her insight into culture and how culture may affect one's perception of the role that government plays in the recovery process. She stresses that expectations of government involvement in the recovery process are based on previous experiences and the trust developed between the various groups and governmental institutions. If political participation has not been a successful venue for social change in the past, residents may be adverse to engage in that

type of activity, especially at a time of heightened vulnerability, such as after a disaster.

Switchback is a segregated town in all respects: politically, economically, and physically. It has a mayor - city manger local government structure, but because it is such a small town, only the city manager position is a full-time, paid position (KI98-15 1999). The city council consists of seven members. Three are at-large positions and four are by special districts. The structure of the present city government came into being in the early 90s, after the city was sued because of a lack of minority representation in local affairs (KI98-10 1999). Until that point, there had been no minority representation on the city council, which was completely elected at large. This law suit brought about the development of special electoral districts to facilitate minority representation, though those efforts have been only minimally successful, with the election of only one minority member representing the Hispanic population, and no representation for the African-American community (KI98-08 1999).

The historical reluctance to integrate the various ethnic populations within Switchback is important when considering community level recovery efforts and minority access to resources. No African-American has ever served on the Switchback city council, and the first Mexican-American councilman was elected in the last decade of

the twentieth century, though he was a controversial figure and was not given the credibility offered to other councilmen. One interviewee described the situation as follows:

> [Hector] is a kind of populist representative, a watchdog. The town is essentially run by a few families,… and it has a lot of corruption in it. …all little towns have a certain amount of corruption, but Switchback is really bad…They kind of created this aura around him [the Hispanic political official] in the sense that he is a rebel. Part of the reason is because he is Hispanic. … But, the main point is not that. If he went along with what they want on everything, it would not matter if he were yellow or purple, or what he is. It is the idea of anyone getting on the council and having a different view point and stuff like that (KI98-10 1999).

However, even among other minority residents, he is sometimes seen more as a token concession by the ruling parties to political correctness, than a true representative and fighter for of the disenfranchised in the town.

The Hispanic councilman is someone who is considered divisive within the community and does not share the unanimous support of either the Latino or Anglo population. Among some Hispanics, he is seen as an ineffectual token minority on the council, while others support him and see his political success as a move towards greater integration for all minorities in a town where they have never been represented (KI98-08 1999; KI98-20 1999). The Anglo leadership is also divided in their approach to him; “newcomers” see his political success

as a progressive step, while others feel that he is a trouble-maker, upsetting the status quo (KI98-07 1999; KI98-16 1999). A local leader expressed dissatisfaction at the actions he has promoted through the council. During the recovery process, he fought for the improvement of lifelines in a minority neighborhood, while others felt that the money could be better utilized by improving infrastructure in other parts of the city. Later it came out that most of his family lived in the neighborhood where he proposed the infrastructure investment be made. This incident deteriorated his support among some of the "new-comers," who then felt they could no longer trust whether he was representing the minority population or his own interests (KI98-20 1999). Situations such as this one can often be complicated, not only by ethnic tensions, settlement patterns, and changes in the political and demographic landscapes, but also by the lack of minority integration into the long-term recovery process. The inclusion of minority representatives into the planning process has been a pitfall for many other communities, and researchers have repeatedly addressed the need for equitable representation of all stakeholders in the planning for recovery (Bolin and Bolton 1986; Bolin 1994; Caporale 1986; Comerio 1997; Dynes and Tierney 1994). The challenge, therefore, is how to pull minority representation together and maintain the focus on an effective and inclusive recovery process.

Within Switchback there was actually a three-pronged approach to recovery, and each party represented a different understanding of how it should proceed. First, for the most part the "old guard" saw each household as being responsible for their own recovery and those that could not be self-sufficient were in many ways "choosing" not to recover. This approach was supported by a common belief found in rural settings of the "rugged individual, who is one that takes care of his own without outside help." One key informant expressed it this way, "you will find this just about anywhere, this anti-welfare mentality – I got mine, and he can get his. If he wasn't so lazy, he would go clean up is house and if it was my house, I would have cleaned up already (KI98-14 1999)." Second, the "newcomers", on the other hand, saw the need to help their neighbors and felt that many of those worst hit by the flood were the downtrodden, elderly, and infirmed; that portion of the population that was most vulnerable and in the greatest need of help. They felt it was their civic duty to give (KI98-23 1999). Third, many of the minority residents saw the disaster as an opportunity to galvanize their community and demand greater representation in the recovery process. They were particularly sensitive to a long history of exclusion in the decision making process and allocation of resources, as is evidenced by the nascent group, Coalition for Political Unity, which had been founded shortly before the flood hit. The Coalition for Political Unity was a

grassroots movement attempting to unite disparate ethnic groups who opposed the strangle hold on power, maintained my the established German descendents (KI98-08 1999). These on-going conflicts have contributed to difficult working relationships and impeded a concerted recovery effort focusing on a single vision of how recovery could or should proceed for the town.

When the disaster struck, the community was little prepared for an emergency event, and even less experienced in how to deal with one. The natural tendency would have been to turn to local elected leaders. This, however, represented of a problem as the local mayor had many different roles in the community, including that of being the only plumber in town. Moreover, he was also the leader of the conservative factions that opposed change. Conflicts between the mayor and those in the city council that advocated a progressive agenda led to instability in the position of city manager, further complicating the issues of where local leadership resided. Switchback had gone through several different city managers; the latest one being the previous secretary to the mayor, who was elevated to her current position. In her position as city-manager, she served primarily to assist the mayor, instead of providing the level of professional leadership normally expected of a city manager (KI98-10 1999; KI98-14 1999; KI98-20 1999). She was, however, instrumental in applying for those grants that the city pursued to

acquire additionally resources; however, because of her lack of experience in applying for grants or dealing with the state or federal government agents, the city was not able to effectively capitalize on the many forms of aid that were available (KI98-21 1999).

Meanwhile, other leaders in the community had begun to organize, under the mayor's direction to form a recovery task force, which would assist in the recovery process by identifying areas of need and possible sources of aid (KI98-16 1999; KI98-20 1999). There were several members of this task force who were actually part of the "newcomers" crowd, and wanted a more progressive and inclusive approach towards recovery. Though they opposed the mayor, and his agenda, they could not be over-looked because of their economic prominence and desire to help. Volunteers were needed for many different aspects and to unite the various factions, yet not a single person from a minority ethnic group was asked to participate in any ad-hoc group that dealt with recovery.

To add to this fray of voices, a representative for the Lower Colorado River Authority (LCRA), who purported to have roots connecting her to Switchback, became a self-appointed advocate for Switchback's recovery efforts (KI98-28 1999). The exact nature of her relationship to the town was never clarified, nor was her position within the agency in which she worked. LCRA plays a variety of roles in the

central Texas region, including that of assisting the local CDC or community development corporation. The LCRA mission is "to provide reliable, low-cost utilities and public services in partnership with our customers and communities and to use their leadership and environmental authority to ensure the protection and constructive use of the area's natural resources" (2006a). As a part of their efforts in central Texas, they have supported communities and economic development in the region. However, LCRA was not a direct supplier of electricity to Switchback and was only involved with the flooding incident in that region through the river level monitoring systems they manage. Albeit, because of her attachment to the community, the LCRA representative took a special interest in the recovery efforts and began to actively advocate with the mayor for the development of the recreational park, creating further division within the city government and Recovery Task Force groups (KI98-13 1999; KI98-15 1999).

The Switchback Recovery Task Force was composed of several non-elected community leaders who came together to help move the town towards a quicker recovery (KI98-13 1999; KI98-29 1999). The Task Force was charged with bringing together the different voices in the community to discuss rebuilding options and hopefully establish a long-term medium of dialogue for the development of the community. This Task Force was composed of business leaders in the community, but did

not include a single minority representative. However, it did bring to the forefront some of the issues previously discussed. The first, primary concern expressed regarding the future of Switchback, was the immediate fear of people relocating to other towns in their search for long-term housing; perhaps towns that were more economically viable. The second concern was the long-term development of human capital in the community (KI98-21 1999). A major problem facing Switchback was the lack of a sense of community. Division had appeared along ethnic lines, as well as length of residency. In essence tensions had grown up between ethnic groups, and even Anglos with a more progressive tendency began feeling frustrated by the lack of cohesion and connection between the groups. One informant states that "the housing committee finally got tired of trying to figure out all their problems down there. When those people don't care enough to try to solve their own problems then why should the vast majority of the other people worry about them? That is the kind of conclusion the committee came to in large part. I will tell you where our focus is on: middle and upper-income people. That is where our housing needs have been focused on right now" (KI98-18 1999).

The inability or unwillingness of local leaders to reach out to minority populations in an inclusive and an empowering manner led to greater conflict within the town, which further impaired recovery issues.

As mentioned previously, many studies have identified the need to be inclusive in the recovery planning process and make a special attempt to draw-in all stakeholders, especially those which are normally marginalized by ethnic affiliation or gender. However a long-standing paternalistic attitude towards minority members of the community prevented the established leaders from being able to fully utilize local knowledge, and encourage empowerment to speed recovery. DeWitt County Cares, an impromptu non-profit group established to help flood victims, related that they were doing a needs assessment for victims, to help with claim applications. "We looked at income, housing needs. It takes an hour and a half to complete the survey. It was completed at the interview by the interviewer. After the interview, the leader would then make notes on what they thought the needs were. They would decide between what were needs and wants, because the victims my want something, but they may actually need something else (KI98-23 1999)." This paternalistic attitude of needing to take care of the minority members in the community led to great frustration among some leaders who didn't feel there was enough investment from the victims in their own recovery, while others simply saw it as yet another example in which "those lazy people always want something for nothing and are incapable of helping themselves. How do you explain the lack of motivation to do something about their situation? A lot of people are so

dumb and so poor. They don't realize how ignorant, poor and low-life they are and don't care (KI98-18 1999)." With attitudes such as these it would be very difficult to actively engage disenfranchised groups into leadership positions.

On a brighter note, the role of women throughout the recovery process was exemplary, though only for Anglo women. One served in the position as the head of the primary local relief organization, DeWitt County Cares, while the city manager, and the president of the Chamber of Commerce were also prominent women and seminal to the recovery process. However, they did not appear as strong ideological leaders in any of these capacities. The struggles that vexed the recovery process were those directly relating to political power and how it should be controlled.

Rural communities are often characterized by their conservative nature and slowness to adopt new ideologies, especially those that might upset the status quo. The agenda proposed by the "newcomers" was precisely aimed at upsetting the existing power structures by trying to promote social equality through improved educational and employment opportunities. The minority population was also moved by the impact of the disaster to begin seeking greater say in the governance of the community. A local preacher felt that he needed to begin advocating for the needs of the African-American population, and chose to do so by

attempting to get a political appointment on the local Housing Authority Commission, since a large number of government housing residents were minorities. His bid for entrance into the political process was stymied by the mayor, who felt that he would cause too much trouble and not support the established agenda (KI98-07 1999). The failure of these groups to change the status quo and attain a greater voice within the recovery planning process can be examined through some basic sociological research into the development of social movements and how successful groups are formed.

Quarantelli and Wenger (1973) examined the basic steps needed to develop a successful social group and bring about change. Among the necessary elements they identified are (1) a division of labor, (2) identified leaders, and (3) group boundaries. These requirements were not successfully met by those groups that emerged in Switchback following the disaster in their bid for power, and hence were not able to bring about change. The long-standing social divisions in the community, instead, served to accentuate and perpetuate social inequities, while retarding the recovery process. Significantly, however, the disaster did provide the impetus for new voices to be heard on the political arena, and with time and continued interests they may learn how to effectively convey their message to help promote a more equitable

and integrated access for all stakeholders to the community development process.

Like many rural towns, the powerbrokers in Switchback promote a conservative agenda, which is culturally and economically closely tied to its past. Change is not easily embraced by the establishment, but nonetheless, new immigrants to the town have begun to introduce ideas of reform and present an alternative vision which is primarily based on industry, and an ethnically integrated and educated workforce. This divergent vision is moving Switchback away from it's agricultural roots, and has spawned a power struggle within the community that could have far reaching effects for the recovery processes of this town.

CHAPTER VI

DATA ANALYSIS OF AID ACQUISITION

Introduction

This chapter uses the survey data to examine the ethnic variations in the aid acquisition process for the re-establishment of permanent housing following the 1998 flooding in Switchback. The discussion is preceded by a brief overview of the sampling and survey techniques used in this research, which was presented in greater detail in chapter III. The primary focus of this chapter is on the statistical analysis which assessed ethnic variations in the housing recovery process in Switchback. The discussions assist in the development of a deeper understanding of how membership within a particular ethnic group has social consequences, which in turn may affect the disaster recovery process.

Because the principal objective of this investigation is to measure and understand variations in the disaster recovery process along ethnic lines, the data analysis will be presented in two stages. For each topic discussed, the data is first presented through an analysis of majority vs. minority group progress, and then, by comparing the three primary

ethnic groups found in Switchback: Anglos, African-Americans and Hispanics. The analysis will begin by assessing the extent of damage sustained at the household level, followed by an analysis of the sources of aid and types of aid that victims were able to access in their recovery efforts. This analysis will help determine how flood victims coped during this process, and if there were ethnic differences along the path to recovery.

Methodology

The data assessed comes from a survey distributed to a sample population drawn from the flood affected area in Switchback. The greater emphasis was placed on obtaining a sample size large enough to be representative of the flood victims in Switchback and the recovery process they underwent. The total sampling frame consisted of the 1,077 damaged homes. A systematic random sample of 765 households were selected from the original frame, of which 265 valid surveys were returned, and an additional 15 were dropped because they did not meet criteria for comparisons along ethnic lines. This left a total working sample size of 250. As stated previously, the respondents to this questionnaire were fairly evenly distributed along ethnic lines: 33.6% were Anglo, 37.2% were Hispanic, and 29.2% were African-Americans.

All respondents for the analyses in this chapter were presented with the survey questionnaire in one of two forms (and could chose from Spanish or English): either they were asked to fill out the form themselves, or they were offered assistance in completing the questionnaire by one of the interviewers. Assistance for completing the questionnaire was provided due to the low educational attainment in the town and the possibility that illiteracy could be a barrier to survey completion. This also facilitated the data gathering process and improved response rates. The gathering of data in the immediate aftermath of a major disaster can create additional stress for survivors, adding yet another level of complication to their lives as they struggle to rebuild, the additional assistance was a measure researchers took to help minimize the intrusive effects of data gathering during this critical time.

The survey questionnaire (Appendix A) attempted to collect data on the entire process victims experienced in attempting to maintain and re-establish a roof over their heads, beginning from the moment of evacuation until they returned to permanent housing. Patricia Starr-Cole (2003) undertook analysis of the first part of the questionnaire in her examination of both emergency and temporary shelter patterns for respondents, and how these differed along ethnic lines. The second part of the questionnaire is analyzed in this dissertation. It closely examines

responses from the survey dealing directly with the aid acquisition process and the subsequent satisfaction with the aid received. The aid acquisition process is examined in terms of: (1) how information for aid was acquired, (2) what sources and types of aid were accessed and (3) how satisfied respondents were with the aid they received.

The primary source of the information comes from question *25 of the survey (see appendix A), which lays out a matrix for respondents to choose those sources of aid from which assistance was received and the types of assistance offered by each source. Analysis of this data will be undertaken to determine if there are ethnic differences among the various groups, and how these differences might be reflected in the permanent housing acquisition process, which is covered in the remaining questions. Issues of satisfaction with the process were addressed once respondents were given the chance to recount the various steps involved in their path towards recovery, and evaluations were made about the quality of permanent housing obtained through recovery. The questionnaire concludes with standard demographic questions, which provided the information needed to analyze data along ethnic lines.

Demographic comparison of ethnic groups in survey

Before delving into the hypothesis guiding this research, it is important to briefly review some of the demographic characteristics found in Switchback so that the reader can get an idea for how ethnicity fundamentally shapes the lives of these residents. Ethnic groups within this study were compared to each other for differences in education, income, age, number of children under the age of 18 living at home, marital status, respondent's sex, length of residency in the community, average cost of rent or mortgage, and physical location in the town following the flood, to determine the correlation between these variables and ethnic affiliation. As we shall seen in Chapter III, there were significant differences among Switchback's ethnic groups corresponding to many of these demographic terms, indicating the determinant nature of ethnicity on the lives of local residents, especially after taking local history into account. These demographic variables are major factors that significantly impact both the individual and household's social and economic dimensions, influencing the lives and opportunities of Switchback's residents. For example, ethnicity may have consequences for the parts of town a group considers it acceptable to live in, or the social pressures borne in relation to education, employment, and living standards, to name a few.

Additionally, ethnicity is associated with how much disposable income a household may have, and how a household is composed (i.e. number of children, adults, extended family members …). These items are, of course, important indicators of broader social status, which is also closely linked to social network development, and in turn, helps define the range of opportunities, and/or obstacles a person or household faces throughout its lifespan. The networks each household develops, and the ensuing resources made available through it, or obstacles needing surmounting, can become defining characteristics of a household's potential rate of recovery, especially in times of community crises. Some of the more significant differences, addressed in this research, regarding demographic characteristics between Anglos and minorities, taken together, are summarized in Table 6.1. For more detail on the demographic characteristics of the sample and its comparison with the population at large refer to Chapter III where they were discussed in detail.

Table 6.1 Demographic characteristics of sample

Indicators (per household)	Anglos	Minorities	t-Test
Mean Income	$29,573	$18,160	3.750**
Mean length of residency	26 yrs	27 yrs	-.633
Mean number of children under the age of 18	.615	.903	-1.80**

** indicates significance at the 0.05 level

The variables of income, length of residency and number of children are being reviewed first because these variables are directly related to issues of social class, integration, and hardship. These variables are all indicators of the societal structures within Switchback: income reflects social class, length of residency potentially reflects social integration within the community, and number of children reflects the responsibilities and burdens each household has undertaken. Obviously, these variables neither represent a comprehensive nor complete measure of the ideas that they are attempting to capture, but they provide salient information from which certain distinctions can be drawn.

The results displayed in Table 6.1 suggest that there is a significant difference between the mean income of Anglo and minority households. The annual mean income reported by the Anglo respondents was around $29,500, which is significantly higher than that reported by minorities, approximately $18,000. The length of residency is not significantly different between the two groups, suggesting that immigration to the community cannot be a significant obstacle towards community integration. Statistically significant differences are, however, observed between the two groups with respect to the average number of children under the age 18 per household. Included in the table are all the households without children, which

accounts for what appears to be an abnormally low average number of children per household. Minority households have a significantly higher number of children than Anglo households. These larger households, coupled with the lower income levels, shows that the basic cost of living for minorities would have a heavier burden on household income than for the majority ethnicity, culminating in lower levels of disposable income and heightened vulnerabilities in the disaster recovery process.

Compounding these figures is the fact that Switchback is highly segregated along ethnic lines. Figure 6.1 provides some indication of the ethnic segregation within the town. It shows the distribution of each ethnic grouping across the affected residential areas. Each bar represents 100% of the survey respondents from each neighborhood, thus ethnicities are represented proportionally by neighborhood and not by observation. This provides an overall representation of how ethnicity was distributed within the community.

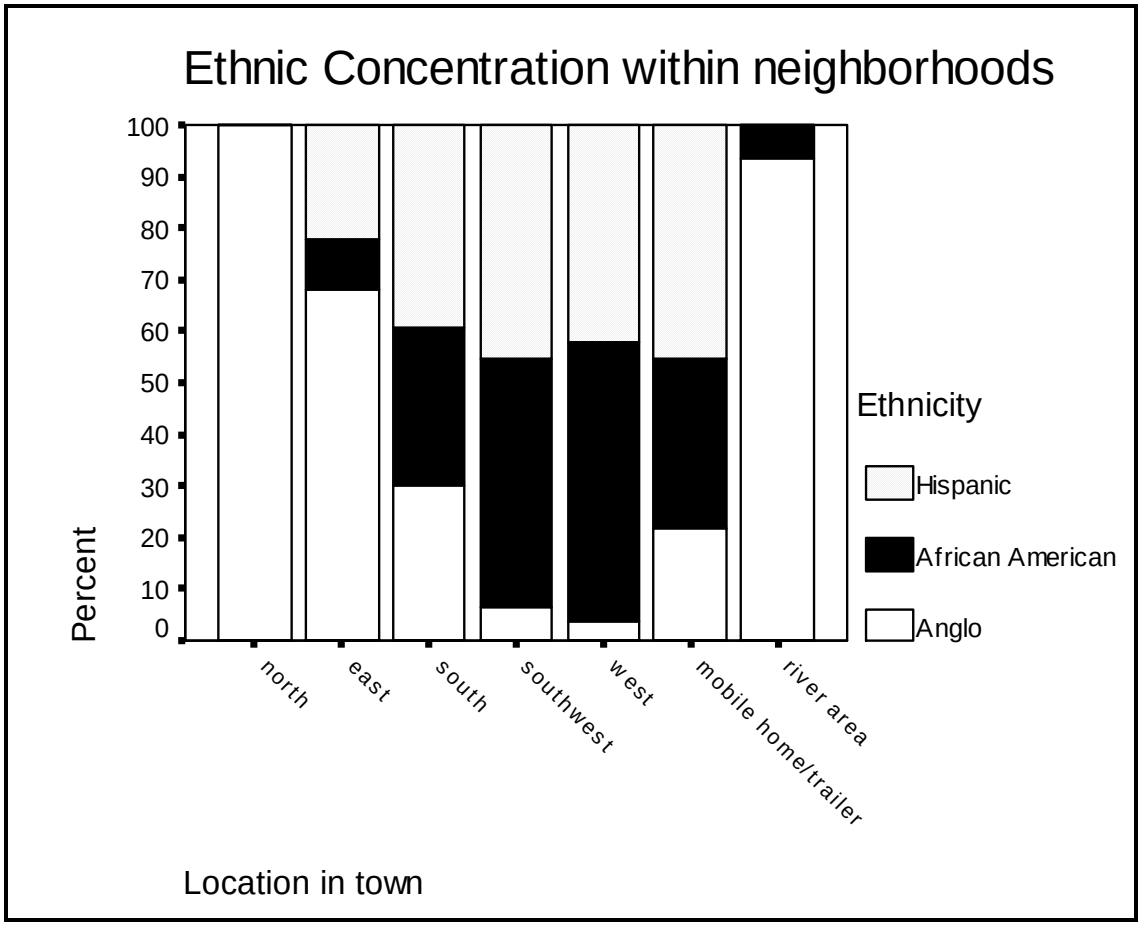


Figure 6.1 Ethnic concentration within neighborhoods

Various neighborhoods within the city were dominated by either minority or Anglo households, but there are few areas that exhibit true ethnic diversity at the neighborhood level. The north, east and river area neighborhoods are dominated by Anglos. All other areas dominated by non-Anglos. The most ethnically integrated neighborhood in Switchback is the southern portion of the town, which was a transitional neighborhood, primarily composed of elderly Anglos along with middle-class Hispanics and African-Americans, though still marginally

dominated by Hispanic households. In the southwest neighborhood, the proportions of the Hispanic and African-American households are fairly evenly distributed. In contrast, the Western part of town was predominately composed of African-American households. Both African-American households and the Hispanic households dominate the mobile home/ trailer households. However, these are households that had been relocated after the flood due to the extensive damage to their homes, and in most cases these residents probably came from one of the minority dominated neighborhoods, though precise information on their pre-flood housing location was not collected. Within the mobile home category of households, Hispanic predominated, followed by the African-Americans and finally Anglos.

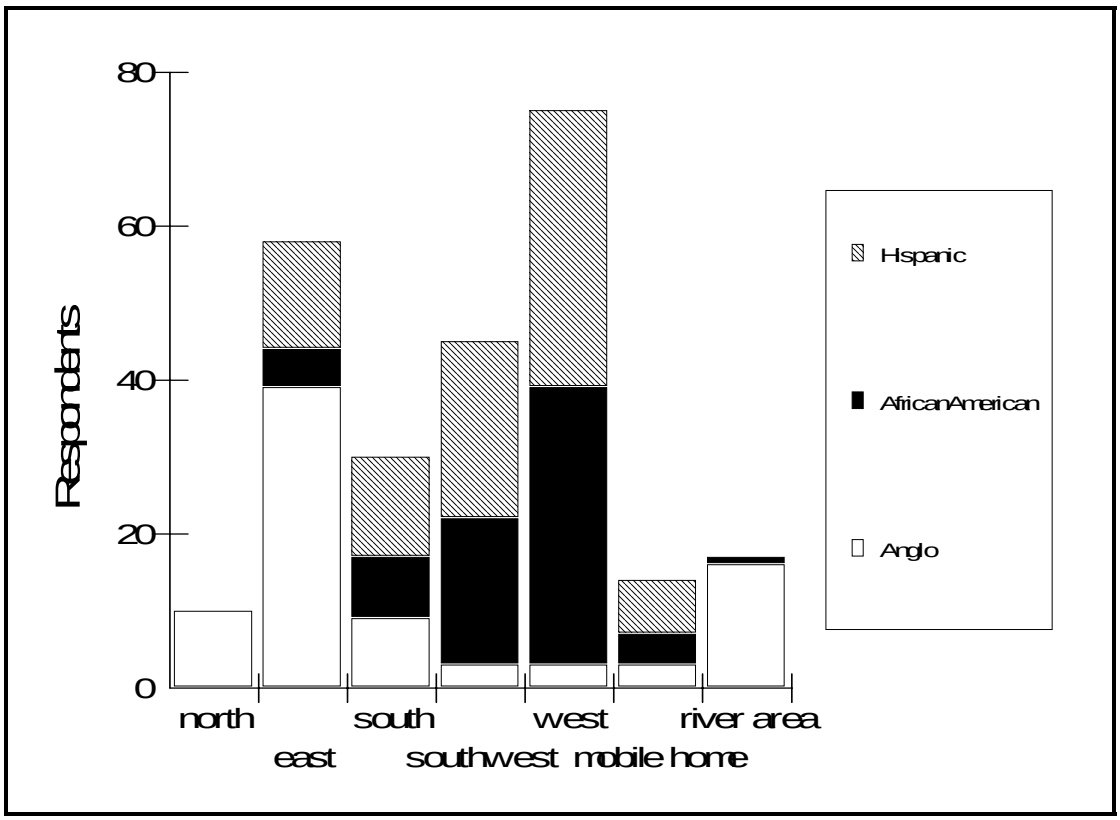


Figure 6.2 Distribution of respondents among various neighborhoods

Figure 6.2 is similar to the data previously presented, but shows the frequency of respondents by ethnic group residing in each neighborhood. Because respondents were randomly selected from a sampling frame consisting of all damaged homes, one can see that certain neighborhoods were more heavily sampled than others, due to the sampling methodology that favored areas damaged by flooding. Figure 6.2 also shows which neighborhoods were most heavily damaged by the flood. By combining the above two graphs one can see that the

flood did not affect all ethnic groups within this community equally. As the waters crossed the town from west to east, those neighborhoods, and areas in the south and southwest were most affected, and sustained the greatest damage. These were also primarily minority neighborhoods. Surprisingly, the areas near the river and those in the northern part of town, which was also where the newest growth had been and which were predominantly Anglo, were not as severely affected by the flood. This flood, as is typical with most disasters, imposed the greatest hardship on those least able to bear it, and with the least amount of resources; even though, unlike many other flood disasters, the minority population in Switchback did not live within the 100 year flood plain, though they obviously still resided on low-lying land.

Damage

In this section, the collected data is analyzed with respect to the damage suffered by the households. This is important, as the level of damage will potentially have an influence on the amount and types of aid and difficulty in recovery. A brief summary of the damages in Switchback shows that the town reported losses of $62.6 million. This figure includes 7,000 head of cattle, over 1,000 miles of fences, 64,495 acres of agricultural land damaged, 50,000 bales of hay destroyed, 4,000 acres of Pecan crops ruined, and over one-fourth of the town's

houses destroyed (Briffett 1998). These agricultural losses were not situated within the town boundaries, though the town directly suffered from the economic losses and many of the agriculturalists may have had town residences.

Almost 95% of those responding to our survey reported that their homes were impacted by the flood. This is not surprising; as the sampling technique was designed to study housing recovery processes, thus necessitating the study of households that had been impacted by this event (see Table 6.2). The 13 respondents whose homes were not directly affected by the flood either were situated on higher ground or were just outside of the range of the flood.

Table 6.2 Has the place one lived in been affected by the flood?

	Anglo	**African-American**	**Hispanic**
No	3 (3.7%)	3 (4.2%)	7 (7.6%)
Yes	79 (93.3%)	69 (95.8%)	85 (92.4%)
Total	82 (100%)	72 (100%)	92 (100%)

This research is primarily concerned with the housing recovery process. To properly assess that process it is important to understand the level of need generated by flood damage. In addition to finding out whether or not the home was affected by the event, more detailed information was collected to determine the percent of damage incurred

to both the house structure and its contents. Respondents were asked to report the level of damage using five categories: no damage, 25% damage, 50% damage, 75% damage and complete loss.

A comparison of damage rates among the different ethnic groups shows that Anglos, as a group, sustained fewer losses than minority groups. Minorities showed disproportionately higher losses to both their homes and its contents. The results in Table 6.3 show that the total damage to contents (i.e. appliances, clothing, furniture, etc.) for both African-American and Hispanics was higher than for non-minorities: 72.7% and 77.1% respectively, suffering a 100% loss compared to 59.2% of Anglo households. These figures suggest that Hispanic households suffered somewhat more than the others. However, if we look at households reporting 75% or more losses to their home's contents, nearly 91% of African-American households fall into this category, compared to just over 84% of Hispanics and nearly 83% of Anglos.

The findings indicate a similar pattern for structural losses (see Table 6.4). Those households impacted by the flood were, in general, severely impacted. Over 70% of respondents lost 75% or more of their home structure, with the levels varying greatly across ethnic groups. Minorities were nearly three times as likely to report 100% loss to their homes structure, with 45.6% of African-American and 41.1% of Hispanics reporting 100% loss, compared to only 13.2% of Anglos.

Interestingly, African-Americans reported a greater total structural loss to their home than Hispanics, yet lower content losses than Hispanics. However, when comparing those reporting 75% or more loss to their homes' structures, the percentages are more comparable with 76.5% of African-Americans, 73.4% of Hispanics, and 64.5% of Anglos. Nevertheless, damage levels were clearly higher among minorities. This variation in structural losses can be, in part, attributed to the location of the home in relation to the flood waters, as well as the quality of the structure itself.

Both of these tables show that Anglos suffered less damage than minorities. Using the chi-square, these results are statistically significant at the .05 level. These findings suggest that while everyone surveyed suffered losses, it was primarily the minority groups that had to begin their recovery process almost from scratch, as so many of them suffered the complete loss of home and content. Moreover, these same people often had to deal with the debris removal of their original structures and content, which may not have been as great a burden on the Anglo population given that they had somewhat lower levels of damage.

Table 6.3 Content damage in home by ethnicity

	Anglo	African-American	Hispanic
0%	2 (2.6%)	4 (6.1%)	9 (6.7%)
25%	6 (7.9%)	1 (1.5)%	1 (1.2%)
50%	5 (6.6%)	1 (1.5%)	3 (3.6%)
75%	18 (23.7%)	12 (18.2%)	6 (7.2%)
100%	45 (59.2%)	48 (72.7%)	64 (77.1%)
Totals	76 (100%)	66 (100%)	83 (100%)

Table 6.4 Structural damage to home by ethnicity

	Anglo	African-American	Hispanic
0%	3 (3.9%)	4 (5.9%)	5 (5.6%)
25%	9 (11.8%)	3 (4.4)%	6 (6.7%)
50%	15 (19.7%)	9 (13.2%)	13 (14.4%)
75%	39 (51.3%)	21 (30.9%)	29 (32.2%)
100%	10 (13.2%)	31 (45.6%)	37 (41.1%)
Totals	76 (100%)	68 (100%)	90 (100%)

The results in Table 6.3 and Table 6.4 provide a comparative look at the differences between Anglo and Minority losses. But to further assess this, an additional variable was constructed, to better capture the "total loss" suffered by a household. This variable reflects the combined loss of structure and content but weights the loss of structure more heavily to account for the additional difficulty embedded in the reconstruction process and also to reflect the higher values associated with a home's structure versus its contents. Specifically, households were assigned the percent loss for both structure and contents, and then were weighted and added. Structural losses were given twice (.66)

the weight of content losses (.33) in the development of the "total loss" variable. This new variable reconfirms in one succinct number what had been stated earlier, that Anglos generally suffered fewer losses than minority groups. Specifically, as seen in Table 6.5, Anglos suffered an average total loss of 68.2%, while minorities suffered an average of 77.8% loss to their home and its contents. These are statistically different.

Table 6.5 Difference between Anglo and minority total damages

Ethnicity	Mean total damage	T-Test - Equal variance not assumed	Mean differentiation between Anglo and Minorities
Anglo	68.1635	-2.63**	-9.649
Minority	77.8132		

** indicates significance at the .05 level or greater

Table 6.6 takes the comparison one step further by applying a protected t-test to determine differences among the three ethnic groups. The results suggest that there were not significant differences among the groups with respect to losses to contents. However, the differences were meaningful (at a .05 level) in regards to both structural and, not surprisingly giving weighting, for total damage losses. With respect to structural and total losses, the only significant differences were between Anglos and African-American and Hispanic households respectively. In

all cases, Anglos suffered significantly less damage. There were no statistically significant differences between the two minority groups when comparing total damage or just damage to the structure.

Table 6.6 Mean percent damage by ethnicity

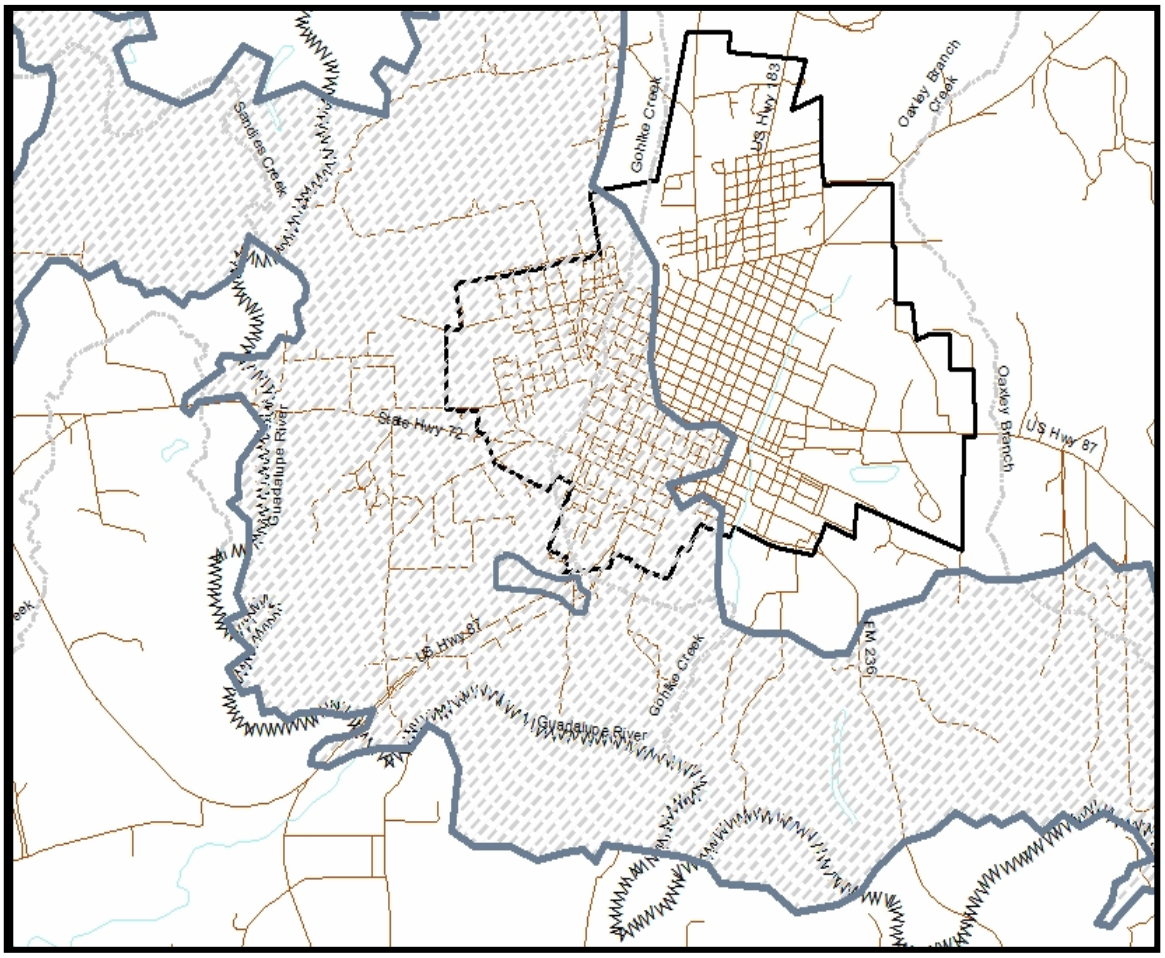
Percent Damage to	Anglo	Hispanic	African-American	F- Test	Mean difference between		
					Anglo and African-Americans	Anglo and Hispanic	Hispanic and African-Americans
Contents	78.80	83.79	86.79	1.29	-7.99	-4.993	-2.994
Structure	62.82	73.35	75.36	4.20**	-12.54**	-10.53**	-2.01
Total damage	68.16	76.83	79.12	3.31**	-10.94**	-8.67**	-2.28

** indicates significance at the .05 level or greater

While ethnic variations appear with the sample comparison, the question remains as to whether these differences are evident after controlling for other factors. Ethnicity is an attribute that is related to many other factors that potentially have greater bearing on the actual loss sustained, such as two of the most important attributes: the structural integrity of the home and its location, which were not directly measured. These variables, in turn, could be the consequence of a variety of factors including racial discrimination, segregation, poverty, culture, educational attainment, and employment opportunities, to name a few. In this case, for example, location within the community was undoubtedly a very important aspect because of the impact of the

force of the water as it came into town after the river jumped its banks, versus neighborhoods affected by the rising waters of the river, which did not carry as much momentum.

Minority neighborhoods were hardest hit by the waters, and homes in those areas were also in the worst conditions to withstand the onslaught, since the housing quality was reported to be very poor. The force of the water led to several instances where homes were completely ripped off their pier-and-beam foundations only to be found deposited miles down river after the flood waters had subsided. Testimony from various key informants states that many of the homes in the minority and mid – to – low income neighborhoods were older structures, not properly maintained and often in substandard condition (KI98-02 1999; KI98-21 1999).



Based upon (Shultz 2002)

Figure 6.3 October 1998 flood inundation map, Switchback, TX

A review of the damage data, as discussed above, clearly shows that losses for this small rural town were drastic. While the entire town was severely affected, the loss of one's primary place of residence affected some more than others. As can be seen in Figure 6.3 October 1998 flood inundation map, Switchback, TX , which is a map of the

flood inundation for Switchback, areas in the western, southern, and, to a certain extent, eastern parts of the community were more in the flood area. Thus, location was a central issue in the damage sustained by the flood, primarily due to the nature of the flood waters as they came into town and the associated force with those waters.

The relationship between location and damage is depicted in Figure 6.1 through Figure 6.3. These graphs display the relative frequencies of various levels of damage across areas in Switchback, and after comparing the damage patterns with the flow-simulation map, one can see that the flood waters crossed town in a northwesterly to southeasterly direction, which accounts for most of the variation in housing damage. Households in the east and west sides of town had a diffused level of damage, ranging from no damage to total losses, but with slightly higher levels of damage in the west. While, most of the neighborhoods received some damage, areas to the north and east had somewhat less damage, when compared to those along the river, west and southwestern portions of the community. Of the people interviewed, the group that reported the most consistent high levels of damage were those respondents living in mobile home parks at the time. This stands to reason, as respondents who had experienced a total or near total loss, could not return to their homes, and may have elected to move to a mobile home park instead.

These findings suggest that location is an important variable in accounting for total losses. Both the north side of town and the area near the river received the fewest losses. However, because of the ethnic segregation in town, there were no minorities that lived in the north and very few near the river. Although Anglo ethnicity is strongly correlated with lower damage losses, these ethnic variations are best explained due to the nature of the flood. Minority neighborhoods were hit hardest by the floodwaters because they took the brunt of the swift-moving water that jumped the river switchbacks and cut through town; whereas Anglo neighborhoods on the northern edge of town were exposed to rising waters and not to the fast moving waters, according to witnesses of the event (KI98-08 1999; KI98-13 1999; KI98-37 1999).

In order to better assess ethnic variations in damage, a linear regression model was used to determine if there were still ethnic differences in damage after controlling for other factors that might explain the amount of damage sustained by the residents of Switchback. After attempting various combinations of variables, the following variables were employed to predict total damage: location of residence in town, income, and, of course, ethnicity. Location was entered into the equation by using a series of dummy coded variables, leaving mobile home residents as the comparison group. To control for the potential consequences of location, while still testing for ethnic and income

differences, four linear regression models are presented below in Table 6.7. The first model includes only locational measures and serves as our base model. The second includes locational measures plus a dummy coded variable for Anglo, testing for differences between Anglos and minority households, and income. Models two through four also include income that should be negatively related to damage because higher income households can be expected to reside in higher quality housing and will be better able to maintain the quality of their homes. The third and forth models include a combination of ethnic dummies allowing for comparisons among ethnic groups.

Table 6.7 Model of linear regressions for total damage sustained

	Location only models		**Full model with Anglo and Income**		**Full model with Anglo, African-American and Income**		**Full model with Anglo, Hispanic and Income**	
	B	Exp (B)	B	Exp (B)	B	Exp (B)	B	Exp (B)
North	-55.290**	-.378	-37.302**	-.253	-37.305**	-.253	-37.305**	-.253
East	-18.355**	-.277	-9.154	-.140	-9.229	-.142	-9.229	-.142
South	-5.357	-.062	-6.860	-.085	-7.047	-.088	-7.047	-.088
Southwest	2.327	.032	-1.052	-.015	-1.521	-.022	-1.521	-.022
West	-26.435**	-.437	-28.755**	-.502	-29.346**	-.512	-29.346**	-.512
River area	-18.808**	-.164	-3.622	-.032	-3.701	-.032	-3.701	-.032
Anglo			-13.158**	-.232	-11.372**	-.201	-16.089**	-.284
African-American					4.718	.080		
Hispanic							-4.718	-.085
Income in hundreds			-.02119**	-.150	-.02152**	-.162	-.02152**	-.103
Constant	90.477**		98.833**		97.244**		101.961**	
R-squared	.236		.271		.276		.276	
Adj. R-squared	.217		.241		.242		.242	

** Mean difference significant at the .05 level, * Mean differences significant at the .10 level

A: Dependent Variable: residents in mobile homes and trailers

The findings for the regression analysis presented in Table 6.7 do, indeed, suggest that location is an important variable for total damage, as is income. However, even after controlling for these factors, ethnic variations still remain significant. The base model, which includes only location measures, has as its comparison group respondents who were living in mobile homes and who may have incurred the complete destruction of their homes. The model suggests that those residents who had not been able to return to their previous location and were currently still residing in mobile homes did indeed suffer the greatest damage, as compared to residents in other locations, particularly in the north, west, east and the river areas. Households in the southwest and west suffered essentially the same levels of damage as households living in mobile homes. The coefficient for income in model two suggests that the higher one's levels of income, after controlling for location and ethnicity, the lower the level of damage will be. This finding is consistent with the literature. In fact, for every hundred dollars of income, damage was reduced by 2%. Furthermore the negative coefficient associated with the Anglo dummy variable, suggests that even after controlling for location and income, Anglos suffered significantly less damage (-11.9%) than minorities.

The final two models change only with respect to which ethnic categories were included in each. The results suggest that there were no

differences between the two minority groups. However, African-Americans appear to have fared significantly worse, when compared to Anglos; they also lost more than Hispanics, but that difference was not significant. On the whole, and most significantly, even after controlling for location and the fact that lower income households suffered higher levels of damage, both Hispanic households and African-American households suffered higher levels of damage than Anglos.

The question posed now for this small community, where most people know each other, is whether ethnic differences will be correlated with differences in access to recovery aid and the types of aid made available to respondents as they attempt to re-establish a permanent residence.

Aid acquisition process

The question of aid acquisition is interesting because various studies have reported ethnic variations in the types of aid reported as households adapt to the loss and respond in a time of crisis (Barrett 1991; Bolin and Stanford 1991; Clifford 1956; Hofstede 1980; Oliver-Smith 1992; Pereau 1991; Perry and Mushkatel 1986; Polletta 1999; Schneider 1957; Trainer and Bolin 1976). Some researchers have attributed these variations to culture as, for example, Hispanic culture emphasizes family and at times this emphasis appears to have led some

groups to shun the formal governmental aid sector, instead preferring to turn to volunteer-community based organizations and family for aid, even in times of disaster (Comerio 1997; Drabek 1986). However, researchers have suggested that when Hispanics show a reluctance to access the formal aid systems there are normally other forces, also, at work, such as fear of deportation, past negative experiences in similar situations, or language barriers which were too difficult to overcome (Comerio 1997). A penchant for a reliance on family is often not enough to eschew the formal sector when need is high. This is true especially if that need has been exacerbated due to support system losses incurred when extended families living near each other all suffer from the same devastating event.

Thus, the question remains: if the devastation is vast enough and there aren't other fears holding back Hispanics, will variation in aid between more traditionally prescribed informal networks still be seen? Or, will there be attempts to reach out to formal sources for assistance? The case presented in this study examines the types of aid Hispanics accessed following a natural disaster, and compared this process with other ethnic groups in the community. Generally speaking, the Hispanics in this study all lived in the same town for several generations and do not have different residency tenure than other ethnic groups in the town.

Additional literature suggests similar aid-acquisition patterns exist within African-American culture. African-Americans have often historically emphasized church-community and family as primary sources of aid during difficult times, though this approach has not always proven to be the most effective when recovering from a disaster (Bolin and Bolton 1986; Bolin 1982). However, whether or not these patterns of aid acquisition are a function of cultural proscriptions as opposed to racial discrimination that may have existed towards these minority groups is difficult to determine. Moreover, discrimination, whether it is personal or institutional may have reinforced trends or targeted aid from formal sources away from minorities, requiring minorities to adopt patterns of aid acquisition that rely on familial and other informal sources. However, within the context of this research it is difficult, if not impossible, to determine exactly where the boundaries lay between cultural directives and social adjustments made to deal with the realities of ethnic relationships within the town. Hence, only ethnic variations across aid acquisition will be explored.

The data showed little difference in whether aid was sought out or not by flood victims, as most people within our sample received some housing recovery aid (see Table 6.8). Yet, several key informants gave the impression that many people would not apply for formal Assistance. They suggested this would occur either because they did not want to go

through the application process or were intimidated by it, could not show ownership of land, or did not believe in receiving aid from the government (KI98-14 1999; KI98-20 1999). These same barriers to aid delivery have been cited by others, especially in reference to elderly and low-income disaster victims (Bell, Kara, and Batterson 1978; Erickson, Drabek, Key, and Crowe 1976; Hutchins and Norris 1989; Phillips 1993). Additionally, several respondents, primarily Anglos, commented that they were not able to qualify for aid, and/or that they were not receiving enough aid from formal entities. To examine if this was true, respondents were asked if they had received any aid for housing recovery, and the majority of them stated they had (see Table 6.8). Though to be clear, this question was worded in such a broad way, that the question could have been interpreted to include help from both formal and informal sectors, and does not take into account any information on the quantity or timing of the aid received. Table 6.9 examines if significant differences exist in the reporting of receipt of aid between minorities and Anglos. As can be seen, from the table, no significant differences existed in the reporting of aid between majority and minority ethnicities in this town.

Table 6.8 Was housing recovery aid received?

	Anglo	African-American	Hispanic
No	3 (3.80%)	3 (4.5%)	4 (4.7%)
Yes	75 (96.2%)	63 (95.5%)	82 (95.3%)
	78 (100%)	66 (100%)	86 (100%)

Table 6.9 Differences in receipt of housing aid

Mean difference between receipt of aid	Mean	t-Test
Anglo (78)	.9615	.285
Minority (152)	.9539	

The data appears to contradict the perceptions of many residents who felt that a significant difference existed in the aid availability for Anglos vs. minorities (both sides thinking that the other side had it better off than they did). Aside from this survey, the most important information, which seems to contradict key informants, was the initial ease of the federal-aid, recovery application process. Many respondents stated that they were able to apply for aid while at the emergency shelters. A direct line was set up to the State Disaster Assistance Center (DAC), which took each applicant's information and completed the paperwork over the phone. This phone was then just passed from one person to the next, until everyone had been given the opportunity to apply. In this way FEMA was able to begin gathering the information needed for the recovery process and begin processing the aid

applications. However, due to problems with a new computer program that process was later severely complicated, and confusion with how FEMA provided aid, some households opted out of the process In the end, 95 % of all flood victims from each ethnic group received some type of housing restoration aid, though this was not only from governmental sources. This percentage includes aid from both formal and informal resources. Less than 5 %, from each ethnic group, reported not receiving any aid, from any source (see Table 6.8). The following section will take a closer look at the differences in housing recovery aid among ethnic groups and how these differences may have affected the restoration process.

The hypothesis for this research attempts to address two principal aspects of the disaster recovery process: where aid is acquired, and what type of aid is acquired. The hypothesis is restated below and is used as a guide-rule for the data analysis as well as concurrent discussions within this chapter and the next.

Hypothesis I: aid acquisition

Ethnicity affects housing-recovery/restoration aid

Ia) Sources of housing recovery and restoration aid accessed:

Ha: Anglos will receive aid from fewer sources than ethnic minorities for their recovery process.

Ha: Hispanics will rely primarily on family and informal networks for recovery aid.

Ha: African-Americans will rely primarily on family and their church community for recovery aid.

Ib) Types of housing recovery and restoration aid received:

Ha: Anglos will receive a greater variety of types of aid than ethnic minorities in their recovery process.

Ha: Hispanics will receive a greater variety of types of aid from family than other ethnic groups.

Ha: Hispanics will receive the highest levels of aid in Labor and Services from family than other groups.

The crux of this dissertation is the examination of how housing restoration was undertaken across various ethnic groups by identifying significant differences in the types of aid received (e.g. rental assistance, replacing belongings, rebuilding materials, and labor and services) and in the sources of aid accesses, such as family, friends, American Red Cross (ARC), Salvation Army, community organizations, federal aid, etc. The hypotheses for this section is that Anglos will receive aid from a fewer number of sources than minorities, but will receive a greater variety of types of aid from those sources. This hypothesis is based on the literature that shows most Anglos have tended to rely on insurance

and personal savings for recovery, which were often not resources sufficiently developed to be of extensive aid for minority members. Additionally, the concepts of sources of aid and types of aid are being used since specific information was not available on the amounts of aid accessed by each household. For the sake of clarity, the issue of sources versus types of aid will be treated separately in the following analysis.

Sources of housing restoration aid

The data will first be analyzed at a holistic level to provide an overall look at what sources of aid were most commonly accessed in the recovery process, and to show the types of aid most often associated with each source (see Table 6.10). To assess the aid distribution efforts, respondents were asked about the aid they received using a matrix format (Appendix A, question #26). They were asked to identify the sources of aid they received from a list of 14 different options and were asked to check all that applied. The questionnaire listed 13 specific sources of aid and a category for other. The sources of aid included informal networks, community based organizations or non-profit groups, governmental agencies, and private insurance companies.

All sources of aid were employed in two different formats. First, contingency tables were used to provide an overview of the number and

percent of households from each ethnic group that accessed aid from a particular source and the type of aid provided by that source (see Table 6.10). Second, the proportion of each ethnic group's recovery aid from each source was computed to facilitate comparisons and to see which groups had greater success in accessing aid from any particular source. These differences were then further analyzed using a t-test for two groups or an ANOVA test to determine if there was difference among the three ethnic groups, and if there were significant differences present, then Least Significance Difference (LSD) testing was used to determine which groups were different from each other.

Table 6.10 Frequency of types of aid received from each source

Received aid from this source		Types of housing recovery aid				
		Rental	**Belongs**	**Materials**	**Labor**	**Other**
Family **	56.8%	18.8%	32.0%	8.0%	39.2%	16.0%
	142	47	80	20	98	40
Friends	47.2	8%	22.80%	3.20%	26.80%	11.20%
	118	20	57	8	67	28
Neighbors	18.0%	0.0%	5.2%	1.2%	10.0%	6.8%
	45	0	13	3	25	17
Employer	24.0%	2.4%	12.4%	2.0%	4.0%	11.2%
	60	6	31	5	10	28
Am. Red Cross**	68.4%	12.4%	59.2%	40.0%	1.2%	30.8%
	171	31	148	1	3	77
Salvation**	62.8%	2.8%	50.0%	0.0%	0.8%	30.0%
	157	7	125	0	2	75
Church	44.4%	1.2%	25.2%	4.8%	9.6%	19.2%
	111	3	63	12	24	48
Community	17.4%	0.0%	11.3%	3.0%	2.3%	8.3%
	46	0	30	8	6	22
Housing Authority	3.2%	0.0%	0.0%	80.0%	1.2%	2.4%
	8	0	0	2	3	6
Local Government	5.2%	0.0%	0.4%	0.4%	0.8%	4.4%
	13	0	1	1	2	11
State Agency	8.8%	0.0%	3.6%	3.2%	1.2%	4.4%
	22	0	9	8	3	11
FEMA**	78.4%	39.2%	45.2%	44.0%	13.6%	10.4%
	196	98	113	110	34	26
SBA	14.0%	0.0%	8.8%	8.8%	4.8%	4.0%
	35	0	22	22	12	10
Local Bank	4.4%	0.0%	1.6%	1.2%	0.8%	2.8%
	11	0	4	3	2	7
private insurance	3.2%	0.0%	1.2%	0.4%	0.0%	1.6%
	8	0	3	1	0	4
Flood Insurance	4.0%	0.0%	2.8%	1.6%	0.4%	1.6%
	10	0	7	4	1	4
Vets	4.0%	0.0%	1.2%	0.4%	0.4%	3.2%
	10	0	3	1	1	8

** Over fifty percent of respondents reporting receiving aid from these sources

A cursory glance at the table above shows that not all sources of aid were equally accessed by everyone, nor did each source provide the

equivalent types of aid. Of the 13 sources of aid listed on the survey form, only four sources were accessed by 50 % or more of the respondents, implying that they were central to the housing restoration process. The four sources of aid were family (57%) followed by the American Red Cross (68%), the Salvation Army (63%), and FEMA (78%), which helped the most people. Friends (47%) and churches (44%) were also frequently mentioned as sources of help, though less than half the respondents reported receiving aid from these sources. Several of the 13 aid sources were cited with such low frequency that one could not consider them to be central to the housing restoration efforts for the community in any meaningful way; although, they may have been important for a particular household. These sources were the local government, state government, Veterans Administration benefits, Housing Authority, private insurance and flood insurance.

An interesting observation regarding this data is the low frequency of aid from insurance. Since 1968, when the Federal Flood Insurance Program was first implemented, federally backed flood insurance has been a primary source of recovery aid for flood victims (FEMA 2007). However, in our sample, only 3.2 % of respondents (eight households) claimed to have received aid from private insurance, and 4 % (10 households) from flood insurance (see Table 6.10). One reason these figures are so low is that most of the houses damaged in the flood were

not in a designated floodplain, and hence ineligible for flood insurance (FEMA 2007). Moreover, regular home owner's insurance does not pay for flood damages, so even if homeowners had carried insurance, they would still not have been able to collect for damages under their policy. Because most flood victims could not rely on private sources of aid for recovery, they turned to other available resources, most often informal networks and governmental aid. The analysis shows that over 55% of households sought disaster assistance from five or more sources, while approximately 4 % of the sample did not seek disaster assistance at all.

Aid distribution will be further analyzed to determine if there were ethnic variations in access and utilization of aid from the different aid sources. In Table 6.11, a comparison is made between the majority group (Anglo) and minority groups (African-American and Hispanic). Each source was given a score on a dichotomous scale where "1" meant that aid was received and "0" that no aid was received from a particular source. As the table indicates, only four different sources of aid proved to have statistically significant differences along ethnic lines at the 0.05 level; these are designated with a "**", and are as follows: families, friends, church groups and small business loans (SBA). SBA loans are actually made available for household recovery as part of FEMA's assistance program; the Small Business Administration is used to distribute federally backed loans to families going through the disaster-

recovery process, but like most loans a household must qualify for this form of aid by being able to show a means of repayment.

The findings in Table 6.11 are very interesting with some of the findings running counter to the hypothesized expectations. Specifically significant ethnic differences were found with respect to aid from Family, Friends, Churches, and SBA. Surprisingly, Anglos were more likely to report receiving aid from Family, Friends, and churches when compared to minorities. These findings run counter to the expectation that minorities would more likely report aid from these more informal sources. In addition, there were no differences between minorities and Anglos with respect to aid from FEMA, although the proportion of Anglos (.83) was relatively higher than that of minorities (.76). Ethnic variation became apparent when considering federally backed loans through the SBA program. Specifically, Anglos (21%) were more likely to report recovery aid from SBA loans than were minorities (10%). This finding is consistent with the literature. In other community based sources of aid such as Red Cross, Salvation Army, local governmental entities, and even in the informal sector such as neighbors and employers significant variations in the sources of aid accessed were not evident between Anglos and minorities.

Table 6.11 Comparison of aid from each source

Help provided by:	Ethnicities	Mean	t-Test
FAMILY	Anglo (84)	.6548	2.008**
	Minorities (166)	.5241	
FRIENDS	Anglo (84)	.5714	2.254**
	Minorities (166)	.4217	
NEIGHBORS	Anglo (84)	.2262	1.352
	Minorities (166)	.1566	
EMPLOYERS	Anglo (84)	.2143	-.687
	Minorities (166)	.2530	
RED CROSS	Anglo (84)	.6429	-.976
	Minorities (166)	.7048	
SALVATION ARMY	Anglo (84)	.6429	.346
	Minorities (166)	.6205	
CHURCHES	Anglo (84)	.5357	2.071**
	Minorities (166)	.3976	
COMMUNITY BASED GROUPS	Anglo (84)	.2262	1.352
	Minorities (166)	.1566	
HOUSING AUTHORITY	Anglo (84)	.0238	-.557
	Minorities (166)	.0361	
LOCAL GOVERNMENT	Anglo (84)	.0476	-.225
	Minorities (166)	.0542	
STATE	Anglo (84)	.1071	.723
	Minorities (166)	.0783	
FEMA	Anglo (84)	.8333	1.348
	Minorities (166)	.7590	
SBA	Anglo (84)	.2143	2.427**
	Minorities (166)	.1024	
LOCAL BANK	Anglo (84)	.0714	1.505
	Minorities (166)	.0301	
PRIVATE INSURANCE	Anglo (84)	.0357	.230
	Minorities (166)	.0301	
FLOOD INSURANCE	Anglo (84)	.0238	-.927
	Minorities (166)	.0482	
VETERANS BENEFITS	Anglo (84)	.0476	.417
	Minorities (166)	.0361	

** indicates significance at the.05 level

The differences were further evaluated to see if they were statistically significant among Anglo, Hispanic, and African-American households and shown in Table 6.12. This was undertaken using an ANOVA, followed by a protected t-test to determine specific group differences. This table shows ethnic differences were found with respect to receiving aid from family, friends, churches, FEMA, SBA, and, surprisingly, from flood insurance. While some of these results were consistent with the hypothesized expectations, a number were counter to those expected. Anglos (.65) again reported receiving aid from family, more often than both Hispanics (.58) and African-Americans (.45). However, these differences were only significant when comparing Anglos to African-Americans and between Hispanics and African-Americans. In this research, no difference was found between Anglos and Hispanics, but both of the other groups reported receiving aid from family more than African-Americans. A similar pattern was evident for aid from friends, where the Anglo proportion (.57) was statistically significant from African-American households (.37), but not from Hispanic Households (.46). In this case the proportions for African-Americans and Hispanics were not statistically different from each others. There were no differences among ethnic groups for receiving aid from neighbors. For aid from churches, a pattern similar to receiving aid from family was

evident, with the Anglos (.54) being significantly higher than the African-American proportion (.32) but not from the Hispanic proportion (.46). However, here again the Hispanic proportion (.46) was significantly higher than that of African-American Households (.32). On the whole, Anglo and Hispanic household clearly received aid at higher rates from the more informal networks of family and churches than African-American households, with Anglos reporting the highest rates on the whole. This pattern was inconsistent with those expected, in that Anglos and not minority groups reported accessing aid more frequently from informal sources although in many cases Anglo and Hispanic households were almost as likely to receive comparable amounts of aid, which was in almost every case more than that accessed by African-American households .

When considering more formal sources, few variations were found, but significant differences were found for obtaining aid from FEMA, SBA and, surprisingly, flood insurance. Anglos (.83) were significantly more likely to report receiving aid from FEMA, than African-American households (.70), but not significantly different from Hispanics (.81). Furthermore, the Hispanic proportion was significantly higher than that of African-Americans. Interestingly, the proportion of Anglo households (.21) reporting receiving SBA loans was not significantly different than African-Americans (.14), but significantly different than Hispanic

households (.08). Yet, the two minority group proportions were not significantly different from each other. By far the most surprising finding was that African-American households (.08) reported receiving aid from the flood insurance program at higher rates than either Anglos (.02) or Hispanics (.02) and these were statistically significant differences. While the results from SBA loans were consistent with the hypothesized expectation, those for aid from FEMA were only partially consistent, and the results for flood insurance were counter to expectations. It is possible that the relatively low proportions of all households using SBA and Flood insurance, may in part account for some of these variations since only a change of one or two observations could have consequences (see Table 6.12).

Table 6.12 Differences in sources of aid accessed by ethnicity

Aid provided by source:	Ethnicities	Proportions	F-test	Difference between		
				Anglo and African-American	Anglo and Hispanic	Hispanic and African-American
Family	Anglo (84) African-American (73) Hispanic (93)	.6548 .4521 .5806	3.368**	.2027**	.0741	.1286*
Friends	Anglo African-American Hispanic	.5714 .3699 .4624	3.256**	.2016**	.1091	.0925
Neighbors	Anglo African-American Hispanic	.2262 .1370 .1720	1.081	.0892	.0542	.0351
Employer	Anglo African-American Hispanic	.2143 .2877 .2258	.654	-.0734	-.0115	-.0619
Combined Social Networks	Anglo African-American Hispanic	.7143 .5616 .6989	2.463*	.1526**	.0154	.1373*

Table 6.12 Continued

Aid provided by source:	Ethnicities	Proportions	F-test	Difference between		
				Anglo and African-American	Anglo and Hispanic	Hispanic and African-American
Red Cross	Anglo African-American Hispanic	.6429 .6438 .7527	1.618	-.0010	-.1098	-1.098
Salvation Army	Anglo African-American Hispanic	.6429 .6301 .6129	.085	.0127	.0299	-.0172
Churches	Anglo African-American Hispanic	.5357 .3151 .4624	4.033**	.2206**	.0734	.1473*
Community Based Groups	Anglo African-American Hispanic	.2262 .1507 .1613	.926	.0755	.0649	.0106
Local Bank	Anglo African-American Hispanic	.0714 .0274 .0323	1.139	.0440	.0391	.0049
Combined Community Based Organizations	Anglo African-American Hispanic	.8214 .7534 .7880	.541	.0680	.0365	.0315
Housing Authority	Anglo African-American Hispanic	.0238 .0548 .0215	.864	-.0310	.0023	-.0333
Local Government	Anglo African-American Hispanic	.0476 .0274 .0753	.971	.0202	-.0277	.0479
State	Anglo African-American Hispanic	.1071 .0822 .0880	.298	.0250	.0319	-.0069
FEMA	Anglo African-American Hispanic	.8333 .6986 .8065	2.328*	.1347**	.0269	.1078*
SBA	Anglo African-American Hispanic	.2143 .1370 .0753	3.606**	.0773	.1390**	-.0617
Veterans Benefits	Anglo African-American Hispanic	.0476 .0274 .0430	.223	.0220	.0461	.0156
Combined Government Agencies	Anglo African-American Hispanic	.8690 .7397 .8280	2.259	.1293**	.0411	.0882
Private Insurance	Anglo African-American Hispanic	.0357 .0411 .0215	.279	-.0054	.0142	-.0196
Flood Insurance	Anglo African-American Hispanic	.0238 .0822 .0215	2.410*	-.0584*	.0023	-.0607**
Combined Private Insurance	Anglo African-American Hispanic	.0595 .0822 .0323	.975	-.0227	.0273	-.0499

** Mean difference significant at the .05 level, * Mean differences significant at the .10 level

To address the problem of the low number of observations for some sources of aid, several sources were aggregated into four categories to see if the larger number of observations for each category would provide additional insight. The four aggregate groups are as follows: aid from social networks, including family, friends, neighbors and employers; aid from community based organizations, including ARC, Salvation Army, community based groups, churches, and the local bank; aid from governmental agencies, including local government, state government, FEMA, SBA, Veteran's Administration, the Housing Authority; and aid from private insurance, including flood insurance. The following sections will look at the data using these aggregate categories and discuss those variables in which significant differences were found.

Aid from social networks

Social networks are those which one creates based upon personal attachment; they include family, friends, neighbors, and employers. These are not formal networks one registers with, nor officially designated sources of recovery aid, but family and friends are often first and most basic sources of aid in times of crisis.

Previous literature has clearly stated that minorities would be expected to receive more aid from family, and yet, research findings have

not consistently supported these expectations (Morrow 1997). Morrow's study indicated that Anglos tended to receive the most help from family and friends in times of crisis when compared to minority groups. While other studies have emphasized the opposite, showing ethnic minorities' reliance on family and close friends (Clifford 1956; Drabek and Boggs 1968; Rostworowski de Diez Canseco 1994; Roth 1970; Trainer and Bolin 1976).

In cases where Anglos received more help it was speculated that the reason for this was primarily one of resources (i.e. Anglo family and friends had greater resources and could afford to help out more). Anglos generally have higher incomes than other ethnic groups, which gives them greater discretionary spending that can be used to provide others with assistance when needed. Minorities, on the other hand, have often faced a host of difficulties with the formal sector which may have resulted in both the development of a culture emphasizing intra-ethnic reliance and provided an expectation for negative personal experiences when relating to formal aid networks, leading one to seek aid through non-formal sectors whenever possible.

Table 6.13 provides three logistic regression models that control for variables which may have influenced whether a household received aid from any source within their social network allowing for a better determination of ethnic variations. Logistic regressions are used to

analyze dependent variables that are dichotomous (1,0), such as whether a household received aid or not. The variables included in the logistic regression were chosen based on a combination of observations and previous literature. For example Morrow (1997) found that the most significant variable accounting for aid from social networks was marital status, especially that of widows', while single mothers and income did not significantly affect aid. Other research indicates that the age of the disaster victim was an important variable in obtaining and maintaining assistance from family following a disaster by drawing family members together, however, because of the local demographics, this finding was not expected to hold true in this case (Bell, Kara, and Batterson 1978; Hutchins and Norris 1989). The specific variables included in the model and the anticipated effect are as follows: damage (positive, i.e. the more damage the more aid), income (positive), single head of household (negative, i.e. less aid would be received by single headed households), number of children (negative), age (negative), length of residence (positive); Anglo (negative, per hypothesis), Hispanic (positive and greater than Anglo, per hypothesis); African-American (positive and greater than Anglo, per hypothesis).

Table 6.13 Logistic regressions predicting help from social networks

	Model 1	**Model 2**	**Model 3**
	B Exp(B)	B Exp(B)	B Exp(B)
Total damage	.020** 1.020	.022** 1.022	.022** 1.022
Income in hundreds	-.001 .999	-.001 .999	-.001 .999
Single head of household	-.321 .725	-.142 .867	-.142 .867
Number of children	-.025 .975	-.061 .941	-.061 .941
Age	-.002 .998	-.002 .998	-.002 .998
Length of residency	.031* 1.031	.036** 1.037	.036** 1.037
Anglo	.919** 2.508	.381 1.463	1.540** 4.662
Hispanic			1.159** 3.187
African-American		-1.159** .314	
Constant	-1.198 .302	-1.060 .346	-2.219* .109
-2 log likelihood	206.498	199.164	199.164
Cox and Snell	.096	.131	.131

** Mean difference significant at the .05 level, * Mean differences significant at the .10 level

The results of the logistic regressions are presented in Table 6.14. They indicate that the damage one sustained and length of residency in the town both had significantly positive effects on the receipt of help from one's social network, as was anticipated. Conversely, higher incomes, having only one head of household, multiple children, and age were inversely correlated with the receipt of help from one's social network, but, these were not statistically significant.

The most striking finding, though, was that even when all the variables mentioned above were controlled for, ethnicity was found to be a statistically significant variable in whether a household received aid from their social network. African-Americans were still significantly less likely to receive aid from their social networks than other ethnic groups. Indeed, an Anglo household's odds of receiving aid from the social network was 4.7 times that of African-Americans (see model 3), and an Hispanic household's odds were 3.2 times that of African-Americans. Again, no significant differences were found between Anglos and Hispanics. It was thought that the cultural emphasis on family may have had an impact on why Hispanic families received almost the same levels of aid as Anglos. Even though there were significant income differences between these two groups, income did not have any significant effect on whether a household received aid from family or not. The comparison between Anglo and Hispanic reasserts the finding that income was not significantly related to the receipt of help, since Hispanics were significantly poorer than Anglos, and they were dealing with greater losses than their Anglo counterparts. The results of this data support Morrow's findings on aid distribution among social networks following hurricane Andrew, but questions her assumption that the differences may be linked to resource availability. Among Anglos, resource availability may be of seminal importance in their

support to families and friends. However, that does not appear to be as important an element in providing support among Hispanics.

Based on previous assumptions regarding assistance from Anglo social networks, income was expected to be positively correlated with aid, as was noted previously. Age also has been shown to be positively correlated with aid in the past, but it was not expected to in this research, primarily due to the growth rate of the town. Switchback appeared to be in a slow decline, indicating a population loss. Migration studies have consistently indicated that out-migration from rural places occur primarily among the younger and able-bodied youth (Saenz and Thomas 1991), the same ones who would be most able to help following a disaster. Since population statistics pointed to a loss of these individuals, it was assumed that the elderly would have less extended family and friends to help out in the recovery process. The negative coefficient associated with age suggests that this holds true, however the coefficient is not significant thus the effect of age is nil. The negative indicator on the coefficient may be a reflection of the employment status of the elderly population, and their access to assistance from employers. Additionally, since length of residency showed a significantly positive relationship with the receipt of aid, that aid may have come from friends, or else issues of family distance (i.e. family members that left Switchback and were not in the immediate vicinity) were not a sufficient

barrier to prevent the offerings of assistance through the recovery process. The complications in interpretation from combining informal sources of aid may have obscured some of the nuances in the data, although providing greater power of prediction due to higher number of observations.

In an attempt to gain insight regarding aid from particularly salient informal sources Table 6.14 and Table 6.15 will examine aid from family and friends, respectively. The tables specifically control for a set of demographic factors through the use of logistic regression models, which may have affected aid from either of these sources. The tables attempt to test for ethnic variations and unweave some of the complications borne out in the previous analysis, by focusing on the one source of aid which had the highest frequency and has consistently been of primary importance in all societies: family. All of the models predict receipt of aid based on ethnicity, while controlling for additional demographic and other variables. The first four models utilize the same variables as previously discussed, except that size of family is substituted for number of children under the age of 18, for two reasons:

(1) to see if there might be a way to control for large families where individuals from their late teens to late twenties might still be living at home and (2) to test for multi-generational or extended families living together by referencing it against single head of households. In the first example (age with size of family) the age variable has reversed direction from the regression discussed earlier, which looked at help from social networks; though the coefficient is, again, not significant. However, larger family size, also, did not seem to positively impact familial help. It may have been perceived that if the family was larger, there were plenty of extra hands to help out with the labor and reconstruction; thus negating the need for extra. But again, the coefficient was not statistically significant and hence speculation is not warranted (see Table 6.14).

Table 6.14 Logistic regressions predicting receipt of help from family

	Model 1 B (Exp B)	Model 2 B (Exp B)	Model 3 B (Exp B)	Model 4 B (Exp B)	Model 5 B (Exp B)	Model 6 B (Exp B)	Model 7 B (Exp B)	Model 8 B (Exp B)
Income	-.001	-.001	-.001	-.001	-.001[b]	-.001	-.001	-.001
	.999	.999	.999	.999	.999	.999	.999	.999
Total damage	.018[a]	.019[a]	.019[a]	.019[a]	.017[a]	.019[a]	.019[a]	.019[a]
	1.018	1.019	1.019	1.019	1.018	1.019	1.019	1.019
Length of residency	.020[b]	.024[b]	.024[b]	.024[b]				
	1.020	1.025	1.025	1.025				
Age	.003	.004	.004	.004	.010	.012[b]	.012[b]	.012[b]
	1.003	1.004	1.004	1.004	1.010	1.012	1.012	1.012
Single headed HH	-.477	-.345	-.345	-.345	-.515[b]	-.407	-.407	-.407
	.621	.708	.708	.708	.597	.666	.666	.666
Size of family	-.046	-.073	-.073	-.073				
	.955	.930	.930	.930				
Anglo	.963[a]		.498	1.498[a]	.888[a]		1.330[a]	.488
	2.620		1.646	4.475	2.431		3.782	1.630
African-American		-1.498[c]	-1.000[c]			-1.330[c]		-.842[c]
		.223	.368			.264		.431
Hispanic		-.498		1.000[a]		-.488	.842[a]	
		.608		2.718		.614	2.321	
Constant	-1.261	-.615	-1.113	-2.113[c]	-1.163[d]	-.587	-1.917[c]	-1.075[d]
	.283	.541	.329	.121	.313	.556	.147	.341
Chi squared	19.400[c]	26.010[c]	26.010[c]	26.010[c]	18.213[c]	23.202[c]	23.202[c]	23.202[c]
-2 log likelihood	243.075	236.465	236.465	236.465	249.152	244.162	244.162	244.162
Cox and Snell R squared	.095	.125	.125	.125	.087	.110	.110	.110

a=p(t)≤.05 one tailed, b=p(t)≤.1 one tailed test, c=p(t)≤.05 two tailed test, d=p(t).1two tailed test

Models 5 through 8 attempted to control for widows, to see if Morrow's finding will be replicated in this town. Size of family is used as a control along with age, and single headed households, and length of residence is dropped from the analysis. In addition, each individual model includes measures for ethnicity so comparisons can be made along those lines. The outcome from this set indicates that the impact of age on help from family gets slightly larger, but remains non-significant at the .05 level, thus age, still, does not seem to be an

important variable in determining if aid is received. This may indicate an emphasis on family cohesion that is consistent with an expression of the rural values touted by many leaders in Switchback. However, what does stand out as continuously important is ethnicity (see Table 6.14).

Table 6.15 Additional logistic regressions predicting receipt of help from family

Variables	Model 9 B (Exp B)	Model l0 B (Exp B)	Model l1 B (Exp B)	Model 12 B (Exp B)	Model 13 B (Exp B)	Model 14 B (Exp B)	Model 15 B (Exp B)	Model 16 B (Exp B)
Income	-.001b .999	-.001b .999	-.001 .999	-.001 .999	-.001 .999	-.001 .999	-.001 .999	-.001 .999
Total damage	.017a 1.017	.018a 1.018	.018a 1.018	.018a 1.018	.017a 1.017	.019a 1.019	.019a 1.019	.019a 1.019
Length of residency					.018 1.018	.021b 1.021	.021b 1.021	.021b 1.021
Age					.010 1.010	.013b 1.013	.013b 1.013	.013b 1.013
Single headed household	-.511b .600	-.408 .665	-.408 .665	-.408 .665				
Size of family	-.091 .913	-.124 .884	-.124 .884	-.124 .884				
Anglo	.898a 2.455		.475 1.608	1.345a 3.838	.861a 2.365		.439 1.552	1.383a 3.986
African-American		-1.345c .261	-.870c .419			-1.383a .251	-.943a .389	
Hispanic		-.475 .622		.870a 2.386		-.439 .644		.943a 2.569
Constant	-.332 .718	.460 1.584	-.015 .985	-.885 .413	-2.033c .131	-1.563d .209	-2.003c .135	-2.946c .053
Chi squared	17.314c	22.485c	22.485c	22.485c	18.511c	24.931c	24.931c	24.931c
-2 log likelihood	246.985	241.814	241.814	241.814	255.367	248.948	248.948	248.948
Cox and Snell R squared	.085	.108	.108	.108	.118	.116	.116	.116

a=p(t)≤.05 one tailed, b=p(t)≤.01 one tailed test, c=p(t)≤.05 two tailed test, d=p(t).01two tailed test

In Table 6.15 models 10 through 16 attempt to control for additional combinations of variables while still including ethnicity. The analyses show that, regardless of the combination of variables included,

the results with respect to ethnic variations do not change. Consistently, Anglos show the highest level of obtaining assistance from families, and their odds are statistically greater than those of African-American household, but essentially the same as Hispanic households. In addition, Hispanics, also, showed statistically significant higher probabilities of obtaining aid from family than African-Americas. At best, the results suggest that Hispanics and Anglos have high probabilities of obtaining aid from family networks than African-Americans. Overall the results from these analyses are not consistent with the literature, which expects minorities to rely on aid from informal networks, in general, and family, in particular. At best the results suggest that Hispanics report aid from these sources at levels comparable to Anglos.

Aid from community-based organizations

American Red Cross, Salvation Army, church organizations, community based organizations and the local bank were all sources of aid analyzed under the rubrics of community-based aid organizations. These organizations were grouped together because they relied primarily on local volunteer labor to organize and sustain them, and they directly incorporate some levels of local leadership in their functional operations. All of them were heavily accessed in the recovery process (over 50% of

respondents stated they had received help from one or more of these community-based sources) except for the local community-based aid group and the local bank (see Table 6.12). Table 6.12, also, shows that the only community-based aid source to show any statistical significant differences among ethnicities was access to church aid. All community-based groups required an application process and the ability to show financial need in order to receive aid from them, which may have deterred many from accessing the aid they needed. This section will follow the same format as the section before, and only those sources of aid which showed significant differences along ethnic lines will be examined in detail.

Even though the local bank is not considered an aid or non-profit support organization, nor does it generally use volunteer labor to deliver services, it was grouped with these organizations because of its expanded role in helping the community recover. In the aftermath of the flood, one bank decided to expand its normal range of services, by assisting low-income clients (who would normally not have been eligible for loans) to apply for housing loans, beyond those provided by FEMA or SBA, which could be used for disaster recovery. This informant stated that even with this additional help, the application procedures were often too complicated for those residents who were most in need of this aid, and their income levels too low to be eligible for any type of loan

(KI98-21 1999). A major complication with the application process was the lack of clarity regarding land titles, rendering the local bank's attempts of providing household aid almost negligible.

The only source within this category to show differential access along ethnic lines was church groups, where Anglos show the highest usage. However, this may not be an accurate measurement of housing recovery aid provided by the churches in Switchback primarily because of confusion between church aid and community based non-profits. One problem that arises with this measurement is that many of the volunteers that came to the community to help in the rebuilding efforts were affiliated with their own churches. For example the Mennonite church regularly provides volunteers in disaster recovery situations regardless of whether victims belong to that faith or not. Most volunteers and donations provided by non-local sources were managed through DeWitt County Cares, the local non-profit group established to assist with the recovery effort (KI98-23 1999). DeWitt County Cares, coordinated volunteers from Methodist church, Lutheran Services, the Mennonites, and Americorp, which is not a faith affiliated volunteer group, but was not considered faith-based itself (KI98-23 1999).

Moreover, many of the local churches were decimated in the flood, especially those servicing the African-American community, and therefore, they were not able to offer much help themselves.

Additionally, many of the smaller churches and those servicing minority community members did not have full time preachers, but depended on itinerate ministers. Their primary residences were often in other towns, which also may have been affected by the flood, thus they found themselves splitting their energies and resources on more than one community resulting in a detriment to Switchback's recovery effort. Complicating the categorization of sources between church aid and other non-profit organizations was a grant from World Church Services, a faith-based organization that paid for the salary for the DeWitt County Cares administrator, who was also the wife of one of the local ministers. The cross-over between secular and church funding, administration, and services clouded the picture even further as survey respondents were asked to distinguish between church aid and non-profit groups such as DeWitt County Cares, the Scott Foundation (another local charity), or other local non-profits when identify the source of their aid; they were often not aware where one entity began and the next one ended. However, some churches also provided assistance independently, but since data was not collected on specifically which church group assisted, it is not possible to discern if the victims distinguished between assistance provided to them that came from their own church, another local church and/or by church members

volunteering in Switchback and administered through DeWitt County Cares.

During the data collection process, it appeared that most of the assistance provided by volunteers from the Mennonite church (a faith-based group, administered through DeWitt County Cares) was first provided to elderly Anglos as they went through the rebuilding process, though no formal assessment was conducted on the order in which volunteer services were distributed (e.g. first come first served, by need, etc.). Researchers postulated that this observation may be the result of greater integration by the Anglo residents into the local power structures and by the greater perceived need of the elderly over younger residents. This level of integration was expected to correlate with socio-economic status, which as noted before, is also highly correlated with ethnicity. Some of the older, mixed neighborhoods, especially those on the southeast and east of town where many elderly Anglos lived, were also the lower-income neighborhoods, where many people relied primarily on their pensions and social security for living expenses (KI98-15 1999). DeWitt County Cares was set up to assist mainly the elderly, non-working, and disabled populations of town. Thus, DeWitt County Cares was most likely the organization providing aid to these sectors of the Anglo population (KI98-23 1999).

The logistic regression in Table 6.16 supports the hypothesis on aid acquisition, which states that ethnicity will affect the recovery aid one is able to obtain. However, the group which is most consistently, negatively affected by its ethnicity is African-Americans. Even after controlling for total damage, age, single headed-households, education, length of residency in the town and income, ethnicity appears to become one of the most important factors regarding aid from church groups was ethnicity. However, due to the complexities and interrelatedness of aid from churches and local community based non-profits, as discussed above, it was felt that these efforts could in part be explained as an issue of integration with the local power structure, since the church aid, appears to actually came from the local non-profit recovery group administered by local leaders; where preferential access to aid from this group could be interpreted as having come from having tighter network connections. This greater access to local power structures appears to have led to quicker access to limited aid resources, such as the labor provided by volunteers. Another related issue to social network integration is length of residency. Those households that had longer lengths of residency were also shown to have a higher probability of obtaining aid from church groups, albeit ethnicity still remained of central importance in the aid acquisition process.

Table 6.16 Logistic regressions predicting help from church groups

Variables	Model 1 B Exp (B)	Model 2 B Exp (B)	Model 3 B Exp (B)
Total damage	.015** 1.015	.017** 1.017	.017** 1.017
Age	.002 1.002	.005 1.005	.005 1.005
Single headed household	-.135 .874	-.025 .975	-.025 .975
Education	-.089 .915	-.013 .987	-.013 .987
Length of Residence	.026* 1.026	.031* 1.031	.031* 1.031
Income	.001 1.001	.001 1.001	.001 1.001
Anglo	.992 .007	.500 1.648	1.458** 4.299
African-American		-.959** .383	
Hispanic			.959** 2.609
Constant	-1.419** .242	-2.301 .100	-3.260** .038
-2 log likelihood	242.002	236.788	236.788
Cox and Snell	.082	.107	.107

** Mean difference significant at the .05 level, * Mean differences significant at the .10 level

Table 6.16 shows that the two most important variables predicting aid from church were the amount of damage one sustained and one's ethnicity. Interestingly, income, which was supposed to be a condition of aid, was not a predictor of aid. Additionally, African-Americans who experienced the worst damage (see Table 6.6) received the least amount of aid, so damage in and of itself was not a sufficient variable for the receipt of church aid. Significant negative differences were found in the aid received between African-Americans and both Anglos and Hispanics,

even after controlling for the differences mentioned previously. Indeed, Anglos' odds of reporting aid from a church was 4.3 times that of African-Americans' and Hispanics' odds were also 2.6 times higher than that of African-Americans. These findings seem to support the idea of a paternalistic stance taken by the local power structures that disseminated aid, and probably sent it out to those they perceived as most "deserving" first, as was explored in the qualitative discussions in Chapter V. The idea of who "deserves" aid or not is, also, subject to one's ability to empathize with that group. Hence, since Anglos controlled the resources, they empathized with their own group first and then those that most closely resembled them.

Aid from government-based formal network

The only other sources of aid to show a statistically significant difference between ethnic groups was that coming from the Small Business Administration (SBA), FEMA and the National Flood Insurance program (see Table 6.12). However, the total number of observations were so low for the flood insurance program that the findings must be viewed with caution and hence will not be examined further, though they are reported in Table 6.12. Both FEMA and SBA programs will be discussed below.

The following discussion of the aid received from FEMA will review some of the issues associated with this type of assistance. The Federal Emergency Management Agency (FEMA) provided aid in a two-step process. First, by supporting self-help and providing government backed loans to households through the Small Business Administration program (SBA). If one is not eligible for a loan, then the Individual Family Grant (IFG) program provides a small amount of money that can be used for reconstruction. It was at times confusing to respondents if the aid they received came from the State (awards from IFG – a FEMA program- was distributed by the State), or the federal government, since the original application had been through FEMA. The confusion was further exacerbated since SBA applications were, also, initiated through the FEMA application. However, most respondents appeared to have been aware that they received some aid from FEMA, even if they also thought they may have gotten some from the State due to the confusion relating to the funding source from which the aid checks were drawn.

Furthermore the amount of aid between these two programs was most likely insufficient, since the amount of the IFG grant provided to each household was dependent on the value of the home at the time of the disaster. Each household is given a small percentage of the value of their home, rarely enough with which to make significant repairs (FEMA 2007; KI98-04 1999). Even in low-income neighborhoods, or rural

areas, that amount of money received often does not come near the cost of replacing a home, especially in cases like Switchback's were many of the homes were from past generations, and their value severely depreciated. However, those that signed loan agreements were clear that their aid had come from SBA, and was not considered a FEMA grant.

To test for ethnic variances in whether FEMA aid was received or not the logistic regressions in Table 6.17 are presented. These regressions controls for Age, income, length of residency, education, total damage and ethnicity. Here again, one can see that damage and ethnicity are significant factors in whether aid was received from FEMA; however, damage was significant across the board – for every percentage point increase in damage, a household's odds of receiving aid increased by .04 times. The odds for Anglos receiving aid from FEMA were nearly 10 times higher than both minority groups combined, even though as an aggregate they suffered less damage and had higher incomes. Among the minority groups, African-Americans appear to have significantly lower odds of receiving aid from FEMA than Hispanic households (nearly 2/3^{rds} lower) and even less so when compared with Anglos (more than 84% lower chances of receiving aid). These substantial and significantly lower probabilities for aid acquisition among minorities in general, and African-Americans in particular, are surprising particularly since levels

of damage are controlled for. Some of the incongruence between damage and aid may be explained through a confusion or aggregation of sources of aid. As noted earlier, respondents were asked to choose from all the sources of aid that applied, so respondents who stated they received aid from SBA could also have received aid from FEMA.

Table 6.17 Logistic regressions predicting help from FEMA

Variables	Model 1 B Exp (B)	Model 2 B Exp (B)	Model 3 B Exp (B)
Age	.006 1.006	.012 1.012	.012 1.012
Income	-.002 .998	-.002 .998	-.002 .998
Length of Residence	.014 1.014	.017 1.017	.017 1.017
Education	-.181 .834	-.104 .901	-.104 .901
Total damage	.035** 1.036	.037** 1.038	.037** 1.038
Anglo	2.268** 9.663	1.730** 5.643	2.748** 15.618
African-American		-1.018* .361	
Hispanic			1.018* 2.768
Constant	.437 1.548	-.389 .678	-1.407 .245
-2 log likelihood	144.938	141.240	141.240
Cox and Snell	.186	.200	.333

** indicates significance at the 0.05 level, * indicates significance at the 0.10 level

To decipher the effects of ethnicity on governmental aid sources a logistic-regression was also run for (SBA), which as an aid source requires that any recipient must be able to show income or assets that

could allow the loan to be repaid. Because of the very nature of the aid, it favors households with higher incomes, and as previously stated, income and ethnicity are highly correlated. Thus, the Anglo population was in a better position to receive SBA loans than any other ethnic group (see Table 6.18). Interestingly, in Table 6.18 there were no statistically significant differences between the Anglo, African-American or Hispanic access to SBA loans once income was controlled. The findings show that the only variables that significantly determined one's ability to access SBA loans were income and damage. In other words, no significant differences existed in the ability to access SBA loans among ethnic groups, after controlling for income. This finding is also reflective of other studies that had similar results (i.e. demonstrating that higher incomes allow one access to more aid options (Kreimer 1980)).

Table 6.18 Logistic regressions predicting receipt of SBA loans

Variables	Model 1 B Exp (B)	Model 2 B Exp (B)	Model 3 B Exp (B)
Total damage	.026** 1.027	.026** 1.026	.026** 1.026
Size of household before flood	-.150 .861	-.145 .865	-.145 .865
Age	.003 1.003	.002 1.002	.002 1.002
Education	.083 1.086	.070 1.073	.070 1.073
Income	.006** 1.006	.006** 1.006	.006** 1.006
Anglo	.374 1.454	.484 1.623	.291 1.338
African-American		.193 1.213	
Hispanic			-.193 .824
Constant	-6.165** .002	-6.079** .002	-5.886** .003
-2 log likelihood	137.476	137.381	137.381
Cox and Snell	.161	.162	.162

** indicates significance at the 0.05 level, * indicates significance at the 0.10 level

Summary on sources of recovery aid

From the previous discussion and examination of the findings, it appeared as if Anglos received aid from a greater variety of sources than other ethnic groups, even after controlling for various socio-economic factors that could have contributed to their ability or inability to garner aid from the various sources. The ethnic group that reported the lowest ability to garner aid was African-Americans, while Hispanics often appeared to fair almost as well as Anglos. The only exception, albeit important, was aid from FEMA, although even here Hispanics faired

better than African-Americans. However, to verify this impression, a t-test was conducted see if there were significant differences in the average number of aid sources each ethnic group was able to access. Table 6.19 shows that Anglos, in fact, reported receiving aid from a significantly higher number of sources than minority groups, though that significance was not large.

Table 6.19 Difference In total number of sources of aid accessed

Average number of sources accessed	Ethnicity		t- test
	Anglo	**Minority**	3.264
	5.1190*	4.4096	

** indicates significance at the 0.05 level, * indicates significance at the 0.10 level

Table 6.20 examines the difference in number of aid sources further to see how each ethnic group compared with the other. This shows that Anglos received help from more aid sources than African-Americans, but not significantly more than Hispanics, while Hispanics received more help than African-Americans, it was not significant. Thus, in general, Anglos received help from the greatest number of sources, which contradicts the original hypothesis, while minorities received help from the least number of sources. Additionally, the greatest difference in the number of aid sources accessed between ethnic groups was between Anglos and African-Americans, not Hispanics.

Clearly, these finding are not consistent with the hypothesis stating that Anglos would receive aid from fewer sources.

Table 6.20 Difference in total number of sources of aid accessed by ethnicity

Ethnicity	Mean number of sources accessed	F test	Differences between average number of sources accessed		
			Anglo and African-American	Anglo and Hispanic	African-American and Hispanic
Anglo	5.1190	2.087	.9547**	.5169	-.4378
African-American	4.1644				
Hispanic	4.6022				

** indicates significance at the 0.05 level, * indicates significance at the 0.10 level

Variety in types of aid sought

This section examines the types of aid acquired by each ethnicity as a whole. If different sources of aid were accessed, then which different types of aid were provided. Types of aid were classified under five different categories: rental assistance, replacement of belongings, rebuilding materials, labor and services, or other. Table 6.21 provides an overview of whether a particular type of aid was received, irrespective of the source of that aid. As one can see, significant differences existed only in regards to type of aid with rebuilding materials, and with labor and services, but these are probably the two most crucial types of aid for the physical restoration of a housing structure. In both of these instances, Anglos received aid more often than minority groups. The

only type of assistance for which Anglos received less was rental assistance. This is probably a logical outcome of the lower levels of housing damage they sustained.

This table also shows that most of the housing recovery aid received in Switchback came in the form of replacing belongings (over 82% of respondents stated they received this type of aid). Rebuilding materials was the type of aid least often received by respondents. Of the five different types of aid available, Anglos reported receiving each type of aid more frequently than minority groups, except for rental assistance. However, there were only statistically significant differences between the majority and minority groups with rebuilding materials and labor and services.

Table 6.21 Overview of types of aid received: Anglo vs. minority

Types of Aid	Anglo	Minority	Total
Rental Assistance	53.6% (45)	56.6% (94)	55.6% (139)
Replacing Belongings	86.9% (73)	80.1% (133)	82.4% (206)
Rebuilding materials**	65.5% (55)	48.8% (81)	54.4% (136)
Labor and Services**	67.9% (57)	53.0% (88)	58.0% (145)
Other	61.9% (52)	56.0% (93)	58.0% (145)

**indicates chi-square significance .05 or better

Table 6.22 presents the percent of respondents who received each type of aid, by ethnic group. African-Americans consistently reported receiving each type of aid less frequently than the other ethnic groups. This table shows that there were significant differences (at the .05 level)

in the distribution of types of aid in the last three categories. And, as before, it shows that of all aid types, Anglos used rental assistance the least, while African-Americans and Hispanics obtained rebuilding materials the least. The category of other was also not as frequently mentioned by African-Americans. When probed by researchers what other referred to, during the data collection process, most respondents stated emotional support, empathy, and/or advice. This might then suggest that there was not a high degree of cohesion or mutual support among the African-American community. This basic analysis, combined with the previous look at sources of aid accessed shows that one's ethnicity may correlate with the type of aid one was able to obtain.

Table 6.22 Types of aid accessed by ethnicity

Type of Aid	Ethnicity			Overall Averages
	Anglo	African-American	Hispanic	
Rental Assistance	53.6% (45)	50.7% (37)	61.3%(57)	55.6% (139)
Replacing Belongings	86.9% (73)	76.7% (56)	82.8% (77)	82.4% (206)
Rebuilding Materials**	65.5% (55)	45.2% (33)	51.6% (48)	54.4% (136)
Labor and Services**	67.9% (57)	46.6% (34)	58.1% (54)	58.0% (145)
Other**	61.9% (52)	45.2% (33)	64.5% (60)	58.0% (105)

** Chi-square significance at .05 level

Before delving further into this topic, a brief overview of the types of aid provided by each source (presented in the previous section) is provided. Table 6.10 presented the frequency for each type of aid

provided by its source, illustrating that family and friends were the main source of aid for labor and services, followed distantly by FEMA. The Red Cross and Salvation Army assisted primarily with food and the replacement of belongings, such as appliances, clothing, and other household items. Families, friends, employers and churches were also important sources of aid for the replacement of household items and clothing needs. These aid sources seemed to focus their assistance on non-monetary forms of aid, specifically through the distribution of excess inventory items such as household goods, or donations provided in-kind. FEMA was the only source of aid that provided a fairly even distribution of different types of assistance. This is because most of the aid provided by FEMA came in a monetary form, so households could choose how and where to spend that money.

Table 6.23 shows the results of a t-Test comparing minority respondents with Anglos, to identify statistically significant differences between the types of aid received across the different sources providing aid. This comparison is based on the total number of sources which were reported to have provided the type of aid specified. The test verifies the chi-squares by showing that ethnic differences exist regarding rebuilding materials and with labor and services, but it's not clear if this is between all ethnic groups or just one. To help flesh this out, the next

analysis uses Fishers Least Significant Difference (LSD), a protected t-test, to verify where those differences may lie (see Table 6.24).

Table 6.23 T-test comparing minority and Anglo in the number of sources accessed for different types of recovery aid

Type of aid	Ethnicity	N	Mean	t-test
Rental assistance	Anglo	84	.8214	.130
	Minority	166	.8675	
Replacing belongings	Anglo	84	3.0476	.999
	Minority	166	2.7711	
Rebuilding material	Anglo	84	1.1548	11.691**
	Minority	166	.7048	
Labor and services	Anglo	84	1.5952	12.652**
	Minority	166	.9940	
Other	Anglo	84	1.8452	.101
	Minority	166	1.7470	

** Significance at .05 level

Table 6.24 shows that the statistical differences in rebuilding materials lay between African-Americans and Anglos, and Hispanics and Anglos, showing that Anglos received this type of aid from more sources than the other groups. However, there were no significant differences for this type of aid between minority groups. This is another indication of barriers that minority members' faced if they attempted to rebuild. Previous tables showed that most non-profit and informal sources of aid provided assistance primarily in the form of rental assistance or replacing belongings. The main sources of aid used to actually purchase rebuilding materials appears to have come from FEMA and/or SBA loans. Since minorities were at a distinct disadvantage in receiving

substantial amounts of aid from either source, as discussed previously, they did not receive this type of federal aid as often.

Labor and services, on the other hand, was accessed by all groups, but at significantly different levels. Anglos were able to receive the most assistance of this kind, followed by Hispanics and then African-Americans, which was contrary to expectation and even local impressions provided by key informants.

Table 6.24 Protected T for types of aid by ethnic group

Type of Aid	Ethnicities	Mean	F-test	Mean Difference between Anglo and African-American	Mean Difference between Anglo and Hispanic	Mean Difference between Hispanic and African-American
Rental Assistance	Anglo (84)	.8214	1.242	.08170	-.1463	.2280
	African-American (73)	.739				
	Hispanic (93)	.967				
Replacing belonging	Anglo	3.0476	.498	.2805	.2734	.007070
	African-American	2.767				
	Hispanic	2.774				
Rebuilding Materials	Anglo	1.1548	5.825**	.4561**	.4451**	.01105
	African-American	.698				
	Hispanic	.709				
Labor and services	Anglo	1.5952	7.794**	.7870**	.4555**	.3316*
	African-American	.808				
	Hispanic	1.139				
Other	Anglo	1.8452	1.021	.3795	-.1225	.5020
	African-American	1.465				
	Hispanic	1.967				

Mean difference significant at the .05 level, * Mean differences significant at the .10 level

To evaluate if certain sources of aid were more helpful in the recovery process than others, researchers wanted to compare the amount of aid received by each source. However, this was not possible because it was not possible to measure the actual amount of aid received. For example, when a respondent stated that aid was received from family in the form of labor and services, it could mean that one family member came and helped clean for one hour once, or fifteen cousins came for a month and rebuilt the entire house.

On the other hand, the data do determine the types of aid provided. For, example, if family provided assistance with all of the types of aid listed (i.e., rent, replacing belongs, building materials, and labor or services), then family could be assumed to be a an invaluable source of help because of the breadth of services provided, even if the depth of that service cannot be measured. Therefore, a combined measurement was developed for the number of types of assistance provided by any one source, and is referred to as the "variation in types of aid." Researchers thought that this measurement would provide some sense of the overall comprehensive nature or helpfulness of aid provided by each source. But, a complete picture as to the flexibility or quantity of aid from that source did not emerge. Even with these short-comings, variations in types of aid from each source provide a possible

tool to evaluate the sources of aid that were most helpful in the housing recovery process.

Table 6.25 illustrates the variation in types of aid provided by each source. Variation in types of aid is a measurement of the average of the different types of aid provided by each source. To calculate the variety of types of aid received from each source, a value of 1 was given for each type of aid received and 0 if that type of aid was not received from the source in question. A mean was assessed based on the number of types of help provided (e.g. rental assistance, replacing belongings, labor and services). Each source could, at most, score a five. The mean of the types of aid provided by each source of aid is referred to as the variation in types of aid. Table 6.25 also breaks down by ethnicity the variation of types of aid provided by each source. The results of an ANOVA with LSD are presented to analyze where the differences lied between ethnic groups in the variation of types of aid they received from each source. Most significant differences lie between one or more of the minority groups and Anglos, but in a few cases there were weaker significant differences (measured at the .1 level) between the two minority groups. As before, the various sources of aid and the variations in the types of aid they offered were consolidated into the categories of social networks, community-based organizations, government agencies, and privately funded sources. The findings will be further discussed under the

broader headings of the categories for each group. Though a general overview shows that from the combined groups, differences in variations of types of aid existed only among social networks, even though there were significant differences among some of the individual sources within each combined group.

Table 6.25 Variation of types of aid by source and ethnicity

Aid provided by source:	Ethnicities	Proportions	F-test	Difference between		
				Anglo and African-American	Anglo and Hispanic	Hispanic and African-American
Family	Anglo (84)	1.30	3.223**	.4620**	.061	.4009**
	African-American (73)	0.84				
	Hispanic (93)	1.24				
Friends	Anglo	0.94	4.047**	.4062**	.2738**	.1324
	African-American	0.53				
	Hispanic	0.67				
Neighbors	Anglo	0.30	.945	.1058	.0933	.0125
	African-American	0.20				
	Hispanic	0.20				
Employers	Anglo	0.32	.666	-.0621	.0526	-.1147
	African-American	0.38				
	Hispanic	0.27				
Combined Social Network Groups	Anglo	0.71	2.463*	.1526**	.0154	.1373*
	African-American	0.56				
	Hispanic	0.70				
Red Cross	Anglo	0.90	3.427**	-.0541	-.3210	.2669*
	African-American	0.96				
	Hispanic	1.23				
Salvation Army	Anglo	0.85	.952	.1055	-.058	.1635
	African-American	0.74				
	Hispanic	0.90				
Churches	Anglo	0.73	2.907*	.3015**	.1025	.1990
	African-American	0.42				
	Hispanic	0.62				
Community Based Groups	Anglo	0.33	.913	.1279	.0968	.0311
	African-American	0.24				
	Hispanic	0.21				
Local Bank	Anglo	0.13	2.470*	.1038*	.0987*	.0049
	African-American	0.03				
	Hispanic	0.75				
Combined Community Based Organizations	Anglo	0.82	.541	.0680	.0365	.0315
	African-American	0.75				
	Hispanic	0.78				

Table 6.25 - continued

Aid provided by source:	Ethnicities	Proportions	F-test	Difference between: Anglo and African-American	Aid provided by source	Hispanic and African-American
Housing Authority	Anglo African-American Hispanic	0.05 0.06 0.03	.150	-.0072	.0154	-.0223
Local Government	Anglo African-American Hispanic	0.06 0.03 0.09	.967	.0321	.0406	.0586
State	Anglo African-American Hispanic	0.17 0.12 0.09	.726	.0434	.0807	-.0373
FEMA	Anglo African-American Hispanic	1.48 1.38 1.68	1.570	.0926	-.2012	.2939
SBA	Anglo African-American Hispanic	0.46 0.25 0.10	5.846**	.2177*	.3675**	-.1498
Veterans Benefits	Anglo African-American Hispanic	0.08 0.03 0.04	.821	.0559	.0403	.0156
Combined Governmental Agencies	Anglo African-American Hispanic	0.87 0.74 0.83	2.259*	.1293**	.0411	.0882
Private Insurance	Anglo African-American Hispanic	0.04 0.04 0.02	.279	-.0054	.0142	-.0196
Flood Insurance	Anglo African-American Hispanic	0.05 0.12 0.02	1.844	-.0638	.0380	-.1018
Combined Private Insurances	Anglo African-American Hispanic	0.06 0.08 0.03	.975	-.0227	.0273	-.0499

** difference is significant at the .05 level, * difference is significant at the 0.1 level

The collapsed network categories were presented to see if there would be greater statistical power for these combined categories if the number of observations were increase, as in the previous exercise. The results in this table are consistent with earlier findings, indicating that there are significant differences within social networks, or informal ways of accessing aid among ethnic groups. Differences were observed in the variations of types of aid provided by families, particularly when

comparing African-Americans with either of the other ethnic groups. Both Anglos and Hispanics received significantly greater variety of types of help. These differences were replicated when looking at friends, except the greatest differences were between Anglo and minority groups. The combined category for variation of types of aid from social network, provided a weaker statistical significance, than either the categories of family or friends alone, but still pulls into focus the importance both family and friends played in providing sources of aid necessary for the recovery process, over that of neighbors or employers.

The combined community-based organizations group did not show any significant difference in the variation of types of aid provided, though several individual sources within this grouping did: Red Cross, Church groups and the local bank. When looking at Red Cross, all the groups were fairly compatible, but interestingly Hispanics faired better than African-Americans and even Anglos. Church groups showed the same results as before, in which Anglos received the greatest variety of types of aid than either other ethnic group, although the difference was statistically higher only in comparison with African-Americans. While there were no significant differences in obtaining loans from the local bank (as seen previously) Hispanics used what aid they were able to get in the greatest variety of forms. The grouping of combined government agencies also showed similar findings as when examining only access to

sources instead of variations in types of aid. Here, Anglos, again, faired better than minority groups. By looking only at the collapsed category, potential nuanced differences in the recovery process for each ethnic group might be obscured. These differences will be explored in greater detail further on.

Unlike the other categories, which had varying degrees of informal network development incorporated into the resource delivery process, government aid did not. Few significant differences in the variations of types of aid provided by these sources were identified. A caveat to this is the variation in types of aid recipients can access through SBA loans, but this also may be a function of the differential access to this aid obtained by the different ethnic groups. Theses ideas will be expanded under the sub-section of aid provided by government agencies. As before, the overall observations for aid from private insurance and flood insurance were so low that the types of aid from these sources will not be discussed, because no conclusions can be drawn from them.

Variation in types of aid from informal social networks

The only aid sources that showed significant differences in variations of types of aid along ethnic lines from among those sources of aid coming from social networks were those of family and friends. ANOVA tables with Least Significant Differences were run to look at the

differences in types of aid from these specific sources, as reported by respondents who stated they received help (see Table 6.26 below). Table 6.26 allows one to compare the relative proportion received of a particular type of aid from family and friends.

In reference to the types of aid accessed, none of them refer specifically to any type of monetary assistance. Thus, rental assistance could also be interpreted as direct shelter provided to those who could not immediately return to their homes during the early stages of the recovery process. Thus, it appears that in cases where there were significant amounts of aid given by family or friends, this aid probably came in the form of non-monetary assistance. Furthermore, aid from these two sources often did not require access to large amounts of disposable income, and could be given without great adverse affects to one's own household, at least in the short term.

Interestingly, Table 6.27 shows that the only type of aid in which there were significant differences between ethnic groups was with labor and services. Specifically, Anglos expressed receiving aid as labor or services from family and friends more often than Hispanics or African-Americans. This finding was contrary to expectations and previously reported findings from other recovery research efforts. Researchers expected to find the greater occurrences of the labor and services type of aid among Hispanics from their social networks, and especially from

their families. This assumption was based on Arreola's (2002) writings on Hispanic-Texan culture and the importance placed on home ownership, along with comments from key informants emphasizing a level of construction knowledge within the Hispanic community, plus the fact that the construction industry has a high percentage of Hispanics working as laborers within that field (KI98-02 1999). Additionally, it was expected that the traditional Hispanic settlement-patterns, in which families live in close proximity to each other, would lead to a sharing of building materials and knowledge. However, Anglos were able to obtain higher levels of aid from family and friends than other ethnic groups. This greater ability to obtain variations in types of aid by Anglos could be interpreted as their greater integration within the community, particularly since Hispanics obtained almost the same amount of aid from family, but only half that from friends, as Anglos, while African-Americans were the least integrated and received aid least often from family or friends than others. Within the category of labor and services, however, aid came from family more often than from friends for all ethnic groups, which can also be interpreted as an expression of rural cultural norms.

Table 6.26 Comparison of types of aid received from family and friends

Types of aid by source	Ethnicities	Proportions	F-test	Difference between		
				Anglo and African-American	Anglo and Hispanic	Hispanic and African-American
Rental Assistance from family	Anglo African-American Hispanic	.1786 .1370 .2366	1.363	.0416	-.0580	.0996
Rental Assistance from friends	Anglo African-American Hispanic	.0952 .0548 .0860	.467	-.0404	.0092	.0312
Replacing belongings from family	Anglo African-American Hispanic	.3929 .2740 .2903	1.569	.1189	.1025	.0163
Replacing belongings from friends	Anglo African-American Hispanic	.2619 .2329 .1935	.588	.0290	.0312	
Building materials from family	Anglo African-American Hispanic	.1071 .0411 .0860	1.191	.0660	.0211	.0449
Building materials from friends	Anglo African-American Hispanic	.0476 .0137 .0323	.721	.0339	.0154	.0186
Labor and services from family	Anglo African-American Hispanic	.5000 .2329 .4194	6.313**	.2671**	.0806	.1865**
Labor and services from friends	Anglo African-American Hispanic	.4286 .1370 .2258	9.738**	.2916**	.2028**	.0888
Other types of help from family	Anglo African-American Hispanic	.1190 .1507 .2043	1.224	-.0316	-.0853	.0536
Other types of help from friends	Anglo African-American Hispanic	.1071 .0959 .1290	.238	.0113	-.0219	.0331

** Significant at the .05 level; * Significant at the .10 level

According to Table 6.26, when aid was received from one's social network it most often came in non-monetary forms. The only type of aid requiring monetary assistance was assistance for the purchase of large appliances or building materials. Though it is not possible to tell what types of belongs were replaced by family and friends through the questionnaire, respondents often mentioned such things as receiving

clothing items and smaller appliances from these sources. Therefore, assistance with building materials appears to be the one category that most often would have required monetary assistance, and which is also the one category of aid least accessed through social networks. This outcome could be expected from data on the average household incomes within Switchback, which demonstrate that most people did not have much discretionary income in this rural community.

A set of linear regression models were run, based on those variable which were thought to most likely affect the variety of types of aid from family (see Table 6.27). These models show that the amount of damage sustained was significant across the board, as was age of respondents. While age had not been particularly important in regards to the sources of aid accessed, it was a variable that became important in regards to variation of types of aid. The findings for both damage and age are unsurprising because greater damage would mean more things needed to be repaired and residents had a greater need, while one's age may also affect both the amount and type of work the resident can do. Physical limitation can be particularly disruptive for the elderly. Income, on the other hand, did not seem to be an important predictor of the variation of types of aid provided. Differences along ethnic lines were the same as what was observed previously. No significant differences were found between Anglos and Hispanics. In contrast,

African-Americans not only received less help from family, but what help they did obtain was not as extensive nor did it provide as wide a variety of types of aid. The fact that Anglos and Hispanics were able to get a wide variety of types of aid from family may be related to the fact that family members were still in the near vicinity, and thus more able to provide different types of aid, meaning that out-migration may not have been such a significant factor for this sector of the population.

Table 6.27 Receipt of variety of types of aid from family

Variables	Model 1 B St. Beta	Model 2 B St. Beta	Model 3 B St. Beta
Total damage	.0083** .177	.0091** .193	.0091** .193
Income	-.0002 -.029	-.00008 -.011	-.00008 -.152
Length of residency	.0137 .115	.0153* .130	.0153* .130
Age	.0111** .178	.0131** .211	.1310** .211
Anglo	.300 .133	-.0252 -.166	.685** .256
African-American		-.710** -.254	
Hispanic			.710** .270
Constant	-.418	-.340	-1.050**
R- Squared	.096	.145	.145

****** Significant at the .05 level; * Significant at the .10 level

A separate linear regression was performed to model the variation of types of aid received from friends. The same variables were used for

this model as for the model on family to see if friendship networks would be susceptible to the same influences. As seen previously, Table 6.28 also shows that the amount of damage sustained was a high predictor of a variation in types of aid from friends. However, age and length of residency were no longer significantly related to whether there was a variation in aid from friends, though ethnicity was still significant. The difference in these findings may be an artifact of proximity to flood victims, in which families made a greater effort to reach out to those members who were older and might have appeared more vulnerable, as seen in the last table, while friends reached out to those that were around, regardless of age or vulnerability. Much of the ambiguity with these logistic regressions is attributed to the low R-squared results obtained. Even though the ethnicity was a significant factor in the models presented, the models themselves account for very little of the variance present in the variety of types of aid received from family.

Table 6.28 Receipt of variety of types of aid from friends

Variables	Model 1 B St. Beta	Model 2 B St. Beta	Model 3 B St. Beta	Model 4 B St. Beta
Total damage	.0058** .164	.0061** .170	.0061** .170	.0061** .170
Income	.00006 .011	.00009 .018	.00009 .018	.00009 .018
Length of residency	.0053 .059	.0057 .064	.0057 .064	.00574 .064
Age	.0035 .074	.004 .085	.004 .085	.004 .085
Anglo	.401** .198	.312* .155	.505** .250	
African-American		-.192 -.091		-.505** -.239
Hispanic			.192 .097	-.312 -.157
Constant	-.150	-.129	-.321	.184
R- Squared	.065	.071	.071	.071

****** Significant at the .05 level; * Significant at the .10 level

Another point of interest that seems to contradict previous cultural studies is that Anglos appeared to draw on a greater variety of types of aid from family than minorities, when comparing the assistance received from family or friends across ethnic groups. This may be a sign of a strong sense of loyalty to family and intra-group reliance that is often espoused by rural communities. However, an interesting question would be why Anglos would act more upon this cultural value than Hispanics or African-Americans, if there were no differences in length of residency or time for acculturation among any of the ethnic groups. Or more generally, does this difference reflect an adherence to this element of culture by only Anglos?

Overall, social networks may not have provided much help in the housing reconstruction process or fiscal aspects of recovery, but they were still a vital component in providing basic necessities, such as food, clothing, household supplies, and encouragement. And, though they may not have provided much financial support, they still appear to have been an important source of aid, especially in the earlier phases of the recovery process, when sheltering was vital. However, as households progressed towards housing reconstruction, reliance on family aid appeared to lessen, especially among those sectors of the population that could afford to obtain specialized aid in labor and services and with the provision of rebuilding materials.

Variation in types of help from community-based organizations

Most disaster recovery studies with an ethnic focus have determined that Anglos have not relied as heavily on community-based organizations as their minority counterparts, in large part because private resources were available to them, such as savings accounts, or insurance. Hence, it was hypothesized that Anglos would receive a greater variety of aid from fewer sources than minorities, because they would have access to resources that offered themselves to greater discretionary use. However, in Switchback, this was not the case since virtually no one had insurance and the town was not economically

prosperous. This meant that all ethnic groups were attempting to find aid where possible, and Anglos, in fact, gained access to a greater number of services than minorities, even among non-profit community-based groups.

From Table 6.25 one can see that there were statistically significant differences between Anglos and minorities in their ability to garner multiple types of aid from the Red Cross, church groups and the local bank. Each of these sources of aid will be examined in greater detail in the following discussion, though some of the variation in types of assistance can probably be attributed to the timing of the household's ability to obtain aid and the relative speed with which that aid was given. The previous discussion on the interplay between church-based aid and the interrelatedness of the help provided by local community non-profits can be used to explain some of the differences in the variation of types of aid provided by this source, such as the assistance received through volunteer labor.

In addition to the concerns related to the accessibility of volunteer services, another issue is the timing of the delivery of some aid. In several instances, interviewers were told that even though minority residents had received vouchers to assist them with the replacement of large-ticket items, such as household appliances or furniture, they were not able to make use of them. Unfortunately, the vouchers sometimes

expired before the flood victims' homes had achieved the level of repairs necessary to be able to install or even store these items. In contrast, because most Anglos did not suffer as much damage as minorities, it was not necessary for them to rebuild as much of their homes before they could take advantage of their vouchers. This allowed them to maximize the benefits they could obtain from those sources of aid they were able to access.

When examining aid from the local bank, only 4.4% of all respondents reported receiving aid from this source (see Table 6.10), yet among those, Hispanics stated that they received a greater variety of types of aid from the local bank; but because the frequency of aid from this source was very low, it is difficult to make interpretations of this data (see Table 6.25). Regardless, researchers believe that the greater variation in types of aid refers to the use of money obtained from loans processed by the local bank, and the disbursement of that money in various ways, such as the contracting of specialized labor, replacing belonging, etc… It is possible that since housing reconstruction took longer for minorities than Anglos, they were forced to use loan money for the acquisition of household appliances and other materials which were made available to the flood victims in the early months following the flood though non-profit groups.

Table 6.29 provides a breakdown of each type of aid provided by the three local sources with statistical differences among ethnic groups (see Table 6.25). This is a complex table which shows the percentages within each ethnic group that stated receiving a particular type of aid. Each category of aid is followed by a summary of the total percentage of respondents claiming to receive that type of aid from each source. For example, Table 6.29 shows that 4.8% of Anglos stated receiving rental assistance from the Red Cross, while only 2.4% stated receiving this type of aid from the church based aid groups, and no Anglos stated receiving rental assistance from the local bank. However, overall, 12.4% of respondents reported receiving rental assistance from the Red Cross, and only 1.2% of respondents reported receiving rental assistance from Church groups, while no one received any rental assistance from the local church. One can see from this table that more Anglos reported receiving aid from Church groups in the form of replacing belongings than other ethnic groups, even though this difference was not significant. The only type of aid that showed significance was the receipt of other aid, but even that was only at a 0.1 level..

Table 6.29 Types of aid provided by some community based groups

Type of aid	Ethnicity	Red Cross	Church Aid	Local Bank
Rental Assistance	Anglo	4.8% (4)	2.4% (2)	0
	African-American	12.3% (9)	0	0
	Hispanic	19.4% (18)	1.1% (1)	0
% of respondents claiming this type of aid		12.4% (31)**	1.2% (3)	0
Replacing Belongings	Anglo	54.8% (46)	32.1% (27)	4.8% (4)
	African-American	58.8% (43)	17.8% (13)	0
	Hispanic	63.4% (59)	24.7% (23)	0
% of respondents claiming this type of aid		59.2% (148)	74.8% (63)	1.6% (4)**
Rebuilding Materials	Anglo	0	4.8% (4)	3.6% (3)
	African-American	0	6.8% (5)	0
	Hispanic	1.1% (1)	3.2% (3)	0
% of respondents claiming this type of aid		0.4% (1)	4.8% (12)	1.2% (3)**
Labor and Services	Anglo	0	9.5% (8)	2.4% (2)
	African-American	0	6.8% (5)	0
	Hispanic	3.2% (3)	11.8% (11)	0
% of respondents claiming this type of aid		1.2% (3)*	9.6% (24)	0.8% (2)
Other Types of Aid	Anglo	31% (26)	23.8% (20)	2.4% (2)
	African-American	24.7% (18)	11% (8)	2.7% (2)
	Hispanic	35.5% (33)	21.5% (20)	3.2% (3)
% of respondents claiming this type of aid		30.8% (77)	19.2% (48)*	2.8%. (7)

****** Significant at the .05 level * Significant at the .10 level

Another observation that stood out in this analysis was the greater variety of assistance Hispanics received from the Red Cross when compared to other ethnic groups (see Table 6.25 and Table 6.27). The differences between Hispanics and Anglos can easily be explained based on the levels of damage each groups sustained to their homes. In most cases, Anglos homes were still inhabitable after the disaster, though requiring extensive cleaning. That was not as often true for minority homes, and therefore they may have relied more on the Red Cross of temporary sheltering purposes. However, if this is true, it does not explain the low variation in types of aid for African-Americans, who would have been in the same situation as Hispanics. Most of the aid received from the Red Cross came in the form of assistance with

replacing belongings, and “other”, which was primarily food distributed throughout the neighborhoods where people were rebuilding. However, the significant ethnic differences lay with the rental assistance received. It is not clear why this difference in aid exists, but several explanations could provide some insight. One possibility is that a larger number of Hispanics lost their homes in the swift moving waters of the flood, and were forced to find temporary housing in the local motels, for which they received Red Cross vouchers, especially when their extended family could not take them in. Another explanation may be that African-Americans have a stronger attachment, or sense of place, and preferred to return home as soon as possible, or had a greater aversion to public shelters than other ethnic groups forgoing temporary housing. Another possible explanation is that Hispanics stayed in Red Cross shelters more frequently than African-Americans, thus becoming better acquainted with the various types of aid provided by this non-profit group.

In an attempt to understand these results, the data on sheltering was revisited, but because this information had been coded as public shelter vs. private, or family and friends, it was difficult to discern exactly what had transpired. Several public shelters operated in Switchback, but the Red Cross did not show up to administer any until the second day of the flood. By this time many people had already found alternative housing (KI98-07 1999). Even then, the Red Cross

concentrated only on the junior high school shelter, checking on the other shelters only to supply food. Shelters were opened at the high school, which was run by the local school district even after the Red Cross set-up operations in town. Other shelters included a Baptist church, which was shut down after a few hours due to the threat of flooding, the Switchback Club House, and the impromptu declaration of a retirement center as a shelter.

No significant ethnic differences in sheltering patterns were found for the first shelter. However, among those that moved to a second sheltering location, the data shows that a greater number of Hispanics took shelter in a public place (see Table 6.30). African-Americans, on the other hand, showed a tendency to shelter in private facilities, which could have included such places as a motel, apartment, hospital or car. The fact that these ethnic groups were sheltered in different places may explain some of the variance in rental assistance offered by the Red Cross. If there were more Hispanics in the Red Cross shelters than African-Americans when the shelters closed down, the Red Cross may have provided rental assistance to those that remained, in an attempt to ensure a continuity of care. This appears to be a feasible explanation for the ethnic discrepancy in rental assistance, though it cannot be clearly substantiated through the data. An additional note is that Bolin observed similar shelter usage among Hispanics in his study of the

Wittier earthquake recovery (Bolin 1993). Bolin does not provide an explanation for this observation, but notes that Hispanic families were younger on average than families from other ethnic groups, as is observed also in Switchback.

Table 6.30 Location of second shelter by ethnicity

Location of second shelter	Anglo	African-American	Hispanic	Total
Family and friends	42.2% (19)	33.3% (17)	42.0% (29)	39.4% (65)
Public place**	26.7% (12)	23.5% (12)	29.0% (20)	26.7% (44)
Private facility	22.2% (10)	37.3% (19)	24.6% (17)	27.9% (46)
Out of town	8.9% (4)	5.9% (3)	4.3% (3)	6.1% (10)
Total	100.0% (45)	100.0% (51)	100.0% (69)	100.0% (165)

** chi-square Significant at the .05 level

In an attempt to gain further insight into why Hispanics might be obtaining more aid from Red Cross, linear regressions were conducted that controlled for damage, income, size of family, age, second shelter and ethnicity. However, none of these models were significant, and are not presented. This finding suggests that other factors accounted for the significant differences between Hispanics and the other ethnic groups.

A similar approach was taken to examine difference in variation of types of aid from church groups. Linear regression models were constructed controlling for total damage, income, age, length of residency in the community and ethnicity. These models helped predict the variation in types of aid received from church groups and the

controlling variables proved to be significant and are presented in the following table (see Table 6.31).

Table 6.31 Regression on variety of types of aid from church groups

Variables	Model 1 B Exp(B)	Model 2 B Exp(B)	Model 3 B Exp(B)
Total damage	.00415* .139	.0045** .146	.0045** .146
Income in hundreds	-.00009 -.021	-.000043 -.010	-.000043 -.010
Age	.00149 .037	.00234 .058	.0023 .058
Length of residency	.0129** .168	.0136** .177	.0137** .177
Anglo	.358** .207	.222 .128	.517** .299
African-American		-.295** -.163	
Hispanic			.295** .174
Constant	-.199	-.166	-.462
R Squared	.077	.097	.097

****** Significant at the .05 level * Significant at the .10 level

Table 6.31 shows that damage was important in determining the variation of types of aid received. However, income (which was supposed to be an indicator of whether one qualified for aid from DeWitt County Cares) was not a significant determinant of the variation of types of aid, though ethnicity was a determinant. Here again, Anglos reported receiving a greater variation of types of aid from this source than the other ethnic groups. The other variable that showed significance was

length of residency, which is correlated with age, and may also be a sign of greater physical vulnerability among the elderly. The elderly are often seen as more economically and physically vulnerable in disaster situation (Drabek 1986; Quarantelli 1991), and may not be as self-reliant, thus requiring them to solicit a greater variety of types of aid. But, more importantly, length of residency may also be very tied to integration into the local power structure, affecting how quickly one is able to access a particular type of aid. An example of this is that volunteer aid, especially that coming from groups like The Mennonite Disaster Relief Services, which would work on one house until they had finished and then move on to the next, could be tapped into quicker through better networks. In cases such as this, being closely connected with those that determined the work schedule of the volunteers may have been beneficial, and garnered additional types of help that others had forgone, accessed somewhere else, or were still waiting to obtain.

An additional linear regression also was conducted to look for differences in the types of aid loans were used for from the local bank. However, it should be remembered that the number of people who reported receiving aid from this source was very low. Here again, length of residency is seen as an important indicator of the variation of types of aid accessed, as is income, which would be expected in a loan situation. However, the interesting finding is that neither the amount of damage

sustained nor one's ethnicity appear to be significant predictors of a greater variation of types of aid from this source. But, as stated previously, these findings must be viewed with caution since the number of observations is so low for people who received help from the local bank.

Table 6.32 Regression on variation of types of aid from bank

Variables	Model 1 B Exp(B)	Model 2 B Exp(B)	Model 3 B Exp(B)
Total damage	.00051 .037	.00056 .041	.00056 .041
Income in hundreds	.00046** .314	.00060** .307	.00060** .307
Age	.00135 .074	.0016 .089	.0016 .089
Length of residency	.0004 .116	.0042* .122	.0042* .122
Education	.0038 .023	.0085 .052	.0085 .052
Anglo	.0657 .084	.0333 .043	.0949 .121
African-American		-.0616 -.075	
Hispanic			.0616 080
Constant	-.347*	-.394*	.-456*
R Squared	.127	.131	.131

** Significant at the .05 level * Significant at the .10 level

Variations in types of aid from government agencies

The last area of discussion on variation of types of aid is that which came from governmental agencies. The only aid sources in this category to show differences along ethnic lines were FEMA and SBA

loans (see Table 6.25), though the differences with variation of types of aid from FEMA were not statistically significant since the F-test did not have significance. Hispanics reported receiving a greater variation of types of aid from FEMA than African-Americans, and from the following contingency table, this seemed to be primarily with replacing belonging and rebuilding materials, which Hispanics reported almost twice as often as African-Americans; these difference were, also, not significant using a chi-square analysis (see Table 6.33).

However the chi-squared analysis of Table 6.33, substantiated earlier statistical findings on differences in the variation of types of aid from SBA loans. The flexibility of cash allowed a household to use SBA loans for a variety of types of aid, and because Anglos had a higher average income, more of them were able to qualify for this type of aid. Monetary assistance appears to be one of the most comprehensive types of aid provided since it provides flexibility that allows the recipient to use it to fill a variety of needs. The only type of aid not provided by SBA loans was rental assistance, this is because by the time one applied, was qualified, and received their loans, households had already moved out of sheltering situations and into temporary housing or permanent housing, which was primarily provided by FEMA. This aid source supported the hypothesis originally stated, since there were significant differences between Anglos and the other ethnic groups among the variation of

types of aid provided by SBA, thus showing that Anglos more often received assistance in replacing belongings, obtaining rebuilding materials, labor and services or other types of aid than the other ethnic groups from this source.

Table 6.33 Variation in types of aid provided by FEMA and SBA

Type of Aid	Ethnicity	FEMA	SBA Loan
Rental assistance	Anglo	42.9% (36)	0
	African-American	34.2% (25)	0
	Hispanic	39.8% (37)	0
% of respondents claiming this type of aid		39.2% (98)	0
Replacing belongings	Anglo	39.3% (33)	16.7% (14)
	African-American	41.1% (30)	8.2% (6)
	Hispanic	53.8% (50)	2.2% (2)
% of respondents claiming this type of aid		45.2% (113)	8.8% (22)**
Rebuilding materials	Anglo	46.4% (39)	16.7 (14)
	African-American	37% (27)	9.6% (7)
	Hispanic	47.3% (44)	1.1% (1)
% of respondents claiming this type of aid		44% (110)	8.8% (22)**
Labor and services**	Anglo	8.3% (7)	9.5% (8)
	African-American	15.1% (11)	4.1% (3)
	Hispanic	17.2% (16)	1.1% (1)
% of respondents claiming this type of aid		13.6% (34)	4.8% (12)**
Other types of aid	Anglo	10.7% (9)	3.6% (3)
	African-American	11% (8)	2.7% (2)
	Hispanic	9.7% (9)	5.4% (5)
% of respondents claiming this type of aid		10.4% (26)	4.0% (10)

****** Significant at the .05 level * Significant at the .10 level

The regression model looking at the variation of types of aid from FEMA shows that damage, income and age were important components in the variation of types of help received (see Table 6.34). The variable asking if one had returned to their pre-flood home was added into this model because it was thought that flood victims who were not returning

home and not rebuilding would not be accessing as many different types of aid, since they would not need rebuilding materials, nor possibly labor and services. However, whether or not respondents returned to their pre-flood homes did not seem to have any significant effect on the variation of types of aid received from FEMA. Thus those people who did not return to their pre-flood home, may still have reported receiving aid in the form of building materials or labor and services from FEMA that could have gone into establishing themselves in either a trailer or other housing option, even if it was not their original home. The fact that income had a negative effect suggests, as is intended by the program, that lower income households were more likely to qualify for the variety of types of non-loan aid FEMA offers.

Age, on the other hand, did have a mild significance in the variation of types of aid accessed, especially after controlling for both minority groups separately. This suggests that age may have been a factor within one of the ethnic groups. This may have been a function of a greater need among the elderly, who had to rely on what help was available for all services in the rebuilding process. Conversely, it may indicate a broader interpretation of the questions on rebuilding materials, and labor and services, if respondents claimed this type of aid for the re-establishment of homes such as mobile homes or other housing options, without going through the rebuilding process.

However, the most important finding from this regression is that it once again, shows that Anglos and Hispanics faired better than African-Americans.

Table 6.34 Regression on variation of types of aid from FEMA

Variables	Model 1 B Exp(B)	Model 2 B Exp(B)	Model 3 B Exp(B)
Total damage	.0098** .237	.0103** .250	.0103** .250
Income in hundreds	-.00126** -.222	-.00119** -.209	-.00119** -.209
Age	.00594 .114	.0070* .135	.0070* .135
Length of residency	.00094 .009	.00184 .018	.00184 .018
Returned to Pre-flood home	.0438 .020	.0397 .018	.0397 .018
Anglo	.180 .079	.0127 .006	.380** .168
African-American		-.367** -.156	
Hispanic			.367** .167
Constant	.783*	.808*	.440
R Squared	.139	.158	.158

Significant at the .05 level * Significant at the .10 level

The regression analysis for SBA loans took into account the same variable used in the analysis on FEMA (see Table 6.35). It was expected that there would be a significantly positive relationship between the variation of types of aid provided through SBA and whether or not a person returned to their pre-flood home. However, as with the analysis on FEMA, this SBA analysis was the inverse of what was expected. A

return to the pre-flood home actually produced a negative coefficient with a variation of types of aid, though these findings were not significant. The only significant variable positively associated with this source of aid was income and Anglo ethnicity, which goes back to the difference among ethnic groups ability to access SBA loans. This analysis loosely corresponds with income levels among ethnic groups, and shows that Anglos (with the highest income brackets) faired significantly better than Hispanics (with the lowest income brackets), though they did not show any significant differences when compared to African-Americans. This analysis could, also, suggest that Anglos were able to perhaps access a greater variety of types of aid because of the amount of their loans, as compared to other ethnic groups.

Table 6.35 Regression on variation of types of aid from SBA

Variables	Model 1 B Exp(B)	Model 2 B Exp(B)	Model 3 B Exp(B)
Total damage	.00266 .089	.00256 .086	.00256 .086
Income in hundreds	.00165** .402	.00164** .398	.001637** .398
Age	-.000079 -.002	-.00027 -.007	-.00027 -.099
Length of residency	.0050 .069	.00485 .067	.00485 .067
Returned to Pre-flood home	-.0787 -.050	-0780 -0.50	-.078 -.050
Anglo	.251** .154	.281** .172	.214 .131
African-American		.0666 .039	
Hispanic			-.0666 -.042
Constant	-.437	-.441	-.375
R Squared	.201	.202	.202

** Significant at the .05 level * Significant at the .10 level

Summary of data on aid acquisition

This section examined types of aid in two ways: (1) making an overall comparison among ethnic groups as to the types of aid accessed, and (2) determining differences in the variation of types of aid offered by each source of aid. The overall comparisons between types of aid approached the data by first drawing comparisons between minority and majority ethnic groups and them among the three ethnic groups.

The t-test comparing Anglos with minority members revealed significant ethnic differences among groups regarding building materials and labor and services. These were also the two types of aid least often

offered by most sources of aid. Thus, the scarcest types of aid were most often accessed by the majority group.

An ANOVA with protected t-tests was used to look at the breakdown of sources of aid by the variation of types of aid, a measure of the comprehensive helpfulness of each source. In this case, surprising differences were found among informal sources of aid, which contradicted previous studies, focusing on ethnic-cultural aspects. Families provided Anglos with a greater variation or breath of different types of aid that was found among Hispanics, although when Hispanics received help from friends they often provide a greater variation of aid than family (see Table 6.27). The combination of ANOVAs and contingency tables showed that some types of aid were more accessible in Switchback than others, such as rental assistance and replacing belongings. Furthermore, the form in which aid was given (i.e. in kind, voluntary labor, or monetarily) had an inherent flexibility to it, which carried consequences for the housing restoration process. Minorities, who had the most difficulty obtaining federally backed recovery aid, normally dispersed in a monetary form, also had the least access to aid with rebuilding materials and labor and services.

Informal networks appear, also, to be important in terms of psychological or emotional support, which was the interpretation given for the “other” category, and somewhat for the replacement of personal

belongings or home content. One's social standing and personal networks may have implications for one's ability to obtain help from community based organizations, especially, where pre-existing biases and resource limitations may dictate who gets what type of help first. The ability to navigate through the complex assortment of non-profit agencies may be facilitated by personal connections and knowledge of the individuals providing the aid. This was a process performed best by Anglos, next by Hispanics, and finally African-Americans. Though these sources of aid, ultimately, do not provide much assistance with the reconstruction process. However, Anglos faired best throughout the aid acquisition process, followed closely by Hispanics, while African-Americans had the most difficulty in obtaining aid and obtaining a greater variety of types of aid from those sources that they were able to access.

The overall picture that develops is one of an economically strapped rural community, where, on the whole, no one had access to any meaningful reconstruction aid, and where very few could afford or qualify for flood insurance. Most households attempted to garner aid in every place they could. Informal social networks may have been pivotal during the early steps of the housing recovery process when issues of immediate access to shelter and temporary housing were most critical. These same networks continued to be helpful in replacing belongings

and providing for needs that did not require monetary investments. However, for high cost items, such as reconstruction, specialized labor, or building materials, additional help was needed. This most often came from the federal government in the form of loans or grants. Problems quickly arose with aid source because of the need to qualify for loans, or conversely attempt to rebuild with grant money, which was often not nearly sufficient to effectively rebuild a home. On the community level, many well-meaning officials and volunteers stepped to the forefront and worked tirelessly to assist those who had lost so much in the flood, but their efforts were often hampered by ineffective leadership and pre-existing social concepts that trapped households in a pattern of poverty and discrimination inhibiting their ability to effectively recover. The net result was that in the competition for scarce resources Anglos, followed by Hispanics faired better in the aid acquisition and recovery process than African-Americans, and in general the disaster exacerbated pre-existing social trends within the community.

Satisfaction rates with the housing recovery aid

The last aspect of the recovery processes to be examined is the satisfaction of the flood victims with the recovery and aid acquisition process. Several questions on the survey specifically addressed issues of satisfaction with the aid process and the various types of aid accessed

for sheltering and housing restoration. Only the part of the survey dealing directly with the housing restoration process has been examined thus far; however during the data collection process many opinions were offered regarding the recovery process. Several questions were added into the questionnaire to gage respondents' assessment of this process. Although, the original hypothesis for this section is inductive and was derived from observations of respondents' attitudes during the data collection process; it is as follows:

Hypothesis II: satisfaction

Ethnicity will influence satisfaction with housing recovery

Satisfaction rates will not be reflective of actual aid received.
Ha: Anglo < Minority group satisfaction with aid received

Data on satisfaction levels comes from the respondents' self-reported feelings. Residents selected answers from a Likert scale of one through five, with one being very dissatisfied; two, dissatisfied; three, neutral; four, satisfied; and five, very satisfied. Questions regarding satisfaction with recovery aid are presented in two different sections. Question 24 from the survey asks respondents to classify their overall satisfaction with the housing aid they received after the flood. This is followed by question 27, which asks respondents to assess their overall

satisfaction with each type of aid received. Cronbach's Alpha test was conducted to verify the internal validity of this question, since there were multiple scores. This is one of the most commonly used indexes to measure internal reliability. Perfect reliability would give an index score of 1, which compares the variance of the sum to the sum of the variances of the individual items; if no differences exist, then the score is one (2006b). The test of question 27, which allows for comparisons since it asks about multiple types of aid, produced a score of 0.7404, which could be raised to 0.7688 if the question for satisfaction with "other types of aid" were removed. Unfortunately many respondents failed to answer all of the satisfaction questions; therefore, a single satisfaction scale could not be created, thereby necessitating that the measurements of satisfaction for each type of aid be examined simply.

In general, few ethnic differences appeared in the mean overall satisfaction rates with housing acquisition aid in the recovery process. A t-test comparing Anglos with minorities shows that there were no significant differences between these two groups (see Table 6.36). Anglos did report a slightly lower satisfaction rate than minorities, but the differences were not large enough to be significant. These trends are magnified slightly when examining satisfaction rates with particular types of aid received, but since aid came from a variety of different sources, this overall measurement seems to obscure nuances that may

be reflective of satisfaction with either the source of aid, or the type of aid offered.

Table 6.36 Overall differences in satisfaction with housing aid

Ethnicity	N	Mean	t	Sig.
Anglo	59	3.3898	.919	.339
Minority	135	3.5926		
Total	194	3.5309		

Since satisfaction was measured on a Likert scale, another way of examining the results is through a crosstabs analysis which allows one to compare the distribution of answers for overall satisfaction by ethnic group (see Table 6.37). The results were that more than 25% of Anglos were dissatisfied with housing aid, while less than 15% of African-Americans stated that they felt dissatisfied, though they appeared to have received the least help of all the ethnic groups. Hispanics expressed a dissatisfaction rate similar to Anglos, at a little under 25%. However, it should be noted that there are very low response rates to this question, especially along the negative range of the scale. It is not sure if this is because respondents preferred to not say anything at all, as opposed to give negative feedback, or if there were other forces at work which kept respondents from answering this item of the survey. When looking at positive satisfaction scores, the response rate improves

somewhat, but the pattern between ethnic groups is still repeated. Slightly over 50% of Anglos and Hispanic expressed satisfaction with the overall aid they received, but more than 65% of African-Americans made the same claim.

Table 6.37 Overall variation in satisfaction with housing aid

Variables	Anglo	African-American	Hispanic
Very Dissatisfied	9 (15.3%)	4 (7.3%)	13 (16.3%)
Somewhat Dissatisfied	6 (10.2%)	4 (7.3%)	6 (7.5%)
Neutral	13 (22.0%)	11 (20.0%)	16 (20.0%)
Somewhat Satisfied	15 (25.4%)	15 (27.3%)	23 (28.8%)
Very Satisfied	16 (27.1%)	21 (38.2%)	22 (27.5%)
Total	59	55	80

To see if ethnicity played a significant role in satisfaction rates, three regressions were run on the overall satisfaction with housing aid. Of these, the first one did not have a significant F-test, but it was included in the model for comparison (see Table 6.38). The latter two models, which control for differences between the three ethnic groups, had F-tests with significance, but only at the .1 level. Although, none of the models were very strong, they suggest that a negative relationship exists between higher satisfaction rates and education, income, and the total number of sources of aid received, however none of these variables were significant. In the two latter models ethnicity comes into play as

being somewhat significant, and both Anglos and Hispanics had lower satisfaction rates than African-Americans, though the difference was only statistically significant between Hispanics and African-Americans. The low R-squared values indicates that even in those models with nominal significance, only about 7% of the variance in satisfaction rates was attributable to ethnicity, thus indicating that other factors influenced satisfaction with housing recovery aid to a greater degree. One can only speculate that issues of expectations, face-to-face encounters with aid workers, knowledge of the system the local and federal aid systems, accessibility of aid sources, etc.. may have had greater influences on satisfaction, but this type of data is not available for Switchback.

Table 6.38 Determinants of satisfaction with overall housing aid

Variables	Full model controlling for Anglo/Minority		Full model controlling for Anglo and African American		Full model controlling for Anglo and Hispanic	
	B	Exp (B)	B	Exp (B)	B	Exp (B)
Length of Residency	.009	.073	.006	.051	.006	.051
Education	-.033	-.052	-.076	-.029	-.076	-.122
Income	-.001*	-.162	-.001	-.134	-.001	-.134
Total number of sources	-.020	-.038	-.015	-.029	-.015	-.029
Anglo	.005	.002	.243	.261	-.281	-.096
African-American			.523*	.276		
Hispanic					-.523*	-.188
Constant	4.028**		4.319**		4.842**	
R-squared	.046		.066		.066	
Adj. R-squared	.017		.032		.032	

* significance at the .1 level or greater

To further ferret out differences in satisfaction with the aid acquisition process comparisons between Anglos and minorities of the overall satisfaction rate and the five different types of aid offered were made (see Table 6.39). The magnitude of the scores show that minorities were slightly more satisfied than Anglos, though there was only a statistical significance with two types of aid: replacing belongings and rebuilding materials.

The analysis was taken one step further, by making a comparison among all three ethnic groups (see Table 6.40). With this analysis significance was further reduced to just those associated with rebuilding materials. African-Americans expressed a greater level of satisfaction than other groups with the rebuilding material aid they received; however, even this type of aid was not very available and often came primarily from their own families. Thus, the heightened level of

satisfaction may express a measure of gratitude towards others within their same ethnic groups, as opposed to a general outreach from the community, though it is not clear if respondents consciously made those distinctions. One of the problems with the measurements on satisfaction is the inability of separating feelings of gratitude with those of a true assessment of the recovery aid process. The data do not lend itself to that type of analysis.

Table 6.39 Comparison between Anglo and minority mean satisfaction rates

Mean satisfaction with type of help received	Anglo	Minority
overall satisfaction	3.39	3.59
rental assistance	3.33	3.40
replacing belongings**	3.34	3.73
rebuilding materials**	3.21	3.68
labor and services	3.67	3.91
other types of aid	2.89	3.00

** Significant at the .05 level

Table 6.40 Comparison of mean satisfaction rates by ethnicities

Mean satisfaction with type of help received	Anglo	African-American	Hispanic
overall satisfaction	3.39	3.82	3.44
rental assistance	3.33	3.47	3.35
replacing belongings	3.34	3.81	3.68
rebuilding materials*	3.21	3.85	3.56
labor and services	3.67	3.33	4
other types of aid	2.89	2.86	3.33

* significance at the .1 level or greater

When comparing the mean satisfaction rates between ethnicities, the greatest discrepancy in satisfaction rates lay between African-Americans and Anglos, where African-Americans were the most satisfied with the aid they received and Anglos the least. Only in two occasions did African-Americans express satisfaction levels lower than Anglos, this was with the aid they received in terms of labor and services, and other types of aid. On the other hand, Anglos consistently reported a lower mean satisfaction rate in all categories when compared to Hispanics. This finding is in direct opposition to the amount of aid the ethnic groups reported receiving. In almost every instance, African-Americans reported receiving fewer sources and receiving fewer types of aid from each possible source of assistance than the other ethnic groups. While these differences in satisfaction may not have been statistically significant, they were intriguing because of the disparity between the aid received and reported satisfaction.

An aspect of the hypothesis on satisfaction stated that ethnicity would influence satisfaction rates with the housing recovery process. It was expected that minorities would express a greater level of satisfaction, even if they had received equivalent or less housing aid following the disaster than Anglos. Preliminary investigation suggested that these trends were verified in the data; however there was not enough difference between ethnic groups to be statistically significant.

Only in once occurrence was their slight ethnic differences in the overall satisfaction with housing recovery aid, and this was between Hispanics and African-Americans (Table 6.38). When looking at satisfaction with types of aid, Both Hispanics and African-Americans expressed slightly higher satisfaction rates than Anglos, but only with two types of aid. Moreover, African-Americans were the only ethnic group to expressed satisfaction rates higher than the average. But, because the differences in satisfaction rates among ethnic groups were not large enough to be statistically significant, no meaningful findings could be discerned from this hypothesis.

The variation in satisfaction rates may not seem completely congruent with the emotional reaction verbally expressed by members of the various ethnic groups to researchers during the data collection process, but it should be noted that no ethnic group was exceptionally satisfied with the process. In actuality, a little less than half of the respondents from each ethnic group reported feeling neutral to somewhat satisfied with the recovery aid they received (see Table 6.37). Respondents often expressed a mixed sense of emotion with researchers during the data gathering phase. In one respect, they were grateful for the help received, especially when it came from informal sources, such as family and friends, but in other ways, many respondents also expressed resentment that they did not receive as much help from these

sources as they expected. There was an even more pronounced resentment towards governmental and formal sector sources of aid, which was often compounded by the respondents' expectations for greater assistance, a lack of knowledge as to what to expect or how to maximize the benefits, coupled with the staggering losses sustained.

During the initial days following the disaster, both FEMA and local officials had come in to view the area and made blanket promises about the aid that would be arriving to allow for a quick recovery. However, as the economic realities of the area manifested themselves, it was soon clear that the aid provided was not nearly enough to cover the need. The frustrations and disappointments created by the empty FEMA promises were compounded by the perception of the aid residents expected to receive, and by ethnic tensions within the community, as each ethnic group felt that the other had received more help and assistance from formal sources. There were various occasions in which Anglos voiced frustrations over the "improved" housing situation that minorities were enjoying, since they had obtained new mobile homes, while simultaneously deteriorating the housing values for the community, since mobile homes only depreciate in value. Most of the minorities, on the other hand, were frustrated by the lack of assistance and the timing of the assistance available to them. Most had lived in this community most of their lives, and had learned not to expect much,

so what little they received seemed more than what might have been expected.

CHAPTER VII

CONCLUSIONS

Overview

This research investigated the recovery efforts of a rural community in central Texas devastated by a 1998 Guadalupe River flood. This site was selected because it allowed researchers to compare variations in resource acquisition among ethnic groups within a rural setting. Although the research was conducted as a case study and the conclusions cannot be broadly applied to other localities, the depth of knowledge obtained through this research adds to the general knowledge of the processes, facilitations, and barriers that can exist during recovery for different ethnic groups, especially in rural communities. This study was undertaken to examine behavioral variation in the aid acquisition process, which could in part be culturally derived, and how culture may have affected the final recovery outcome of a disaster that resulted in a severe housing shortage.

The expectations for these research findings were derived from a combination of information based on previous research and the observations and experiences acquired during the data gathering phases

of the research. It was expected that Anglos would recover quicker than minority groups, though not because they receive more aid from public or non-profit sources. It was expected that Anglos would be able to fund the majority of their recovery process through private means, while minorities would struggle more through the aid acquisition process. However, the question of complete housing recovery was one that remained open. Many residents and previous research finding attested to the higher acquisition of mobile homes by minority residents. It was thought that if the percentage of mobile home acquisition, or other housing situations that did not require reconstruction, was high enough, minorities could possibly achieve a level of complete housing recovery quicker than Anglos, even though minorities could ultimately lower their standard of living, by settling for a housing condition which would only depreciate over time. Lastly, it was expected that the satisfaction rates respondents reported with the housing-aid, acquisition process would not be positively correlated with either the aid received, nor one's housing equity. The findings did not meet all expectations.

Findings compared to the literature

The literature reviewed for this research focused primarily on the effects of poverty and minority status on recovery, the effects of local leadership, particularly within the historical and disaster recovery

context of the case study, and the history and characteristics of rural communities. Many of the findings from this research supported past studies that focused on the additional hardships faced by rural communities, the poor, and minorities as they progress through the recovery process, though some interesting deviations, primarily in respect to ethnic cultural expectations, were discovered.

One commonality among many previous studies was the depiction of culture as an influential component in the aid acquisition process. Hispanic culture, in particular, has been cited as an influential component of why Hispanics have often decided to eschew federal aid agencies, and rely primarily on family and informal networks (Bolin and Bolton 1986; Bolin 1982; Comerio, Landis, and Rofé 1994; Dash, Peacock, and Morrow 1997; Kasapoglu and Ecevit 2004; Morrow 1997; Polletta 1999; Saenz and Thomas 1991; Trainer and Bolin 1976). African-Americans, like Hispanics, have often shown a penchant for relying on informal organizations, and particularly on their local church congregations and families (Bolin 1986; Fothergill, DeRouen Darlington, and Maestas 1999; O'Donnell and Giovannoni 1999; Peacock and Zhang 2005; Perry and Mushkatel 1986; Quarantelli 1991; Rogers 1995; Wilson 1981). Conversely, Anglo culture has often been depicted as being the most self-sufficient ethnic group, relying primarily on personal savings and private insurance for disaster recovery (Bolin 1993; Girard

and Peacock 1997; Mirowsky and Ross 1984; Morrow 1997; Peacock, Chris Girard, and Gladwin; Saenz and Thomas 1991).

This study contradicted the literature in almost every one of the previously mentioned aspects. Anglos were the most successful group in obtaining help from the greatest number of different sources, including informal, local and governmental sources of recovery aid. Although, Hispanics gained access to almost the same amount of aid as Anglos, despite having significantly lower income levels, which came into play with loan-based aid. African-Americans were the ethnic group that received the least amount of aid in the recovery process. Since most of the African-American congregations were serviced by itinerate preachers, there was a lack of faith-based leadership, which may have contributed to some of the difficulties this ethnic group faced in obtaining aid. However, the greater barrier was a local history of segregation, and a perceived unfair distribution of federal aid favoring minorities. Almost no one in this study was covered by insurance, so that aspect of self-aid did not enter into the equation, though it has historically been the most important means for recovery in the United States. In this study, Anglos were shown to access more sources of aid than other ethnic groups, and get a greater number of types of aid from these sources than other ethnic groups.

Another area of interest for this research was the quality of leadership within the community. Few studies have focused on community-based leadership within the recovery process; however, Rubin (1985) studied the leadership of 14 different communities that underwent disaster recovery. From these experiences, she points to three essential qualities needed for good leadership: personal leadership, the ability to act and knowledge of what to do. Moreover, she provides four key characteristics most often found among community officials leading efficient recovery efforts: (1)creative problem-solving/decision-making, (2) vision for the community's future, (3) competent assistants, and (4) strong links to other decision makers (Rubin 1985). This study revealed that the leadership in Switchback, unfortunately, did not have the qualities or characteristics that Rubin described as essential for effective recovery. As discussed in detail in Chapter V, the leaders were often divisive, and their actions were based on traditional social roles and expectations of who should participate in the recovery planning process.

Qualitative findings

Part of this research studied Switchback from a qualitative perspective. Switchback is an established agricultural town, which had once been a break-point center in the hey-day of rail-traffic. But with

the development and increase in trucking, the town had lost importance and was at a critical period, needing to redefine itself, or risk the continuous loss of population. However, its modernization and growth continued to be hampered by an agricultural history rooted in segregation, ascribed social norms based on ethnic origins, a conservative philosophy of self-dependence, and a suspicion of outsiders and the government in particular. Three main conclusions/observations came out of the qualitative analysis. These are related to the characterization of Switchback, leadership qualities and ethnic divisiveness. Each of these three is interconnected and impacts the another.

Description of network ties within Switchback

The first conclusion based on the qualitative analysis is a confirmation of Switchback's characterization as a type IV community, based on Berke, Kartez, et al (1993a) classification system, which assesses the strength of a community's horizontal and vertical ties. They describe a Type IV community as "one which faces significant obstacles undertaking successful recovery efforts because it lacks access to external resources, but even if vertical channels are activated, it still lacks a viable, local horizontal structure for effectively receiving aid and

influencing the recovery process (p.101).". Wenger and Burke's description is accurate for Switchback according to this research.

Leadership qualities

The second finding from the qualitative analysis of this research related to the quality of leadership within the community. This issue is closely related to the Type IV classification because both affected the acquisition, distribution, and timing of aid for local households. Switchback, like other rural communities, had little advantage in competing for scarce resources and getting the financial assistance it needed in a timely fashion. One of the greatest barriers it faced in the recovery process was the lack of effective leadership, and their inability to integrate vertical and horizontal ties. Leadership in the town was contested primarily between two different factions among Anglos. The first group attempted to maintain the rural, nature of this small town in central Texas that was considered idyllic by the established power elite. This "old guard" wanted to maintain the status quo of traditional rural social norms and expectations of self-sufficiency. In contrast, the newer immigrants to this town had a more ideological approach, wanting to promote a vision centered on the ability to capture and expand local human resources to catapult the town into the global, capitalist oriented society. The newer immigrants saw the recovery process as an

opportunity to redevelop and redefine the community, by seeking out aid, which would not normally have been available to them, and which could be used to help improve local job training opportunities, increase the viability of the town to attract industry, and develop a local workforce that was attractive to outside investors. These two competing visions for the town's future hampered effective leadership in the community and slowed down the recovery process.

The one goal both factions agreed upon was the need to retain Switchback's population and avoid loosing any residents due to housing shortages or difficulties with the recovery process. Many leaders were concerned about the possible loss of population as people moved out of town in search of housing, and better employment opportunities. Ironically, there were many vacant homes in town from previous residents who had moved-out, but they were not willing to rent those homes to local flood victims, and thus, in effect, exacerbating the housing shortage problem. The inability to solve the local housing shortage is just one example of the local leadership's failure to effectively pull together some horizontal ties to provide needed services (Berke, Kartez, and Wenger 1993a; Martinez-Brawley 1990; Sundet and Mermelstein 1996; Warren 1963; Wenger 1978).

Aspects relating to the future vision of this town are rooted in a history of economic instability common among rural communities due to

an overdependence on one industry, and a lack of diversity in employment opportunities, often leading to rural poverty. Poverty has always been a detriment to recovery efforts and many studies have focused on the relationships between ethnicity, poverty and vulnerabilities (Bolin 2006; Bolin and Bolton 1986; Bolin and Stanford 1991; Fothergill, DeRouen Darlington, and Maestas 1999; Girard and Peacock 1997; Miller and Simile 1992; Morrow 1997; Mustafa 2003; Peacock and Ragsdale 1997; Phillips 1993; Summers 1991; Sundet and Mermelstein 1996; Wisner, Blaikie, Cannon, and Davis 1994). Ethnic minority residents have often suffered the most from both the disaster and during the recovery process (Bolin 2006; Bolin and Bolton 1986; Bolin and Stanford 1991; Fothergill, DeRouen Darlington, and Maestas 1999; Girard and Peacock 1997; Miller and Simile 1992; Morrow 1997; Mustafa 2003; Peacock, Chris Girard, and Gladwin 1997; Phillips 1993; Summers 1991; Sundet and Mermelstein 1996; Wisner, Blaikie, Cannon, and Davis 1994). This research confirmed these assertions to be true in Switchback as the minorities were hardest hit by the power of the flood waters, and they were also excluded from all planning meetings. Due to various issues relating to the town's size and location, such as a lack of local preachers, and regional visibility, minority leaders did not have an avenue to either present a united front, nor to have their own voice and interests articulated. In this case study local leaders were

not able to integrate all community stakeholders into a united vision, nor find creative or effective ways to either garner needed resources in a timely manner from vertical or horizontal connections. Instead, as is shown in previous research, issues of poverty, ethnic minority status, lack of effective leadership and ruralality were all barriers to the recovery process in Switchback.

Ethnic divisiveness

The third major finding from the qualitative analysis was that the ethnic divisiveness in Switchback hampered its recovery efforts, and the recovery process in this case study did not support "Transactional Stress Theory," which other researchers suggested would be likely in situations such as the Switchback flood. Ethnic tensions arose as working and middle class Anglos felt that some minorities were taking advantage of the recovery process and actually improving their living conditions by receiving unfair amounts of aid from the government. The notion of fairness, as expressed by respondents, was one assessed though ideas of merit and resentments that not everyone was able to access the same amounts of federal aid, since it was distributed based on pre-established criterion of need. These resentments were directed towards minorities even though they had been the worst affected by the flood. On the other side, there were many minorities who felt that the

losses incurred by their communities could have been mitigated if the Anglo elites had cared enough, and given them proper warning of the on-coming flood. The prevalent attitude in the town appeared to be one where each ethnic community should remain self-contained and should respect its place in the broader society; helping themselves out as needed. When these separations were no longer maintained, ethnic tensions resulted that were not solely based on income disparities or issues of resource acquisition brought on by the recovery process, but were deeply rooted in the history and rural culture of the town. These divisions prevented the community from acting for its collective greater good, and instead kept the leadership divided, and the recovery efforts constrained by social conflicts.

This emphasis on intra-group dependence superseded the rational components of "Transactional Stress Theory," which emphasizes the use of logical means to overcome unexpected obstacles and encourage people to act in self-benefiting ways (Germain 1991; Schmid 1992). The socio-cultural norms in this community established a strong cultural bias against certain sectors of the population, which seemed to rule out logical problem-solving approaches, and prevented the emergence of a transformative leader who could build a coalition around a united vision for the benefit of the entire community.

Added to this melee, were minority residents who had suffered the most in the disaster, yet continued to be excluded from discussions on their own future, and that of their town. However, several minority leaders began to develop an interest in self-advocacy as they attempted to obtain benefits and promote their own agendas. The discordance that resulted from these discussions did little to assist minorities to become better integrated into the power structure or in their own pursuit for empowerment. One of the greatest problems facing Switchback was its inability to involve all ethnic groups into an integrated process in which all stakeholders had a voice in their own future. Instead, paternalistic tendencies by the Anglo elite guided the recovery process, and while well-meaning, they ultimately stymied any efforts for the empowerment of minority groups or the integration of the town into the larger non-agricultural markets.

Quantitative findings

The second part of this study took a quantitative approach to the Switchback case study, guided by two hypotheses. One hypothesis asserted that ethnicity would have an affect on the aid received; this was in part supported by the data, and in part contradicted by the data. The second hypothesis stated that the residents' satisfaction with the recovery process would not be correlated with the level of aid or quality

of housing; this hypothesis was supported by the quantitative data analysis.

Hypothesis 1 – aid acquisition

The first hypothesis asserted that ethnicity would have an affect on the ability of a household to obtain housing-recovery aid. In particular, it was thought that Anglos would receive a greater variety of types of aid from fewer sources than minorities. Thus, Anglos would have to access fewer sources of aid, because they would receive more comprehensive aid from each source they did access. This hypothesis was developed in response to previous studies on disaster recovery, most of which have shown that Anglos recover quicker than minorities and often rely primarily on insurance and private saving, thus having the flexibility to use that money in whatever form was most needed. Minorities, meanwhile, often have not had enough insurance nor savings to cover recovery costs and had to access recovery aid from a larger number of sources, which often gave aid in a more limiting fashion. To analyze this assumption, the data on the sources of aid accessed for the housing recovery process and the types of aid made available were both analyzed.

Part of the first hypothesis was contradicted by the data, as, contrary to expectations, Anglos accessed more sources of aid than

minority groups. However, supporting the hypothesis, they also received a greater variety of types of aid from these sources. Despite the fact that Anglos suffered less damage to their homes than other ethnic groups, they were still able to access more aid, almost none of which came from insurance, as was expected. Furthermore, they also more frequently were able to access federally backed loans provided for household recovery, which provided the flexibility associated with cash.

The research showed that content losses, such as clothing, appliances, and furniture, were easier to obtain through non-profit and informal relief sources than assistance for structural repairs. The replacement of belongings was a type of aid that normally came "in kind", or through vouchers, and not direct monetary aid. However, the ability of Anglos to access these aid sources may also have been directly related to the condition of their homes, and the lower levels of damage they sustained. Since their homes were not completely destroyed, they had a place to receive and store materials that had been donated or made accessible through aid agencies. This illustrates the need to provide certain types of aid within an appropriate time-frame, such as the ability to continue to provide appliances or other belongs after reconstruction has proceeded far enough that residents have a place to locate such items. While replacing belongings was the type of help most often received, certain items could never be replaced. The emotional or

sentimental value of some objects could never be supplanted, such as the loss of photographs, or family heirlooms.

The high reliance on informal and non-profit sources of aid was primarily attributed to the absence of insurance money, since most of the homes affected were not in the 100 year flood-plain. The socio-economic status of flood victims prevented many of them from having personal resources on which to rely upon during the recovery process. The same social and economic inequities that created disproportionate barriers to recovery aid were also linked to the location of the most severely damaged homes and may have also embedded structural vulnerabilities of residents' homes prior to the flood. The location of low-income and minority homes were hit by the full force of the flood waters, devastating homes in those neighborhoods. Whereas, most of the higher income homes were located in areas affected by rising water and were not subject to the destructive forces of the river. Thus, in the aftermath of the event, the homes of higher income residents were left structurally more intact than those of their minority and low-income counterparts, and therefore, did not require as much effort to rebuild. The ethnic inequalities, which were systemically integrated within the town structure, were duplicated in the distribution of federal recovery aid. Since federal recovery aid is based upon the value of one's home, and a household's income, one's ability to access reconstruction aid was

directly related to home value, which is in turn affected by the neighborhood in which it is located. Federal policy that relies on a home's market values to assess aid ultimately re-victimizes minority groups by often providing preferential aid to higher income and Anglo groups. Moreover, federal aid, either in the form of SBA loans or IFG grants, was most often associated with housing reconstruction, since it provided the recipient with the ability to obtain the rebuilding materials needed for reconstruction.

Switchback was a very segregated small town, where people placed a high value on self-reliance and mutual support from within one's social group. These rural cultural values were often expressed to researchers, and there appeared to be a prejudicial attitude towards many minority members who may not have been deemed "worthy" of receiving aid. Since most of the aid received in this town came from non-profit groups that were administered by local leaders, it appeared that a systemic discrimination was built into the aid delivery process. Whether this was done consciously or not, could not be determined by this research, but what did become clear, is that minority and low-income residents were at a distinct disadvantage in receiving aid from as many sources as Anglos, nor were they able to access as many types of aid from those sources as Anglos. The locally administered recovery aid

in effect functioned to hinder those most in need from obtaining the help they needed to recover.

Hypothesis 2 - satisfaction

The second hypothesis related to the satisfaction levels incurred during the recovery process. This hypothesis was inductively generated based on comments and attitudes expressed by respondents during the data gathering phase of this research. It was anticipated that Anglos would be less satisfied with the recovery process than minorities, and that minority satisfaction would not necessarily correspond with either the aid received from formal sources nor an increase or maintenance of housing values following the event.

An overall perspective on the aid recovery process showed that most people were not very happy with the help they received; they reported neutral most often. Most respondents stated they were grateful for what help was received, but often said they believed more could have been done. An overall "neutral" score was given to the recovery aid delivery process in Switchback, though there were slight differences among ethnic groups. These differences were not large enough to reject that null hypothesis. Thus we cannot state that there were significant differences in the satisfaction rates among ethnic groups. However, Anglos consistently expressed a greater negative opinion about the

recovery process than minority residents, though they received more aid and suffered fewer losses, thus the trends in the data supported the general idea of the hypothesis, but there may have been too many unaccounted, intervening variables which clouded the data and prevented statistical significance to be shown with that data collected. The ethnic differences in satisfaction rates was visible within the survey data, but was even more noticeable during the data collection process. In several instances, persons who were “very upset” with the recovery process or feeling completely overwhelmed by it refused to participate in this survey. These flood victims may have been representative of others who were also highly dissatisfied and refused to participate in this study.

The most surprising finding was that African-Americans consistently expressed the most satisfaction with the recovery, though they received the least amount of aid. This could be explained in two ways; first, through the use of reference theory, and secondly by examining the local culture. Locally African-Americans had historically been relegated to the lowest social positions in town, and never given many opportunities. The disaster brought in national and regional resources that were not constrained by the local traditions, with a more equitable and transparent approach to providing aid. Thus, some types of aid became available to this population segment, which had become

accustomed to being self-reliant and accepting of limitations. Reference theory, on the other hand, stipulates that one will assess his/her own progress based on comparison with others in their group/ socio-economic status, in this case, other African-Americans. Since such a large percentage of the African-American community was affected by the flood, people saw others within their ethnic group getting equivalent amounts of aid, and believed the process to be fair. In some cases, their homes were already in such disrepair, that even though, a mobile home may not have carried the same stable equity value as a site-built home, the improvements in living conditions were enough to incur the jealousy of some and the gratefulness of others. Often, jealousy was expressed by persons from another ethnic community who felt there was an inequitable distribution of aid as some did not have to go through the arduous task of rebuilding their home, and could instead just resettle into a mobile home permanently.

Personal observations

The following are some personal observations and conclusions of this researcher not covered in the course of the formal research. Some of the most striking observations were expressions of rural cultural norms related to self-reliance, which manifested themselves in various ways. Among the most amazing was the apparent need of many

respondents to justify receiving assistance, as well as the animosity expressed by some of the wealthier victims, particularly Hispanics and Anglos. Rumors were rampant regarding the flood; they spread as far and as quickly as the river itself. Many residents, especially minority residents, often insisted that the government had caused the flood by opening flood-gates further upstream. Therefore, it was acceptable that they seek help from that source. Others focused more on the recovery process, by comparing the help they received to what they felt they should have received.

Another observation that is not necessarily clear from the data is the strong let-down that many people felt when government assistance did not arrive quickly. Shortly after the presidential disaster declaration, community leaders informed the public that FEMA would come and help them rebuild, thus painting FEMA as a knight in shining armor that would rescue and restore the town. When this did not happen, expectations crashed and exacerbated the feelings of loss, despair, anxiety, and frustration with the recovery process. This combined with ethnic tensions and failures in leadership discussed earlier led to widespread frustration. This experience was completely contrary to the idyllic rural life and the notions of gemmeinschaft that attracted some people to relocate in this community.

On a positive note, this researcher observed that Switchback was in many ways an exemplary community in its use of local female leadership. A common theme among gender researchers focusing on disaster recovery is the lack of female leaders coming from within the local community. In contrast, in Switchback, the local non-profit official and one of the leading government officials were both female. These women were prominent in the recovery efforts; although they did not seem to be aware of the uniqueness of their positions, nor the added stresses many women face during recovery, and hence brought little attention to the plight of women or their own ability to voice those concerns.

Critique of research

From this researcher's perspective, a richer data analysis – both qualitative and quantitative – and interpretations could have taken place if more data had been collected within three areas. These include (1) the condition of the home before the disaster event, (2) the ability to determine home ownership – through self-reports or the ability to show title and equity, and (3) the actual amount of aid applied for and received from various aid sources.

The condition of the home refers to the type of construction, the age of the home, foundation type, condition, and elevation. This

information would be useful to help determine specific variables affecting damage and if federal aid was properly evaluated and equitably distributed. It's important to take into consideration not only the age and condition of repair for any particular building, but also the construction materials used. Interestingly, many older homes survived the flood waters better than newer construction, because they were built of solid wood rather than sheet rock or other composite materials which were more susceptible to water damage, thus age alone would not have provided sufficient information. However, these data were not collected in this study, though both income and age of resident or length of residence in town may be correlated with those attributes.

An additional piece of information that could have provided greater insight into the barriers and economic realities facing residents in the recovery process is information relating to ownership and debt or equity. This would include such information as whether the respondent had clear title to the home, whether the home was owner occupied or rented, and whether the resident believed he or she owned the home, and the level of debt or equity already associated with that piece of property. As mentioned previously, there were multiple incidents in which residents inherited their homes, but the transfer of title was contested. A resident's ability to clearly establish home ownership would influence both the amount of aid available for reconstruction, and

motivation for undertaking such a task. Further if the outstanding debt was greater than the repaired value of the home, their desire or ability to obtain funds may have been reduced.

The third piece of helpful information desired is the actual dollar amount of aid received by each household. This information may have been particularly difficult to obtain since many residents were reluctant to share such private information, and in many cases aid is given "in-kind" or as a donation of either time or items with no assigned monetary value. Complications such as this make a true comparison of recovery aid acquisition difficult to conduct, even within the confines of a small rural community.

Implications for future policy and research

This study reiterates the increasing need to understand disaster recovery dynamics. The research generated hypotheses attempted to explain some of the variations in aid distribution, and the ways in which the aid distribution process evolved. This study provides a greater understanding of what communities with limited resources, experience, cohesion, and poor planning processes face when trying to recover from a disaster and how these variables are reflected among ethnic groups at the household level. The town in this case study is not structurally unique, and therefore may be seen as an example of many of the

problems faced by other communities devastated by disasters. The findings can be used to inform both research questions and policy issues as they apply to disaster recovery.

Policy suggestions

Regarding policy, the findings bring to the forefront the need for an open dialogue regarding the underlying values and culture that influence the implementation of federal, state and local assistance programs, the various implications of those values for both long-term economic growth, and the short-term impact on citizens as they struggle through the recovery process. This case study illustrates many interesting cultural dimensions that are in direct conflict with basic policy assumptions, and how differences in values can ultimately stifle economic growth and recovery. In particular, a strong emphasis on self-reliance and traditional social norms meant that not all sectors of the society were equally involved in recovery planning, nor were they economically affected in an equitable manner.

Another, and related, concept that needs greater attention is the question of local vs. regional or national roles and responsibilities in disaster recovery. A fundamental concept among disaster recovery researchers is that disasters are a local phenomenon, and that

responsibility for mitigation, response, and recovery also should be local. It has long been acknowledged that many localities do not have the resources to carry out all aspects of recovery work independently and often have to rely on the federal government for monetary assistance and guidance to complete the tasks. These response aspects to disasters have generally not been very controversial, though there has often been a lack of communication among the respective actors until the occasion of a disaster. Moreover, both mitigation and recovery are long-term issues that are often complicated by local culture and available resources (Rubin 1991). Problems arise when local leadership values and priorities do not coincide with those of the funding agency, nor benefit the collective good of the people. These problems are further complicated when statements are simultaneously being made about the responsibility of local leadership in the recovery process, yet those leaders may have values or ideas of recovery priorities that differ substantially from that of the funding agencies. Conflicting propositions between funding agencies, contradictory opinions on what will best benefit the masses, questions of who is responsible for recovery, and where individuals may go to seek additional help are all issues that can slow recovery efforts. Thus, this researcher suggests that further dialogue is needed regarding the complications and limitations of local leadership in disaster recovery along with the role of national and

regional governments in intervening or assisting when efforts of local leadership result in hindering recovery efforts.

An additional policy implication coming from this research is the need for greater assistance to rural communities because of their essential requirements to strengthen vertical and horizontal ties prior to a disaster, the need to improve the efficiency and effectiveness of aid acquisition for small communities, the need to facilitate minority leadership movements and empower all stakeholders in a community to become more active in governance issues on a regular basis, and the need to establish and communicate realistic expectations, philosophies, and abilities of FEMA and other aid agencies before and during times of disaster recovery. Additionally, this study, like others, highlighted the need for community disaster planning, education of the public on the activities and limitations of federal and non-profit aid agencies, and the information needed for adequate recovery to take place. Future research and policy development could hopefully lead to a greater understanding of the barriers to ethnic integration on multiple levels, from housing recovery, to political inclusion, to the development of a common vision for all members of a community within the context of disaster recovery and disaster planning.

Research suggestions

From a sociological approach, the topic that has most intrigued this researcher is that of culture and the role it plays in disaster recovery. Historically, both researchers and federal policy have emphasized the importance of local leadership during recovery; however that emphasis has been based on the assumption that local leaders have the best interests of all stakeholders in mind. While no one in this case study would contradict that assumption, culture often works in insidious, subtle and subconscious ways that inhibit people from accurately assessing the fairness of their actions. In this area, five questions that would explore the role and impact of culture in disaster recovery are recommended for consideration by future researchers:

1) How does one assess the effects of local culture on the role and effectiveness of local leadership?

2) If conflicting values between aid agencies and local leaders exist, how are those differences best ameliorated for the long-term benefit of all community stakeholders?

3) What are effective ways to facilitate minority integration into local power structures, and who is best suited to assist with such power-sharing schemes?

4) What are the conditions which promote cultural change, how sustainable is that change, and when is it appropriate to consciously pursue it?

5) Are all aspects of culture equally susceptible to change, and if not, where do those differences lie?

In summary, the 1998 flood and resulting disaster in Switchback was an excellent natural laboratory for a case study on disaster recovery. This research project has highlighted, through both qualitative and quantitative methods, an in depth look at the aid acquisition process and resulting levels of housing recovery. Although unique in some aspects, the findings regarding aid and satisfaction levels in Switchback can be extrapolated to other rural, ethnically diverse communities and be used in planning and advising on recovery efforts in similar towns. The research findings also offer implications and ideas for future research projects that would provide additional insights into effective disaster recovery planning and considerations of culture and ethnic differences in the recovery process.

REFERENCES

1972. "A Heritage to Cherish... 100 Years of Growth." Pp. 6-8 in *Historical Record Commemorating the 100th Anniversary of the founding of Cuero 1872-1972*. Cuero, TX.

2006a. "LCRA Energy, Water, Community Services." vol. 2005.

2006b. "Reliability and Item Analysis." vol. 2006: StatSoft, Inc.,, 1984-2003.

Agriculture, Chamber of Commerce and. 2004. "Community Profile." vol. 2003: NoDial.net.

Anderson, Mary. 1994. "Understanding the Disaster-Development Continuum: Gender Analysis is the Essential Tool." *Focus on Gender* 2:7-10.

Archer, Steve. 1998. "Photos of Central Texas Flooding." vol. 2006: Department of Public Safety: Division of Emergency Management.

Arreola, Daniel D. 2002. *Tejano South Texas: A Mexican American Cultural Province*, vol. Number 5. Austin, TX: University of Texas Press.

Baldassaro, Larry 1975. "Sicily's Earthquake Zone, Waiting in the Wreckage." *The Nation*, September 13, 1975, pp. 198-201.

Barrett, Richard A. . 1991. *Culture and Conduct an Excursion in Anthropology*. Belmont, CA: Wadsworth Publishing Company, Inc.

Bates, Frederick L. 1982. *Recovery, Change and Development: A Longitudinal Study of the Guatemalan Earthquake.* Athens, GA: University of Georgia.

Bates, Frederick L. and Walter Gillis Peacock. 1989. "Long Term Recovery." *International Journal of Mass Emergencies and Disasters* 7:349-365.

—. 1992. "Measuring Disaster Impact on Household Living Conditions: The Domestic Assets Approach." *International Journal of Mass Emergencies and Disasters* 10:133-160.

Bell, Bill D. , Gail Kara, and Constance Batterson. 1978. "Service Utilization and Adjustment Patterns of Elderly Tornado Victims in an American Disaster." *Mass Emergencies* 3:71-81.

Berke, Philip R., Jack Kartez, and Dennis Wenger. 1993. "Recovery after Disaster: Achieving Sustainable Development, Mitigation and Equity." *The Journal of Disaster Studies and Management* 17:93-108.

Bolin, Robert. 1986. "Disaster Impact and Recovery: A Comparison of Black and White Victims." *International Journal of Mass Emergencies and Disasters* 4:35-51.

—. 1993. "Post-Earthquake Shelter and Housing: Research Findings and Policy Implications." Pp. 107-131 in *National Earthquake Conference: Earthquake Hazard Reduction in the Central and Eastern United States: A Time for Examination and Action*, edited by C. o. S. Impacts. Memphis, TN: Central United States Earthquake Consortium.

—. 2006. "Race, Class, Ethnicity, and Disaster Vulnerability." Pp 204-221 in *Handbook for Disaster Research*, edited by Havidan Rodriguez, Enrico Quarantelli and Russell Dynes. New York: Springer Press.

Bolin, Robert and Patricia Bolton. 1986. *Race, Religion, and Ethnicity in Disaster Recovery*. Institute of Behavioral Sciences University of Colorado, Bolder, CO.

Bolin, Robert C. 1976. "Family Recovery from Natural Disaster: A Preliminary Model." *Mass Emergencies* 1:267-277.

—. 1982. *Long-Term Family Recovery from Disaster*. Institute of Behavioral Science, University of Colorado, Boulder, CO.

—. 1994. "Postdisaster Sheltering and Housing: Social Processes in Response and Recovery." Pp. 115-127 in *Disaster, Collective Behavior, and Social Organizations*, edited by R. R. Dynes and K. J. Tierney, Newark, NJ: University of Delaware Press.

Bolin, Robert C and Lois Stanford. 1990. "Shelter and Housing Issues in Santa Cruz County." Pp. 99-108 in *The Loma Prieta Earthquake: Studies of Short Term Impacts*, edited by R. C. Bolin. Boulder, CO: Institute of Behavioral Sciences, University of Colorado.

Bolin, Robert and Lois Stanford. 1991. "Shelter, Housing and Recovery: A Comparison of U.S. Disasters." *Disasters* 15:24-34.

Bolin, Robert and Lois Stanford. 1999. "Constructing Vulnerability in the First World: The Northridge Earthquake in Southern California, 1994." Pp. 89-112 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routledge.

Briffett, Bob. 1998. *Disaster Summary Outline*. Office of DeWitt County, Cuero, TX.

Brislin, Richard. 1993. *Understanding Culture's Influence on Behavior*. Austin, TX: Hartcourt Brace College Publishers.

Bunnemeyer, B. 1921. "The Texas Floods of September, 1921." *American Meteorlogical Society* 49:491–494.

Caporale, Rocco. 1986. "Toward a Cultural-Systemic Theory of Natural Disasters: The Case of the Italian Earthquakes of 1968 in Belice, 1976 in Friuli, and 1980 in Campania-Basilicata." Pp. 253-271 in *Italy-United States seminar on preparations for, responses to, and recovery from major community disasters*. University of Delaware, Newark Delaware: Disaster Research Center, University of Delaware.

Caran, S. Christopher and Victor R. Baker. 1986 "Flooding along the Balcones Escarpment, Central Texas." Pp. p.1-14. in *The Balcones Escarpment: Geology, Hydrology, Ecology and Social Development in Central Texas*, edited by P. L. Abbott and C. M. Woodruff, Jr. Austin, TX: Geological Society of America.

Census, Bureau U. S. 1990a. "1990 Census of Population & Housing Data." vol. 2006: U.S. Census Bureau: http://www.census.gov/dmd/www/90census.html.

—. 1990b. "Quick Tables." Factfinder: http://factfinder.census.gov/servlet/QTTable?_bm=y&-context=qt&-qr_name=DEC_1990_STF3_DP2&-qr_name=DEC_1990_STF3_DP3&-qr_name=DEC_1990_STF3_DP4&-qr_name=DEC_1990_STF3_DP5&-ds_name=DEC_1990_STF3_&-CONTEXT=qt&-tree_id=101&-all_geo_types=N&-geo_id=16000US481055&-search_results=16000US481055&-format=&-_lang=en.

Census, Bureau U.S. 2000. "2000 Population Summaries." Factfinder: http://factfinder.census.gov/servlet/SAFFFacts?_event=Search&geo_id=&_geoContext=&_street=&_county=Cuero&_cityTown=Cuero&_state=04000US48&_zip=&_lang=en&_sse=on&pctxt=fph&pgsl=010&show_2003_tab=&redirect=Y.

Clanton, Gordon. 1996. "A Sociology of Jealousy." *International Journal of Sociology and Social Policy* 16:171-187.

Clifford, Roy A. 1956. *The Rio Grande Flood: A Comparative Study of Border Communities in Disaster*. National Academy of Sciences - National Research Council, Washington, D.C.

Comerio, Mary C. 1997. *Housing Issues After Disasters*. University of California at Berkeley, Berkeley, CA.

Comerio, Mary C., John D. Landis, and Yodan Rofé. 1994. *Post Disaster Residential Rebuilding*. University of California at Berkeley Institute of Urban and Regional Development, Berkeley, CA.

Comfort, Louise K. 1986. *International Disaster Assistance in the Mexico City Earthquake*. Natural Hazards Research and Application Information Center Quick Response Research Report #03.

Commerce, Chamber of. 1999. "Community Profile." vol. 1999: Chamber of Commerce, Cuero, TX.

Dash, Nicole, Walter Gillis Peacock, and Betty Hearn Morrow. 1997. "And the Poor Get Poorer: A Neglected Black Community." Pp. 206-225 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*, edited by W. G. Peacock, B. Morrow, and H. Gladwin. New York: Routledge.

Davis, Morris. 1978. "International/ Domestic Transformations in Disaster Assistance: Messages and Goods." *Mass Emergencies* 3:217-228.

Demographer, Texas State Data Center and Office of the State. 2006. "Proportion of Population by Race/Ethnicity in 1990 and 2000 in Places in Texas." Texas State Data Center and Office of the State Demographer, Institute for Demographic and Socioeconomic Research, The University of Texas at San Antonio.

Dodds, Sally and Elane Nuehring. 1996. "A Primer for Social Work Research on Disaster." Pp. 27-56 in *Research on Social Work and Disasters*, edited by C. L. S. a. S. A. Murty. New York: The Haworth Press, Inc.

Domeisen, Natalie. 1997. "The Role of Women in Protecting Communities from Disasters." *Natural Hazards Observer* XXI:5-6.

Drabek, Thomas E. 1986. *Human Systems Responses to Disaster: An Inventory of Sociological Findings*. New York: Springer-Verlag New York, Inc.

Drabek, Thomas E. and Keith S. Boggs. 1968. "Families in Disasters: Reactions and Relatives." *Journal of Marriage and the Family* 30:443-451.

Dynes, Russell Rowe and Kathleen J. Tierney. 1994. *Disasters, Collective Behavior, and Social Organization*. Newark London ; Cranbury, NJ: University of Delaware Press ;Associated University Presses.

Enarson, Elaine. 1999. *Women, Work, and Family in the 1997 Red River Valley Flood: Ten Lessons Learned*. Disaster Preparedness Resource Center - University of British Columbia, Vancouver, BC.

Erickson, Patricia E., Thomas E. Drabek, William H. Key, and Juanita L. Crowe. 1976. "Families in Disaster: Patterns of Recovery." *Mass Emergencies* 1:203-216.

FEMA. 1998a. "Disaster Assistance in Cuero and Victoira Tops $6 Million; Applications for Assistance Nearly 3,000 in DeWitt and Victoria Counties." vol. 2006: Federal Emergency Management Agency:http://www.fema.gov/news/newsrelease_print.fema?id=10671.

—. 1998. "President Declares Major Disaster for Texas." vol. 2006: Federal Emergency Management Agency: http://www.fema.gov/news/newsrelease.fema?id=10712.

—. 1998c. "Texas Disaster Assistance Nearly $70 Million Applications for Assistance Approach 24,000." vol. 2006: Federal Emergency Management Agency: http://www.fema.gov/news/newsrelease.fema?id=10620.

—. 1999b. "Recovery Approaches $200 Million for Summer, Fall Disasters in Texas." vol. 2006: Federal Emergency Management Agency: http://www.fema.gov/news/newsrelease.fema?id=10615.

—. 2007. "FEMA home page." FEMA site info on national flood insurance plans, and Individual and Family grants, vol. 2007. Washington, D.C.: U.S. Department of Homeland Security: http://www.fema.gov/index.shtm.

Fothergill, Alice. 1996. "Gender, Risk and Disaster." *International Journal of Mass Emergencies and Disasters* 14:33-56.

Fothergill, Alice, JoAnne DeRouen Darlington, and Enrique G.M. Maestas. 1999. "Race, Ethnicity and Disasters in the Unitied States: A Review of the Literature." *Disasters* 23:156-173.

Geipel, Robert. 1982. *Disaster and Reconstruction: The Fruili (Italy) Earthquakes of 1976*. Boston: George Allen and Unwin.

Germain, Carel Bailey. 1991. *Human Behavior in the Social Environment: An Ecological View*. New York: Columbia University Press.

Girard, Chris and Walter Gillis Peacock. 1997. "Ethnicity and Segregation." Pp. 191-205 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*, edited by W. G. Peacock, B. Morrow, and H. Gladwin. New York: Routledge.

Giuffrida, Louis O. 1985. "FEMA: Its Mission, Its Partners." *Public Administration Review* 45:2.

Hirschon, R. and S. Thakurdesai. 1979. "Housing and Cultural Priorities: The Asia Minor Greek Refugees of 1922." *Disasters* 2:247-250.

Hoffman, Susanna M. 1999a. "The Regenesis of Traditional Gender Patterns in the Wake of Disaster." Pp. 173-191 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routledge.

—. 1999b. "The Worst of Times, The Best of Times: Toward a Model of Cultural Response to Disaster." Pp. 134-155 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routledge.

Hofstede, Geert. 1980. *Culture's Consequences International Differences in Work-Related Values*, vol. 5, Edited by W. J. Lonner and J. W. Berry. Newbury Park, CA: Sage Publications.

Hutchins, Gerald and Fran Norris. 1989. "Life Change in the Disaster Recovery Period." *Environment and Behavior* 21:33-56.

Johnson, Cassidy. 2002. *What's the Big Deal About Temporary Housing*? The International Emergency Management Society. University of Waterloo, Canada.

Kamel, Nabil M. O. and Anastasia Loukaitou-Sideris. 2004. "Residential Assistance and Recovery Following the Northridge Earthquake." *Urban Studies* 41:533-562.

Kasapoglu, M. Aytul and Mehmet C. Ecevit. 2004. "Effects of Cultural Values on the Attitudes and Behaviours of Survivors of the 1999

Earthquake in Turkey." *The Australasian Journal of Disaster and Trauma Studies* 2004:1-12.

Kates, Robert W. and David Pijawka. 1977. "From Rubble to Monument: The Pace of Reconstruction." Pp. 1-23 in *Reconstruction Following Disaster*, edited by J. E. Hass, R. W. Kates, and M. J. Bowden. Cambridge, MA: MIT Press.

KI98-01. 1999 "Local Government Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-02. 1999. "Local Government Official." edited by P. Starr-Cole and W. Dennis. Switchback, TX: Personal Interview.

KI98-03. 1999. "Government Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-04. 1999. "Local Community Leader." edited by P. Cole-Starr and W. Dennis. Switchback, TX: Personal Interview.

KI98-05. 1999. "Local Business." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-06. 1999. "Local Government Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-07. 1999. "Local Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-08. 1999. "Local Government Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-09. 1999. "Local Business ", edited by P. Starr-Cole. Switchback, TX: Personal Interview.

KI98-10. 1999. "Government Official." edited by P. Starr-Cole and D. Wenger.Switchback, TX: Personal Interview.

KI98-13. 1999. "Local Community Leader." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-14. 1999. "Local Government Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-15. 1999. "Local Community Leader." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-16. 1999. "Local Community Leader." edited by P. S.-. Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-18. 1999. "Local Official." edited by P. S.-. Cole and W. Dennis. Switchback, TX: Personal interview.

KI98-19. 1999. "Local Official ", edited by P. Starr-Cole and W. Dennis. Switchback, TX: Personal Interview.

KI98-20. 1999. "Local Community Leader." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-21. 1999. "Local Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-23. 1999. "Local Community Leader." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-27. 1999. "Local Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-28. 1999. "Government Official." edited by P. Starr-Cole and D. Wenger. Denton, TX: Personal Interview.

KI98-29. 1999. "Government Official." edited by P. Cole-Starr and D. Wenger. Switchback, TX: Personal Interview.

KI98-32. 1999. "Local Business." edited by P. Starr-Cole. Switchback, TX: Personal Interview.

KI98-37. 1999. "Local Official." edited by P. Starr-Cole and D. Wenger. Switchback, TX: Personal Interview.

KI98-39. 1999. "Local Business." edited by P. Starr-Cole. Switchback, TX: Personal Interview.

Kreimer, Alcira. 1978. "Post-Disaster reconstruction Planning: the Cases of Nicaragua and Guatemala." *Mass Emergencies* 3:23-40.

—. 1980. "Low-income Housing under 'Normal' and Post-disaster Situations: Some Basic Continuities." *Habitat International* 4:273-283.

Larson, Erik. 2000. *Isaac's Storm: A Man, a Time, and the Deadliest Hurricane in History*. New York: Vintage Books.

Martinez-Brawley, Emilia E. 1990. *Perspectives on the Small Community Humanistic Views for Practitioners*. Silver Spring, MD: National Association of Social Workers, Inc.

McWhorter, John. 2003. *Authentically Black Essays for the Black Silent Majority*. New York: Gotham Books.

Miller, Kristen S. and Catherine Simile. 1992. *"They Could See Stars from Their Beds": The Plight of the Rural Poor in the Aftermath of Hurricane Hugo*. Disaster Research Center, Department of Sociology, Memphis, TN.

Mirowsky, John and Catherine Ross. 1984. "Mexican Culture and Its Emotional Contradictions." *Journal of Health and Social Behavior* 25:2-13.

Morrow, Betty 1997. "Stretching the Bonds, The Families of Andrew." Pp. 141-170 in *Hurricane Andrew: Ethnicity, Gender and the Sociology of Disasters*, edited by W. G. Peacock, B. Morrow, and H. Gladwin. New York: Routledge.

Mustafa, Daanish. 2003. "Reinforcing Vulnerability? Disaster Relief, Recovery, and Response to the 2001 Flood in Rawalpindi, Pakistan." *Environmental Hazards* 5:71-82.

O'Donnell, Julie and Jeanne M. Giovannoni. 1999. "Ethnic Differences in Service Use, Preferences, and Service Delivery Aspects Among Consumers and Potential Consumers of Family Resource Centers." *Journal of Multicultural Social Work* 7:1 - 18.

Oliver-Smith, Anthony. 1979. "Post Disaster Consensus and Conflict in a Traditional Society: The 1970 Avalanche of Yngay, Peru." *Mass Emegergencies* 4:39-54.

—. 1986. *The Martyred City Death and Rebirth in the Andes*. Albuquerque, NM: University of New Mexico Press.

—. 1990a. "Post-Disaster Housing Reconstruction and Social Inequality: A Challenge to Policy and Practice." *Disasters* 14:7-19.

—. 1990b. "Applied Anthropology and Disaster Research and Management: Annual Meeting of the Society for Applied Anthropology, University of York, 28 March-1April, 1990." *Disasters* 14:366-369.

—. 1991. "Successes and Failures in Post-Disaster Resettlement." *Disasters* 15:12-23.

—. 1992. "Disasters and Development." *Environmental and Urban Issues* XX:1-3.

Peacock, Walter Gillis, Chris Girard, and Hugh Gladwin. 1997. *Ethnic and Racial Differences in Hurricane Andrew Damage and Insurance Coverage: A Summary of Findings from the FIU Hurricane Andrew Survey.* The Institute for Public Opinion Research Florida International University International Hurricane Center, Miami.

Peacock, Walter Gillis and Chris Girard. 1997. "Ethnic and Racial Inequalities in Hurricane Damage and Insurance Settlements." Pp. 171-190 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*, edited by W. G. Peacock, B. Morrow, and H. Gladwin. New York: Routledge.

Peacock, Walter Gillis, Charles D. Killian, and Frederick L. Bates. 1987. "The Effects of Disaster Damage and Housing Aid on Household Recovery Following the 1976 Guatemalan Earthquake." *International Journal of Mass Emergencies and Disasters* 5:63-88.

Peacock, Walter Gillis and A. Kathleen Ragsdale. 1997. "Social Systems, Ecological Networks and Disasters, Toward a Socio-Political Ecology of Disasters." Pp. 20-35 in *Hurricane Andrew Ethnicity, Gender, and the Sociology of Disasters*, edited by W. G. Peacock, B. H. M. and, and H. Gladwin. New York: Routledge.

Peacock, Walter Gillis and Yang Zhang. 2005. "Single Family Housing Recovery after Hurricane Andrew in Miami-Dade County." Texas A&M University, Hazard Reduction and Recovery Center, College Station, TX.

Pereau, M. Jana. 1991. "First World/Third World: Disasters in Context, A Study of the Saragosa and Wichita Falls, Texas, Tornadoes." Texas A&M University - Hazard Reduction and Recovery Center, College Station, TX.

Perry, Ronald W. and Michael K. Lindell. 1978. "The Psychological Consequences of Natural Disasters." *Mass Emergencies* 3:105-177.

Perry, Ronald W. and Alvin H. Mushkatel. 1986. *Minority Citizens in Disasters*. Athens, GA: The University of Georgia Press.

Phillips, Brenda. 1993. "Cultural Diversity in Disasters: Sheltering, Housing, and Long Term Recovery." *International Journal of Mass Emergencies and Disasters* 11:99-110.

Picou, Steven J., Brent K. Marshall, and Duane A. Gill. 2004. "Disaster, Litigation, and the Corrosive Community." *Social Forces* 82:1493-1522.

Polletta, Francesca. 1999. "Snarls, Quacks, and Quarrels: Culture and Structure in Political Process Theory." *Sociological Forum* 14:63-70.

Prater, Carla. 2002. "The Politics of Emergency Response and Recovery: Preliminary Observations on Taiwan's 921 Earthquake." Texas A&M University - Hazard Reduction and Recovery Center, College Station, TX.

Quarantelli, E. L. 1991. *Patterns of Sheltering and Housing in American Disasters*. Disaster Research Center, Willmington, DE.

Quarantelli, E.L. 1978. *Disasters: Theory and Research*. London: Sage Publications, Limited.

Quarantelli, E.L. and Wenger Dennis. 1973. "A Voice from the Thirteenth Century: The Characteristics and Conditions for the Emergence of a Ouija Board Cult." *Urban Life and Culture* 1:379-400.

Quarantelli, E.L. and Russel R. Dynes. 1976. "Community Conflict: Its Absence and Its Presence in Natural Disasters." *Mass Emergencies* 1:139-152.

Report, Public Information Office. 2000. "Poverty Rate Lowest in 20 Years, Household Income at Record High, Census Bureau Reports." vol. 2007. Washington DC: U. S. Census Bureau.

Roell, Craig H. 2001. *Handbook of Texas Online, s.v. DeWitt County*. vol. 2005. Austin, TX: The Texas State Historical Association

Rogers, George O. 1995. "Environmental Racism or Inequality: Comparative Study of Four Ethnic Groups." Pp. 187-204 in *Race and Ethnicity in America: Meeting the Challenge in the 21st Century*, edited by G. E. Thomas. Washington, DC: Taylor and Francis.

Rossé, William L. 1993. "Volunteers and Post-Disaster Recovery: A Call for Community Self-Sufficiency." *Jounal of Social Behavior and Personality* 8:261-266.

Rostworowski de Diez Canseco, Maria. 1994. "El Diluvio de 1578." *Desastres y Sociedad* 3:128-129.

Roth, Robert. 1970. "Cross-Cultural Perspectives on Disaster Response." *American Behavioral Scientist* 13:440-451.

Rubin, Claire B. 1985. "The Community Recovery Process in the United States After a Major Natural Disaster." *International Journal of Mass Emergencies and Disasters* 3:9-28.

—. 1991. "Recovery from Disaster." Pp 226-259 in *Emergency Management Principles and Practices for Local Government*, edited by T. E. Drabek and G. Hoetmer. Washington, DC: International City Management Association.

Saenz, Rogelio and John K. Thomas. 1991. "Minority Poverty in Nonmetropolitan Texas." *Rural Sociology* 56:204-223.

Scanlon, Joseph. 1992. *Convergence Revisited: A New Perspective on a Little Studied Topic.* Natural Hazard Research and Applications Information Center, Bolder, CO.

Scanlon, Joseph, Suzane Alldred, Al Farrell, and Angela Prawzick. 1985. "Coping with the Media in Disasters: Some Predictable Problems." *Public Administration Review* 45:123-133.

Schmid, Hillel. 1992. "Executive Leadership in Human Service Organizations." Pp. 98-117 in *Human Services as Complex Organzations*, edited by Y. Hasenfeld. Newbury Park, CA: Sage Publications, Inc.

Schneider, David M. 1957. "Typhoons on Yap." *Human Organization* 16:10-15.

Shaw, Cody and Taffy Wise. 2004. "Cuero,TX." vol. 2005: Palo Alto College:http://www.accd.edu/pac/history/rhines/StudentProjects/2004/Cuero/sttemplate.htm.

Shultz, Michael J. 2002. "A GIS Flood Inundation Map Based on a Dynamic Wave (Fldwav) Simulation of the October, 1998 Flood on the Lower Guadalupe River, Texas." National Weather Service in cooperations with the Department of Civil Engineering and the City and Regional Planning Program of the School of Urban and Region Affairs, University of Texas at Arlington, Fort Worth, TX.

Sincich, Terry. 1987. *Statistics by Example*. San Francisco: Dellen Publishing Company.

Sonnichsen, C. L. 2001. *The Handbook of Texas Online*. vol. 2005: Texas State Historical Association and the General Libraries at the University of Texas of Austin.

Starr-Cole, Patricia Mary. 2003. *An Empirical Examination of the Housing Recovery Process Following Disaster*. Dissertation Thesis, Urban and Regional Science, Texas A&M University, College Station.

Stewart, Frances. 1991. "The Many Faces of Adjustment." *World Development* 19:1847-1864.

Summers, Gene F. 1991. "Minorities in Rural Society." *Rural Sociology* 56:177-188.

Sundet, Paul and Joanne Mermelstein. 1996. "Predictors of Rural Community Survival After Natural Disaster: Implications for Social Work Practice." Pp. 57-70 in *Research on Social Work and Disasters*, edited by C. L. Streeter and S. A. Murty. New York: The Haworth Press.

Trainer, Patricia and Robert Bolin. 1976. "Persistent Effects of Disasters on Daily Activities: A Cross-Cultural Comparison." *Mass Emergencies* 1:279-290.

Turner, Jonathan H. 1996. "A Macro-Level Functional Theory of Societal Disintegration." *International Journal of Sociology and Social Policy* 16:5-36.

USGS. 2005. *Preliminary Report for the July 2002 Floods in Texas*. vol. 2005.USGS: http://tx.usgs.gov/flood_events_01.html.

Vinas, Carolina Serrat. 1998. "Women's Disaster Vulnerabilty and Response to the Colima Earthquake." in *The Gendered Terrain of Disasters: Through Women's Eyes*, edited by E. Enarson and B. H. Morrow. Westport , CT: Praeger Publishers.

Wallace, Anthony F.C. 1957. "Mazeway Disintegration: The Individual's Perception of Socio-Cultural Disorganization." *Human Organization* 16:23-27.

Warren, Roland L. 1963. *The Community in America*. Chicago: Rand McNally.

Watkins, Malik R. 2000. "Faith/Community-based Organizations and the Political Process Model: Social Mobilization as an Explanation for Member Participation in Community Building. "Savannah State University - Survey Research Center, Savannah, GA.

Wenger, Dennis. 1978. "Community Response to Disaster: Functional and Structural Alterations." Pp. 17-47 in *Disasters: Theory and Research*, edited by E. L. Quarantelli. London: Sage.

Wenger, Dennis E. 1977. "A Review Essay on Dennis S. Mileti, Thomas E. Drabek and J. Eugene Haas, Human Systems in Extreme Environments: A Sociological Perspective." *Mass Emergencies* 2:51-59.

Wilson, William Julius. 1981. "The Black Community in the 1980s: Questions of Race, Class and Public Policy." *The Annals of the American Academy of Political and Social Science* 454: 490-501.

Wisner, Ben, Piers Blaikie, Terry Cannon, and Ian Davis. 1994. *At Risk Natural Hazards, People's Vulnerability and Disasters*. New York: Routledge.

Wright, James, D. , Peter H. Rossi, Sonia R. Wright, and Eleanor Weber-Burdin. 1979a. *After the Clean-up: Long-Range Effects of Natural Disasters: An Overview of Procedures, Findings, and Implications*, vol. 2, Edited by H. Freeman, E. and R. A. Berk. Beverly Hills, CA: Sage Publications.

Wright, James D., Peter H. Rossi, Sonia R. Wright, and Eleanor Weber-Burdin. 1979b. "Community Effects of Natural Disasters: Implications for Policy and Research." Pp. 193 - 208 in *After the Clean-up: Long-Range Effects of Natural Disasters*, vol. 2, *Contemporary Evaluation Research: A Series of Books on Applied Social Science*. Beverly Hills, CA: Sage Publications.

Wu, Jie Ying and Michael K. Lindell. 2004. "Housing Reconstruction After Two Major Earthquakes: The 1994 Northridge Earthquake in the United States and the 1999 Chi-Chi Earthquake in Taiwan." *Disasters* 28:63-81.

Young, M. 1954. "The Role of the Extended Family in a Disaster." *Human Relations* 7:383-391.

Supplemental Materials

Aguirre, Benigno. 1980. "The Long Term Effects of Major Natural Disasters on Marriage and Divorce: An Ecological Study." *Victimology: An International Journal* 5:298-307.

—. 1983. "Methodological, Ideological, and Conceptual-Theoretical Criticisms of the Field of Collective Behavior: A Critical Evaluation and Implications for Future Study." *Sociological Focus* 16:195-216.

—. 1989. "Cancun Under Gilbert: Preliminary Observataions." *International Journal of Mass Emergenicies and Disasters* 7:69-82.

Aguirre, Benigno, Wenger Dennis, and Gabriela Vigo. 1998. "A test of the Emergent Norm Theory of Collective Behavior." *Sociological Forum* 13.

Aguirre, Benigno, Dennis Wenger, Thomas A. Glass, Marcelino Diaz-Murillo, and Gabriela Vigo. 1995. "The Social Organziation of Search and Rescue: Evidence From The Guadalajara Gasoline Explotion." *International Journal of Mass Emergencies and Disasters* 13:67-92.

Alesch, Daniel J. 1993. "Earthquake Risk Reduction and Small Business." Pp. 133-160 in *SocioEconomic Impacts: National Earthquake Conference*.

Alsop, Stewart and Ralph E. Lapp. 1954. "The Strange Death of Louis Slotin." Pp. 8-34 in *Man against Nature Tales of Adventure and Exploration*, edited by C. Neider. New York: Harper and Brothers.

Anderson, Mary. 1994. "Understanding the Disaster-Development Continuum: Gender analysis is the essential tool." *Focus on Gender* 2:7-10.

Anderson, Mary B. and Peter J. Woodrow. 1989. *Rising From the Ashes: Development Strategies in Times of Disaster*. Boulder, Colorado: Westview Press.

Angel, Ronald and Paul Cleary. 1984. "The Effects of Social Structure and Culture on Reported Health." *Social Science Quarterly*:814-828.

Arlikatti., Sudha S. 2006. "Modeling Household Adoption of Earthquake Hazard Adjustments: A longitudinal panel study of southern California and western washington residents."

Averch, Harvey and Milan J. Dluhy. 1997. "Crisis Decision Making and Management." Pp. 75-91 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*, edited by W. G. Peacock, B. Morrow, and H. Gladwin. New York: Routledge.

Baker, Earl J. 1979. "Predicting Response to Hurricane Warnings: A Reanalysis of Data from Four Studies." *Mass Emergencies* 4:9-24.

Bates, Frederick L. and Walter Gillis Peacock. 1989b. "Conceptualizing Social Structure: The Misuse of Classification in Structural Modeling." *American Sociological Review* 54:565-577.

Beatley, Thomas. 1995. "Planning and Sustainability: The Elements of a New (Improved?) Paradigm." *Journal of Planning Literature* 9:383-395.

Beattie, Margaret and Janet Randell. 1997. "Using Refugee Stories in Social Work Education." *Journal of Multicultural Social Work* 6:3 - 15.

Belcher, John C. and Frederick L. Bates. 1983. "Aftermath of Natural Disasters: Coping Through Residential Mobility." *Disasters* 7:118-128.

Bender, Stephen. 1993. "Preparacion en Caso de Desastres y Desarrollo Sostenible." *Desastres y Sociedad* 1:98-102.

Berke, Philip and Dennis Wenger. 1991. "Linking Hurricane Disaster Recovery to Sustainable Development Strategies : Antigua, West Indies."

Berke, Philip R. 1994. "Evaluating Environmental Plan Quality: the Case of Planning for Sustainable Development in New Zealand." *Journal of Environmental Planning and Management* 37:155-169.

—. 1999. "Natural-Hazard Reduction and Sustainable Development: A Global Assessment." *Journal of Planning Literature* 9:370-382.

Berke, Philip R., Timothy Beatley, and Clarence Feagin. 1993b. "Hurricane Gilbert Stikes Jamaica: Linking Disaster Recovery to Development." *Coastal Management* 21:1-23.

Berke, Philip R., Timothy Beatley, and Clarence E. Feagin. 1991. "Household Recovery Following Hurricane Gilbert: St. James and St. Thomas Parishes, Jamaica." Hazard Reduction and Recovery Center - Texas A&M Uniiversity, College Station.

Berke, Philip R., J. Dixon, and N. Erickson. 1997. "Coercive and cooperative intergovernmental mandates: A comparative analysis of Florida and New Zealand environmental plans." *Environment and Planning B: Planning and Design* 24:451-468.

Berry, John W. 1976. *Human Ecology and Cognitive Style: Comparative Studies in Cultural and Psychological Adaptation*. New York: Sage Publications.

Bolin, Robert. 1985. "Disasters and Long-Term Recovery Policy: A Focus on Housing and Families." *Policy Studies Review* 4:709-715.

Bolin, Robert and Lois Stanford. 1998. "The Northridge Earthquake: Community-based Approaches to Unmet Recovery Needs." *Disasters* 22:21-38.

Bolin, Robert C. 1993a. "Household and Community Recovery After Earthquake." University of Colorado, Institute of Behavioral Science, Boulder, Colorado.

Bolin, Robert C and Lois Stanford. 1990. "Shelter and Housing Issues in Santa Cruz County." Pp. 99-108 in *The Loma Prieta Earthquake: Studies of Short Term Impacts*, edited by R. C. Bolin. Boulder, CO: Institute of Behaviorl Sciences, University of Colorado.

Bontempo, Juan Fernando. 1993. "La Reconstrucction del Entorno Construido." *Desastres y Sociedad* 1:51-55.

Bowden, Martyn J., David Pijawka, Gary S. Roboff, Kenneth J. Gelman, and Daniel Amaral. 1977. "Reestablishing Homes and Jobs: Cities." Pp. 69-145 in *Reconstruction Following Disaster*, edited by J. E. Hass, R. W. Kates, and M. J. Bowden. Cambridge, Massachusetts: MIT Press.

Briechle, Kendra J. "Natural Hazard Mitigation and Local Government Decision Making."

Bucher, Rue. 1957. "Blame and Hostility in Disaster." *The American Journal of Sociology* 62:467-475.

Burby, Raymond J., et al. 1993. "Is State-Mandated Planning Effective?" *Land Use Law and Zoning Digest*:3-9.

Burby, Raymond J. 1999. "Unleashing the Power of Planning to Create Disaster-Resistant Communities." *Journal of the American Planning Association* 65:247 -258.

Button, Gregory V. 1999. "The Negation of Disaster: The Media Response to Oil Spills in Great Britain." Pp. 113-132 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routledge.

Campa, Arthur. 1990. "Immigrant Latinos and Resident Mexican Americans in Garden City, Kansas: Ethnicity and Ethnic Relations." *Urban Anthropology* 19:345-360.

Campbell, John R. 1951. *Dealing with Disaster Hurricane Response in Fiji*.

Census, U.S. 2006. "Census 2000 Demographic Profile Highlights:." vol. 2006: American FactFinder.

Center, Texas State Data and and Office of the State Demographer. 2006. "Texas State Data Center." Institute for Demographic and Socioeconomic Research (IDSER) College of Public PolicyThe University of Texas at San Antonio One UTSA Circle San Antonio, Texas 78249-0704.

Charveriat, Celine. "Natural Disasters in Latin America and the Caribbean: An Overview of Risk."

Checker, Melissa. 2001. ""Like Nixon coming to China": Finding Common Ground in a Multi-Ethnic Coalition for Environmental Justice." *Anthropological Quarterly* 74:135-147.

Christensen, Larry and Carlton E. Ruch. 1978. "Assessment of Brochures and Radio and Television Presentations on Hurricane Awareness." *Mass Emergencies* 3:209-216.

Cohen, Maurie J. 2000. "Ecological Modernisation, Environmental Knowledge,and National character: A Preliminary Analysis of the Netherlands." *Environmental Policy*.

Corotis, Ross, B and Elaine Enarson. 2004. "Socio-Economic Disparities in Community Consequences to Natural Disasters." Pp. 1 - 10 in *Consequence modeling in engineering decision making (including natural and technological hazards)*. Stoos, Switzerland: International Forum on Engineering Decision Making

Coupé, Françoise. 1994. "Políticas Urbanas y Participatión Frente a Los Desastres." *Desastres y Sociedad* 2:63-76.

Cronin, Francis J. 1982. "Racial Differnces in the Search for Housing." *Modeling Housing Market Search*:81-105.

Dahlhamer, James and Frances D'Souza. 1997. "Determinants of Business-Disaster Preparedness in Two U.S. Metropolitan Areas." *International Journal of Mass Emergencies and Disasters* 15:265-281.

Dahlhamer, James and Kathleen J. Tierney. 1998. "Rebounding From Disruptive Events: Business Recovery Following the Northridge Earthquake." *Sociological Spectrum* 18:121-141.

Davis, Ian. 1975. "Disaster Housing: A Case Study of Managua"." *Architectural Design* Jan:42-47.

—. 1977. "Housing and Sheltering Provisions Following the Guatemala Earthquake on Feb. 4 and 6, 1976." *Disasters* 1:82-90.

Davis, Lee. 2002. *Natural Disasters*. New York: Checkmark Books.

Delaney, Patricia and Shrader Elizabeth. 2000. "Gender and Post-Disaster Reconstruction: The Case of Hurricane Mitch in Honduras and Nicaragua." *The World Bank* LCSPG/ LAC Gender Team.

Demographer, Office of the State. 2006. "Texas State Data Center." vol. 2006: Institute for Demographic and Socioeconomic Research (IDSER).

Domeisen, Natalie. 1997. "The Role of Women in Protecting Communities from Disasters." *Natural Hazards Observer* XXI:5-6.

Doughty, Paul L. "Decades of Disaster: Promise and Performance in the Callejon de Huaylas, Peru." Pp. 35-73 in *Natural Disasters and Cultural Reponses, Studies in Third World Societies*.

Drabek, Thomas E. and William H. Key. 1976. "The Impact of Disaster on Primary Group Linkages." *Mass Emergencies* 1:89-105.

D'Souza, Melvin J. 1997. "Determinants of Business-Disaster Preparedness in Two U.S. Metropolitan Areas." *International Journal of Mass Emergencies and Disasters* 15:265-281.

Dynes, Russell R. 1975. "The Comparative Study of Disaster: A Social Organizational Approach." *Mass Emergencies* 1:21-31.

Dynes, Russel R. 1993. "Disaster Reduction: The Importance of Adequate Assumptions About Social Organization." *Sociological Spectrum* 13:175-192.

Dynes, Russell R. 1994. "Community Emergency Planning: False Assumptions and Inappropriate Analogies." *International Journal of Mass Emergencies and Disasters* 12:141-158.

Dynes, Russel R. and Benigno Aguirre. 1979. "Organizational Adaptation to Crises: Mechanisms of Coordination and Structural Change." *Disasters* 3:71-74.

Ebrahim, Alnoor. 2000. "International Development and Social Theory: the Relevance of Foucault and Bourdieu to the Study of NGOs." Pp. 1-22 in *Association of Colllegiate Schools of Planning*. Atlanta, GA.

Faupel, Charles E. and Jack Kartez. 1996. "Inter-Agency Collaboration and Hazards Education in American Communities." Pp. 131-149 in *Research on Social Work and Disasters*, edited by C. L. a. S. A. M. Streeter. New York: The Haworth Press.

FEMA. 1999a. "Nintey Million Dollars Approved for Texas Disaster Recovery." vol. 2006: Federal Emergency Management Agency.

Fitzgerald, Kathleen J. and Diane M. Rodgers. 2000. "Radical Social Movement Organizations: A Theoretical Model." *Sociological Quarterly* 41:573-593.

Forester, John. 1989. *Planning in the Face of Power*. Berkeley, California: University of California Press.

Fothergill, Alice. 1996. "Gender, Risk and Disaster." *International Journal of Mass Emergencies and Disasters* 14:33-56.

Fothergill, Alice and Lori A. Peek. 2004. "Poverty and Disasters in the United States: A Review of Recent Sociological Findings." *Natural Hazards* 32:89-110.

Girard, Chris and Walter Gillis Peacock. 1997. "Ethnicity and Segregation." Pp. 191-205 in *Hurricane Andrew: Ethnicity, Gender, and the Sociology of Disasters*, edited by W. G. Peacock, B. Morrow, and H. Gladwin. New York: Routledge.

Gladwin, Christina H., Hugh Gladwin, and Walter Gillis Peacock. 2001. "Modeling Hurricane Evacuation Decisions with Ethnographic Methods." *International Journal of Mass Emergencies and Disasters* 19:117-143.

Godschalk, David, Edward J. Kaiser, and Philip Berke. 1998. "Integrating Hazard Mitigation and Local Land Use Planning." Pp. 85-118 in *Cooperating with Nature*, edited by R. J. Burby. Washington, DC: Joseph Henry Press.

Golec, Judith A. 1983. "A Contextual Approach to the Social Psychological Study of Disaster Recovery." *International Journal of Mass Emergenicies and Disasters* 1:255-276.

Goltz, James D., Lisa A. Russell, and Linda B. Bourque. 1992. "Initial Behavioral Response to a Rapid Onset Disaster: A Case Study of the October 1, 1987 Whittier Narrows Earthquake." *International Journal of Mass Emergencies and Disasters* 10:43-69.

Guldbrandsen, Thaddeus and Dorothy C. Holland. 2001. "Encounters with the Super-Citizen: Neo liberalism, Environmental Activism, and the American Heritage Rivers Initiative." *Anthropological Quarterly* 74:124-135.

Harden, Carol and Lydia Pulsipher. 1992. "Come a Nasty Gale: The Response to Hurricane Hugo on the Island of Montserrat, West Indies." *Focus* 42:9-14.

Hass, J. Eugene, Patricia Trainer, Martyn J. Bowden, and Robert Bolin. 1977. "Reconstruction Issues in Perspective." Pp. 25 - 68 in *Reconstruction Following Disaster*, edited by J. E. Hass, R. W. Kates, and M. J. Bowden. Cambridge, Massachusetts: MIT Press.

Heath, Sebastian E., Susan K. Voeks, and Larry T. Glickman. 2000. "A Study of Pet Rescue in Two Disasters." *International Journal of Mass Emergencies and Disasters* 18:361-281.

Hinshaw, Robert E. 2006. *Living with Nature's Extremes*. Boulder Johnson Books.

Hoffman, Susanna M. 1999. "After Atlas Shrugs: Cultural Change of Persistence after a Disaster." Pp. 302-325 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routledge.

Hofstede, Geert. 1994. *Uncommon Sense About Organizations Cases, Studies, and Field Observations*. Thousand Oaks Sage Publications, Inc.

Horwich, George. 1993. "The Role of the For-Profit Private Sector in Disaster Mitigation and Response." *International Journal of Mass Emergencies and Disasters* 11:189-205.

Hossain, Hameeda, Cole P. Dodge, and F. H. Abed. 1992. "From Crisis to Development: Coping with Disasters in Bangladesh." Dhaka: The University Press Limited.

Huntoon, Laura. 2003. "Public-Private Partnerships, Regional Institutions, and Growth Entrepreneurs: Evidence of a Regional Culture of Commitment." University of Arizona, School of Planning, Tucson.

Impacts, Committee on Socioeconomic. 1993. "Post-Earthquake shelter and Housing: research Findings and Policy Implications." Pp. 107-131 in *1993 National Earthquake Conference "Earthquake Hazard Reduction in the Central and Eastern United States: A Time for Examination and Action"*, edited by C. o. S. Impacts: Central United States Earthquake Consortium.

Johnson, Norris R. 1988. "Fire in a Crowded Theater: a Descriptive investigation of the emergence of Panic." *International Journal of Mass Emergencies and Disasters* 6:7-26.

Jonkman, S. N. 2005. "Global Perspectives on Loss of Human Life Caused by Floods." *Natural Hazards* 34:151-175.

Kartez, Jack D. and William J. Kelley. "Research-based Disaster Planning Conditions for Implementation."126-146.

KI98-05. 1999. "Local Business." edited by P. Starr-Cole and D. Wenger. Cuero: Personal Interview.

KI98-32. 1999. "Local Business." edited by P. Starr-Cole. Cuero: Personal Interview.

KI98-36. 1999. "Local Business." edited by P. Starr-Cole. Cuero: Personal Informant.

KI98-39. 1999. "Local Business." edited by P. Starr-Cole. Cuero: Personal Interview.

KI98-40. 1999. "Local Business." edited by P. Starr-Cole and W. Dennis. Cuero: personal Interview.

Korten, David C. 1984. "Strategic Organization for People-Centered Development." *Public Administration Review* 44:341-352.

Kory, Delores N. 1998. "Coordinating Intergovernmental Policies on Emergency Management in a Multi-Centered Metropolis." *International Journal of Mass Emergencies and Disasters* 16:45-54.

Krajeski, Richard L. and Kristina J. Perterson. 1999. "But She is a Woman and This is a Man's Job: Lessons for Participatory Research and Participatory Recovery." *Mass Emergencies and Disaster* 17:123-130.

Kreimer, Alcira. 1979. "Emergency, Temporary and Permanent Housing After Disasters in Developing Countries." *Ekistics* 279:361-365.

Kunreuther, Howard. 1998. "Insurability Conditions and the Supply of Coverage." Pp. 17-50 in *Paying the Price: The status and Role of Insurance Against Natural Disasters in the United States*, edited by H. a. R. R. J. Kunreuther. Washington, D.C.: Joseph Henry Press.

Lechat, Micheal F. 1976. "The Epidemiology of Disasters." *Procedures of the Royal Society of Medicine* 69:421-426.

Lima, Bruno. 1988. "Training Primary Care Workers in Disaster Mental Health: The Experience in Ecuador." Natural Hazard Research and Applications Information Center, Boulder, Colorado.

Lindell, Michael. 1997a. "An Assessment of Strategies." *International Journal of Mass Emergencies and Disasters* 15:389-414.

Lindell, Michael K. 1997b. "An Assessment of Existing Research." *International Journal of Mass Emergencies and Disasters* 15:325-380.

Lindell, Michael K. and Ronald W. Perry. 1993. "Risk Area Residents' Changing Perceptions of Volcano Hazard at Mt. St. Helens." Pp. 159-166 in *Prediction and Perception of Natural Hazards*, edited by J. e. a. Nemec. Netherlands: Kluwer Academic Publishers.

—. 2000. "Household Adjustment to Earthquake Hazard: A Review of Research." *Environment and Behavior* 32:590-630.

Lindell, Michael K. and Carla Prater. 2000. "Household Adoption of Seismic Hazard Adjustments: A Comparison of Residents in Two States." *International Journal of Mass Emergencies and Disasters* 18:317-338.

Lindell, Michael K. and Carla S. Prater. 2003. "Assessing Community Impacts of Natural Disasters." *Natural Hazards Review* 4:176-185.

Lundquist, Lennart J. 2000. "The International Spread of Ecological Modernisation Ideas." Pp. 1-19 in *Diffusion of Environmental Policy Innovations*. Berlin, Germany.

Mayor, City. 1999. "One Year Anniversary of Cuero." edited by P. Starr-Cole. Cuero: Personal Interview.

McPherson, Miller, Lynn Smith-Lovin, and Matthew E. Brashears. 2006. "Social Isolation in America: Changes in Core Discussion Networks over Two Decades." *American Sociological Review* 71:353-375.

Middleton, Neil and Phil O'Keefe. 1998. *Disaster and Development The Politics of Humanitarian Aid*. Chicago, Illinois: Pluto Press.

Mileti, Dennis S. *Disaster by Design A Reassessment of Natural Hazards in the United States*. Washington DC: Joseph Henry Press.

Mileti, Dennis S. and et. al. 1998. "Designing Future Disasters: An Assessment and Bolder Course for the Nation." vol. 2005: Public Private Partnership 2000.

Miller, Kristen S. and Joanne M. Nigg. 1993. "Event and Consequence Vulnerability: Effects on the Disaster Recovery Process." Disaster Research Center and Department of Sociology, Newark, Delaware.

Minnis, Mhyra S and A. Perry McWilliams. 1971. "Tornado: The Voice of the People in Disaster and After A study in Residential Integration." Texas Tech University, Lubbock.

Morris, Davis. 1978. "International/Domestic Transformations in Disaster Assistance: Messages and Goods." *Mass Emergencies* 3:217-228.

Moseley, Michael E. 1999. "Convergent Catastrophe: Past Patterns and Future Implication of Collateral Natural Disasters in the Andes." Pp. 59-88 in *The Angry Earth: Disasters in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routledge.

Nations, United. 1977. "The Social Impact of Housing: Goals, Standards, Social Indicators and Popular Participation Report of an Interregional Seminar on the Social Aspects of Housing." Pp. 1-94 in *The Social Impact of Housing: Goals, Standards, Social Indicators and Popular Participation*, edited by D. o. E. a. S. Affairs. Holte, Denmark: United Nations.

Neal, David and Brenda Phillips. 1990. "Female-dominated Local Social Movement Organizations in Disaster-Threat Situations." in *Women and Social Protest*. New York: Oxford University Press.

Nigg, Joanne M. 1995. "Disaster Recovery as a Social Process." Pp. 81-92 in *Wellington After the Quake: the Challenge of Rebuilding*. Wellington, New Zealand: Unversity of Delaware Disaster Research Center.

Nuckolls, Charles W. 1998. *Culture A Problem That Cannot be Soved*. Madison, Wisconsin: The Unversity of Wisconsin Press.

Oaks, Sherry D. "The Damage Assessment Process: The Application of ATC 20."

O'Brien, Paul and Dennis S. Mileti. 1992. "Citizen Participation in Emergency Response Following the Loma Prieta Earthquake." *International Journal of Mass Emergencies and Disasters* 10:77-89.

Odoki, Jennaro B., Henry R. Kerali, and Fabio Santorini. 2001. "An integrated model for quantifying accessibility-benefits in developing countries." *Pergamon* 35:601-623.

Oliver-Smith, Anthony. 1991b. "Applied Anthropology and Disaster Resarch and Management." *Disasters* 15:382-384.

—. 1994. "Quinientos Años de Desastres." *Desastres y Sociedad* 2:9-14.

—. 1995. "Perspectivas Antropológicas en la Investigación de Desastres." *Desastres y Sociedad* 5:53-74.

Oliver-Smith, Anthony. 1996. "Anthropological Research on Hazards and Disasters." *Annual Review of Anthropology* 25:303-328.

—. 1988. "Planning Goals and Urban Realities: Post-Disaster Reconstruction in a Third World City." *City and Society* 2:105-126.

—. 1999. "The Brotherhood of Pain: Theoretical and Applied Perspectives on Post-Disaster Solidarity." Pp. 156-172 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman: New York.

Olshansky, Robert B. and Jack D. Kartez. 1998. "Managing Land Use to Build Resilience." in *Cooperating With Nature*, edited by R. J. Burby. Washington D. C.: Joseph Henry Press.

Olson, Richard Stuart. 2000. "Toward a Politics of Disaster: Losses, Values, Agendas, and Blame." *International Journal of Mass Emergencies and Disasters* 18:265-287.

Olson, Richard Stuart and Robert A. Olson. 1993. ""The Rubble's Standing Up" In Oroville, California: The Politics of Building Safety." *International Journal of Mass Emergencies and Disasters* 11:163-188.

Peacock, Walter Gillis and Fredrick. L. Bates. 1982. "Ethnic Differences in Earthquake Impact and Recovery." Pp. 792-892 in *Recovery, Change and Development: A Longitudinal Study of the Guatemalan Earthquake*, edited by F. L. Bates. Athens, GA: University of Georgia, Department of Sociology.

Peacock, Walter Gillis, Chris Girard, and Hugh Gladwin. 1997. "Ethnic and Racial Differences in Hurricane Andrew Damage and Insurance Coverage: A Summary of Findings from the FIU Hurricane Andrew Survey." The Institute for Public Opinion Research Florida International University International Hurricane Center, Miami.

Peacock, Walter Gillis, Nicole Dash, and Yang Zhang. 2006. "Sheltering and Housing Recovery Following Disaster." in *Handbook on Disaster Research, Handbooks of Sociology and Social Research*, edited by H. Rodriguez, E. L. Quarantelli, and R. R. Dynes: Springer.

Perry, Ronald W. and Michael Lindell. 1990. "Predicting Long-Term Adjustment to Volcano Hazard." *International Journal of Mass Emergencies and Disasters* 8:117-136.

—. 1991. "The Effects of Ethnicity on Evacuation Decision-Making." *International Journal of Mass Emergencies and Disasters* 9:47-68.

Perry, Ronald W., Michael K. Lindell, and Marjorie R. Greene. 1982. "Crisis Communications: Ethnic Differentials in Interpreting and Acting on Disaster Warnings." *Social Behavior and Personality* 10:97-104.

Petak, William J. 1985. "Emergency Management: A Challenge for Public Administration." *Public Administration Review* 45:3-6.

Phillips, Brenda. 1990. "Gender as a Variable in Emergency Response." Pp. 84-90 in *The Loma Prieta Earthquake: Studies of Short Term Impacts*, edited by R. Bolin. USA: Institute of Behavioral Science University of Colorado.

Porfiriev, Boris N. "Disaster and Crisis Management in Transitional Societies: Commonalities and Peculiarities." edited by R. Bolin.

Prater, Carla. 2002a. "Analysis of Institutional Response to the Taiwan 921 Earthquake." Hazard Reduction and Recovery Center, Texas A&M University, College Station, Texas.

Prater, Carla and Michael K. Lindell. 2000. "Politics of Hazard Mitigation." *Natural Hazards Review* 1:73-82.

Priest, Sally J, Michael J. Clark, and Emma J. Treby. 2005. "Flood insurance: The Challenge of the Uninsured." *Area* 37:295-302.

Quarantelli, E.L. 1991a. "Disaster Response: Generic or Agent-Specific?" Pp. 97-105 in *Managing Natural Disasters and the Environment: Selected Materials from the colloquium on the Environment and Natural Disaster Management. June 27-28, 1990*. Washington D. C.: Environmental Policy and Research Division, Environment Department, The World Bank.

—. 1992. "Can and Should Social Science Disaster Research Knowledge and Findings from Developed Societies Be Applied in Developing Societies?" University of Delaware.

—. 1999. "The Disaster Recovery Process: What We Know and Do Not Know From Research."1-22.

Raelin, Joseph A. 1980. "A Mandated Basis of Interorganizational Relations: The Legal-Political Network." *Human Relations* 33:57-68.

Research, American Association for Public Opinion. 2006. *Standard Definitions: Final Deposition of Case Codes and Outcome Rates for Surveys*. Lenexa, Kanasas: AAPOR.

Rogers, George O. 1985. "Community Response to Recurring and Nonrecurring Floods." University Center for Social and Urban Research, University of Pittsburgh, Pittsburgh, PA.

—. 1986. "Role Conflict in Crises of Limited Forewarning." *Journal of Applied Sociology* 3:33-50.

—. 1992. "Aspects of Risk Communication in Two Cultures." *International Journal of Mass Emergencies and Disasters* 10:437-464.

Rogge, Mary E. 1996. "Social Vulnerability to Toxic Risk." Pp. 109-129 in *Research on Social Work and Disasters*, edited by C. L. Streeter and S. A. Murty. New York: The Haworth Press.

Ross, G. Alexander. 1980. "The Emergence of Organization Sets in Three Ecumenical Disaster Recovery Organizations: An Empirical and Theoretical Exploration." *Human Relations* 33:23-39.

Rossé, William L. 1993. "Volunteers and Post-Disaster Recovery: A Call for Community Self-Sufficiency." *Jounal of Social Behavior and Personality* 8:261-266.

Rossmand, Edwin J. 1993. "Public Involvement in Environmental Restoration: Disaster Research and Sociological Practice in Superfund Community Relations Plans." *International Journal of Mass Emergencies and Disasters* 11:123-133.

Sheets, Payson D. 1999. "The Effects of Explosive Colvanism on Ancient Egalitarian, Ranked and Stratified Socieities in Middle America." Pp. 36-58 in *The Angry Earth*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routedge.

Silveira, Stacy J. 2001. "The American Environmental Movement: Surviving Through Diversity." *Boston College Environmental Affairs Law Review* 28:497-533.

Smith, Martin. 1978. "American Religious Organizations in Disaster: A Study of Congregational Response to Disaster." *Mass Emergencies* 3:133-142.

Snarr, D. N. and E.L. Brown. 1978. "Post-disaster Housing in Honduras after Hurricane Fifi: An assessment of some objectives." *Mass Emergencies* 3:239-250.

—. 1980. "User Satisfaction with Permanent Housing: Two Years After Hurricane Fiji in Honduras." *Disasters* 4:83-91.

—. 1982. "Attrition and Housing Improvements: A Study of Post-Disaster Housing after 3 Years." *Disasters* 6:125-131.

Sorensen, John H. and Dennis S. Mileti. 1988. "Warning and evacuation: Answering some basic questions." *Industrial Crisis Quarterly* 2:195-209.

Starosta, William J. 1984. "On Intercultural Rhetoric." Pp. 229-240 in *Methods for Intercultural Communication Research*, vol. VIII, edited by W. B. a. Y. Y. K. Gudykunst. Beverly Hills: Sage Publications.

Stewart, Edward C. and Milton J. Bennett. 1991. *American Cultural Patterns: A Cross-Cultural Perspective*. Yarmouth, Maine: intercultural Press, Inc.

Stubbs, Norris. 1996. "Estimation of Building Damage as a Result of Hurricanes in the Caribbean." Hazard Recovery and Reduction Center and Dwight Look College of Engineering, Texas A&M University, College Station.

Stubbs, Norris and Dale C. Perry. 1999. "Documentation of a Methodology to Compute Structural Damage and Content Damage in a Wind Environment." Texas A&M University, College Station, Texas.

Technology, Science and. 1997. "An Act of God." *The Economist*:69-71.

Tierney, Kathleen J. 1997. "Impacts of Recent Disasters on Businesses: The 1993 Midwest Floods and the 1994 Northridge Earthquake." Pp. 189-222 in *Economic Consequences of Earthquakes: Preparing for the Unexpected*, edited by B. G. Jones: National Center for Earthquake Engineering Research.

Tierney, Kathleen J., Barbara Baisden, National Institute of Mental Health (U.S.), and Ohio State University. Disaster Research Center. 1979. "Crisis intervention programs for disaster victims -- a source book and manual for smaller communities." Pp. xiv, 203, edited by D. o. H. E. a. Welfare. Rockville, Md. Washington: Public Health Service Alcohol Drug Abuse and Mental Health Administration National Institute of Mental Health ;for sale by the Supt. of Docs. U.S. Govt. Print. Off.

Tierney, Kathleen J., Michael K. Lindell, and Ronald W. Perry. 2001. *Facing the unexpected disaster preparedness and response in the United States*. Washington, D.C.: Joseph Henry Press.

Trainer, Patricia, Robert Bolin, and Reyes Ramos. 1977. "Reestablishing Homes and Jobs: Families." Pp. 147 - 206 in *Reconstruction Following Disaster*, edited by J. E. Hass, R. W. Kates, and M. J. Bowden. Cambridge, Massachusetts: MIT Press.

UnitedNations, Danish Ministry of Housing, and Danish International Development Agency. 1975. "The Social Impact of Housing: Goals, Standards, Social Indicators and Popular Participation. Report of an Interregional Seminar on the Social Aspects of Housing." edited by D. o. E. a. S. Affairs: United Nations.

Uyangoda, Jayadeva. 2005. "Ethnic conflict, the state and the tsunami disaster in Sri Lanka." *Inter-Asia Cultural Studies* 6:341-352.

Vinas, Carolina Serrat. 1998. "Women's Disaster Vulnerabilty and Response to the Colima Earthquake." in *The Gendered Terrain of Disasters: Through Women's Eyes*, edited by E. Enarson and B. H. Morrow. Westport , Conn: Praeger Publishers.

Wenger, Dennis and Thomas F. James. 1990. "Convergence of Volunteers in a Consensus Crisis: The Case of the 1985 Mexico City Earthquake." Texas A&M University - Hazard Reduction and Recovery Center, College Station, TX.

Wenger, Dennis, E. L. Quarantelli, and Russell R. Dynes. "Is the Incident Command System a plan for all seasons and emergency situations?"

Wenger, Dennis E. "A Few Empirical Observations Concerning the Relationship Between the Mass Media and Disaster Knowledge: A Reseach Report."241-253.

—. 1992. "Emergent and Volunteer Behavior During Disaster: Research Findings and Planning Implications." Texas A&M University, Hazard Reduction and Recovery Center, College Station, Texas.

Wenger, Dennis E, Benigno Aguirre, and Gabriela Vigo. "Evacuation Behavior Among Tenants of the World Trade Center Following the Bombing of February 26, 1993." Texas A&M University: Hazard Reduction and Recovery Center, College Station, Texas.

Wenger, Dennis E, James Dykes, D., Thomas D. Sebok, and Joan L. Neff. 1975. "It's a Matter of Myths: An Empirical Examination of Individual Insight into Disaster Response." *Mass Emergencies* 1:33-46.

Wenger, Dennis E. and Barbara Friedman. 1986. "Local and National Media Coverage of Disaster: A Content Ananlysis of the Print Media's Treatment of Disaster Myths." *International Journal of Mass Emergencies and Disasters* 4:27-50.

Wilson-Figueroa, Maria Berry, E. Helen , and Michael B. Toney. 1991. "Migration of Hispanic Youth and Poverty Status: A Logit Analysis." *Rural Sociology* 56:189-203.

Wirth, Louis. 1938. "Urbanism as a Way of Life." *American Journal of Sociology* 3:46-63.

Woelfel, Joseph and Nicholas R. Napoli. 1984. "Measuring Human Emotion Proposed Standards." Pp. 117-228 in *Methods for Interncultural Communication Research*, vol. VIII, edited by W. B. a. Y. Y. K. Gudykunst. Beverly Hills: Sage Publications.

Wolensky, Robert P. 1983. "Power Structure and Group Mobilization Following Disaster: A Case Study." *Social Science Quarterly* 64:97-110.

Wraith, Ruth. 1997. "Women in Emergency Management: Where are they?" *Australian Journal of Emergency Management* summer:8-11.

Zaman, Mohammad Q. 1999. "Vulnerability, Disaster and Survival in Banglasesh: Three Case Studies." Pp. 192-212 in *The Angry Earth: Disaster in Anthropological Perspective*, edited by A. Oliver-Smith and S. M. Hoffman. New York: Routledge.

APPENDIX A

HOUSING SURVEY AND HANDOUTS

HAZARD REDUCTION & RECOVERY CENTER

A United Nations (UNDHA) Collaborative Centre

Dr. Dennis Wenger is the Senior Scholar at Texas A&M University working for the Hazard Reduction and Recovery Center.

The Center is engaged in a national study to learn how communities recover from disasters and plan for future housing needs. They are analyzing housing recovery issues faced by disaster victims in the hope of better understanding which solutions are most effective. This study is being financed by the National Science Foundation in Washington D. C. We hope that other communities facing future disasters can learn from your experience and would appreciate any cooperation you can give the bearer of this letter in carrying out his research.

For further information about the Center or its work, please contact us at The Hazard Reduction and Recovery Center at Texas A&M University. Our phone number is (409) 845-7813.

Michael Lindell
Director

College Station, TX 77843-3137 • Telephone 409/845-7813 • Fax 409/845-5121 • email hrrc@archone.tamu.edu
College of Architecture • Texas A&M University • Affiliated with the Texas Engineering Experiment Station

HAZARD REDUCTION RECOVERY CENTER

A United Nations (UNDHA) Collaborative Centre

Dear Resident,

The Hazard Reduction and Recovery Center (HRRC) at Texas A&M University is undertaking a nationwide study of housing recovery following a natural disaster. The HRRC is the largest, multidisciplinary research center studying disasters in the world. We are a United Nations (UNDRO) Collaborative Center.

This research project focuses upon the utilization of and acquisition of sheltering and temporary housing by individuals whom have experienced a devastating disaster. The project is funded by the National Science Foundation, which believes that the results from this study will assist in understanding and planning for similar events in the future.

This questionnaire should take only about 20 minutes to complete. **Please note that the results are treated anonymously and confidentially. No names will be used.** In fact, we are not gathering the names of people who help us. Also, the results will be presented in statistical and tabular form in our scientific reports and articles.

Can you please take a few moments of your time and help us? Future floods are extremely likely to occur in other communities in the nation. Your information may help us better prepare for future disasters and save lives. **Others have a great deal to learn from the people of this community and we would like you to help us.**

If you have any questions, please feel free to call the HRRC at Texas A&M University. The number is (409) 845-7813.

Thank you for your assistance.

Patricia M. Starr
Research Associate

College Station, TX 77843-3137 • Telephone 409/845-7813 • Fax 409/845-5121 • email hrrc@archone.tamu.edu
College of Architecture • Texas A&M University • Affiliated with the Texas Engineering Experiment Station

HAZARD REDUCTION & RECOVERY CENTER

A United Nations (UNDHA) Collaborative Centre

Ms. Kim Galindo is a staff member at Texas A&M University working for the Hazard Reduction and Recovery Center.

The Center is engaged in a national study to learn how communities recover from disasters and plan for future housing needs. They are analyzing housing recovery issues faced by disaster victims in the hope of better understanding which solutions are most effective. This study is being financed by the National Science Foundation in Washington D. C. We hope that other communities facing future disasters can learn from your experience and would appreciate any cooperation you can give the bearer of this letter in carrying out her research.

For further information about the Center or its work, please contact us at The Hazard Reduction and Recovery Center at Texas A&M University. Our phone number is (409) 845-7813.

Michael Lindell
Director

Dennis Wenger
Senior Scholar

College Station, TX 77843-3137 • Telephone 409/845-7813 • Fax 409/845-5121 • email hrrc@archone.tamu.edu
College of Architecture • Texas A&M University • Affiliated with the Texas Engineering Experiment Station

HAZARD REDUCTION & RECOVERY CENTER

A United Nations (UNDHA) Collaborative Centre

Ms. Patricia Starr is a staff member at Texas A&M University working for the Hazard Reduction and Recovery Center.

The Center is engaged in a national study to learn how communities recover from disasters and plan for future housing needs. They are analyzing housing recovery issues faced by disaster victims in the hope of better understanding which solutions are most effective. This study is being financed by the National Science Foundation in Washington D. C. We hope that other communities facing future disasters can learn from your experience and would appreciate any cooperation you can give the bearer of this letter in carrying out her research.

For further information about the Center or its work, please contact us at The Hazard Reduction and Recovery Center at Texas A&M University. Our phone number is (409) 845-7813.

Michael Lindell
Director

Dennis Wenger
Senior Scholar

College Station, TX 77843-3137 • Telephone 409/845-7813 • Fax 409/845-5121 • email hrrc@archone.tamu.edu
College of Architecture • Texas A&M University • Affiliated with the Texas Engineering Experiment Station

Texas A&M University
Hazard Reduction & Recovery Center
College Station, Texas 77843-3137
(409) 845-7813

The Hazard Reduction & Recovery Center (HRRC) was established at Texas A&M University in 1988. HRRC engages in research on hazard mitigation, disaster preparedness, emergency response, and disaster recovery. In addition, HRRC conducts hazard analyses and develops emergency response plans. The HRRC staff is interdisciplinary in nature and includes the expertise of architects, planners, sociologists, psychologists, policy analysts, geographers, and engineers.

Texas Woman's University
Department of Sociology and Social Work
Denton, Texas 76204
(904) 898-2117

Texas Woman's University, established in 1901, is a comphrensive public university primarily for women, but admitting both sexes to all programs. A teaching and research institution, the university emphasizes the liberal arts and specialized or professional studies.

Emergency Shelters and Temporary Housing Following Disasters:

A Nationwide Study

Research Undertaken By:

Texas A&M University
Hazard Reduction & Recovery Center
College Station, Texas

and

Texas Woman's University
Denton, Texas

What is the Emergency Shelters and Temporary Housing Following Disasters Study?

This is a nationwide study of how individuals utilize shelters and acquire temporary housing after they have been struck by disasters.

Who is funding the study?

The study is funded by the National Science Foundation in Washington, D.C.

How was my household selected?

Your household was randomly selected from all households that experienced damaged caused by the disaster. Data collected in your community will be added to data collected in as many as six communities throughout the United States.

What is the purpose of the study?

The purpose of the study is to learn how individuals recover from disaster, to analyze sheltering patterns and the housing recovery issues individuals face, and to understand which solutions are the most effective. Hopefully, other individuals facing future disasters can learn from your experiences.

Why do you want to talk with me?

We are interested in learning from individuals who are directly affected by the disaster. We hope that you will be able to assist us.

How much time will the interview take?

Most of the interviews last approximately thirty minutes.

What will be the outcome of this research?

The research will result in research books, monographs, articles, and handbooks that can be used by local communities that face future disasters. Material will be available at the completion of the project and will be provided to you upon request.

Will may name be published in the research findings?

No names are used in any aspects of the study including publications of any kind. Also, names of communities are not used.

How will the data be handled?

In addition to your anonymity, the data are also treated confidentially. No one outside of the research team will have access to the information gathered in this study.

Thank you very much for your time and assistance. If you have any questions regarding this project after reading this brochure, or would like more information about the Hazard Reduction and Recovery Center at Texas A&M University, please call us at (409) 845-7813.

Texas A&M University

Dear Residents,

Please answer the following questions as accurately as you can. If you do not know the exact number requested, give as close an approximation as you can. More than one answer may apply to some questions. Where indicated, select as many responses as apply by placing a check mark (✓) in the space provided. If none of the choices apply, be sure to fill in the "Other" category.

1. Was the place where you lived before the flood affected by the flood waters?_____Yes_____No

If Yes, circle the percent of damage to ...

	No damage				Destroyed
The structure of your home	0%	25%	50%	75%	100%
The contents of your home	0%	25%	50%	75%	100%

2. Did you (your family) evacuate your home? _____Yes_____No

If No, ----------> please go to Question #30 on Page #9

If Yes, when did you evacuate your home? *The flood occurred on October 19, 1998.*

_____Date_____Time AM or PM

3. How were you informed about places where you could go to seek shelter? *Place a check mark (✓) by all answers that apply.*

_____Radio _____Friend(s) _____Fire/Police official(s)
_____Newspaper _____Neighbor(s) _____Church member(s)
_____Television/Cable _____Family member(s) _____Community leader(s)
_____Fliers/Mailout(s) _____Employer(s) _____I was not informed
_____Other (please specify)_____

4. Where was the first place you sought shelter after you evacuated your home?

_____Family member's home _____High School _____Car
_____Friend's home _____Junior High School _____Apartment/Duplex
_____Neighbor's home _____Cuero Clubhouse _____Hotel/Motel
_____Hospital _____Baptist Church _____DeWitt County Senior Center
_____Out of town (please specify) _____
_____Other (please specify) _____

5. Please list the top 2 reasons why you sought shelter at this place?

(1)_____
(2)_____

6. How long did you stay at the first place? *Please estimate the time you spent at this place.*

_____Month(s) _____Week(s) _____Day(s) _____Hour(s)

7. Did you move to a second place? _____Yes_____No

If No, ----------> *please go to Question #14 on Page # 3*

If Yes, where did you move?

_____Family member's home _____High School _____Car

_____Friend's home _____Junior High School _____Apartment/Duplex

_____Neighbor's home _____Cuero Clubhouse _____Hotel/Motel

_____Hospital _____Baptist Church _____DeWitt County Senior Center

_____Purchasing a home _____Renting a home _____FEMA Mobile home/Travel trailer

_____Out of town (please specify)_____

_____Other (please specify)_____

8. Please list the top 2 reasons why you moved to the second place?

(1)_____

(2)_____

9. How long did you stay at the second place? *Please estimate the time you spent at this place.*

_____Month(s) _____Week(s) _____Day(s) _____Hour(s)

10. Did you move to a third place? _____Yes _____No

If No, ----------> *please go to Question #14 on Page #3*

If Yes, where did you move?

_____Family member's home _____High School _____Car

_____Friend's home _____Junior High School _____Apartment/Duplex

_____Neighbor's home _____Cuero Clubhouse _____Hotel/Motel

_____Hospital _____Baptist Church _____DeWitt County Senior Center

_____Purchasing a home _____Renting a home _____FEMA Mobile home/Travel trailer

_____Non-FEMA Mobile home/Travel trailer

_____Out of town (please specify) _____

_____Other (please specify) _____

11. Please list the top 2 reasons why you moved to the third place?

(1)_____

(2)_____

12. How long did you stay at the third place? *Please estimate the time you spent at this place.*

_____Month(s) _____Week(s) _____Day(s) _____Hour(s)

13. How many times have you moved since the flood? #_____ Move(s)

14. Please indicate whether you agree or disagree with the following statements about the different places where you stayed after the flood. Where 1 indicates you strongly disagree and 5 indicates you strongly agree with the following statements. *Circle the number that best indicates your level of agreement for the following statements for each place. If you have "no opinion" about the following statement(s), circle NA in the far right column.*

For example: *The place ...*	First Place	Second Place	Third Place
	Strongly Disagree ... Strongly Agree	Strongly Disagree ... Strongly Agree	Strongly Disagree ... Strongly Agree
Was crowded	1 2 3 (4) 5 NA	1 2 (3) 4 5 NA	1 2 3 4 5 (NA)
Allowed for privacy	(1) 2 3 4 5 NA	1 2 3 4 5 (NA)	1 (2) 3 4 5 NA

The place ...	First Place	Second Place	Third Place
	Strongly Disagree ... Strongly Agree	Strongly Disagree ... Strongly Agree	Strongly Disagree ... Strongly Agree
Was crowded	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Allowed for privacy	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Allowed for pets	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Made me feel welcome	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Had conflict among individuals	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Was well-equipped with resources	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Had strict rules/regulations	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Had adequate bathroom facilities	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Maintained a clean environment	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Provided a safe environment	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA

15. Please tell us about the people who were with you at the different place(s) by estimating the percentage of individuals who shared the following characteristics. Where 0% indicates no one, 50% indicates half of the people, and 100% indicates everyone at the different place(s) possessed the following characteristics. Do not include yourself in the percentage estimations. *Circle the percentage that best describes the people at each place. If you sought shelter by yourself, circle NA in the far right column.*

What percentage of the people were ...	First Place						Second Place						Third Place					
	No one				Everyone		No one				Everyone		No one				Everyone	
Grouped in families	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Elderly persons	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Low income	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Racial/ethnic minorities	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Physically ill	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Familiar to me	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA

16. Please indicate your **overall satisfaction** with the different place(s) where you stayed after the flood. Where 1 indicates the you are (were) very dissatisfied and 5 indicates that you are (were) very satisfied with the place(s). *Circle the number that bests indicates your level of satisfaction. If you have "no opinion" about the following places, circle NA in the far right column.*

	Very Dissatisfied		Neutral		Very Satisfied	
First place	1	2	3	4	5	NA
Second place	1	2	3	4	5	NA
Third place	1	2	3	4	5	NA

Please list the **top 2 reasons** why you chose this level of satisfaction for each of the place(s) where you sought shelter:

First place (1)_____

(2)_____

Second place (1)_____

(if applicable) (2)_____

Third place (1)_____

(if applicable) (2)_____

22. Please indicate your overall satisfaction with the place that you lived before the flood and the place where you currently live. Where 1 indicates the you are (were) very dissatisfied and 5 indicates that you are (were) very satisfied. *Circle the number that bests indicates your level of satisfaction.*

The place where I ...	Very Dissatisfied		Neutral		Very Satisfied
Lived before the flood	1	2	3	4	5
Currently live	1	2	3	4	5

Please list the top 2 reasons why you chose this level of satisfaction for each of the place(s):

The place where I ...

Lived before the flood (1) _____

(2) _____

Currently live (1) _____

(2) _____

23. Please indicate whether the following individual(s), agency(s), or organization(s) were helpful in findin you suitable housing to fit your needs after the flood. Where 1 indicates the individual, organization, or agency was not helpful and 5 indicates the individual, agency, or organization was helpful. If you did not seek help from the individual, agency, or organization listed below, circle NA in the far right column. *Please circle the number that best describes the help you received from each individual, agency, or organization in finding you suitable housing.*

	Not helpful				Helpful	Did not seek help
Family Member(s)	1	2	3	4	5	NA
Friend(s)	1	2	3	4	5	NA
Neighbor(s)	1	2	3	4	5	NA
Employer(s)	1	2	3	4	5	NA
Red Cross	1	2	3	4	5	NA
Salvation Army	1	2	3	4	5	NA
Church Groups(s)	1	2	3	4	5	NA
Community Group(s)	1	2	3	4	5	NA
Local Bank(s)	1	2	3	4	5	NA
Housing Authority	1	2	3	4	5	NA
Local Government	1	2	3	4	5	NA
State Agency	1	2	3	4	5	NA
FEMA	1	2	3	4	5	NA
Other (please specify)_____	1	2	3	4	5	NA

24. Please indicate your **overall satisfaction** with the help you received in finding **suitable housing** to fit your (your family) needs after the flood. Where 1 indicates that you are very dissatisfied and 5 indicates that you are very satisfied. *Circle the number that bests indicates your level of satisfaction.*

Very Dissatisfied		Neutral		Very Satisfied
1	2	3	4	5

Please list the top **2 reasons** why you chose this level of satisfaction:

(1)_____

(2)_____

25. Did you receive disaster assistance designated specifically for **housing recovery**?_____Yes _____No

If Yes, (1) **Step 1**-- Place a check mark (✓) in the far left column by the individual(s), agency(s), or organization(s) you received *housing recovery assistance.*

(2) **Step 2**-- Please indicate the *type of housing recovery assistance* you received from each individual, agency, or organization by placing a check (✓) in the appropriate column(s). If none of the choices for housing recovery assistance apply, fill in the "Other" category.

For example:	Rental Assistance	Replacing Belongings	Rebuilding Materials	Labor & Services	Other (please specify)
✓ Family member(s)	✓	✓		✓	✓ cleaning supplies
✓ Neighbor(s)		✓		✓	

	Type of Housing Recovery Assistance				
	Rental Assistance	Replacing Belongings	Rebuilding Materials	Labor & Services	Other (please specify)
____ Family member(s)					
____ Friend(s)					
____ Neighbor(s)					
____ Employer(s)					
____ Red Cross					
____ Salvation Army					
____ Church Groups(s)					
____ Community Group(s)					
____ Housing Authority					
____ Local Government					
____ State Agency(s)					
____ FEMA/IFA Grants					
____ SBA Loans					
____ Local Bank(s)					
____ Private Insurance					
____ Flood Insurance					
____ Veterans Benefits					
____ Other_____					

If No, please list the top 2 reasons why you did not receive housing recovery assistance.

(1) _____

(2) _____

26. How were you informed about the different types of disaster assistance available?

Place a check (✓) by all answers that apply

_____Radio	_____Friend(s)	_____Salvation Army Distribution Center
_____Television/Cable	_____Community leader(s)	_____Red Cross Disaster Assistance Center
_____Newspaper(s)	_____Employer(s)	_____FEMA Disaster Relief Center
_____Flier(s)/Handout(s)	_____Civic organization(s)	_____Housing Authority
_____Family member(s)	_____State agency(s)	_____Church Distribution Center(s)
_____Neighbor(s)	_____Local government	_____I was not informed

_____Other (please specify)_____

27. Please indicate your overall satisfaction with each type of housing recovery assistance you received. Where 1 indicates the you are (were) very dissatisfied and 5 indicates that you are (were) very satisfied. If you did not receive the type of assistance listed below, circle NA in the far right column. *Circle the number that bests indicates your level of satisfaction.*

Type of assistance ...	Very Dissatisfied		Neutral		Very Satisfied	Did not receive assistance
Rental Assistance	1	2	3	4	5	NA
Replacing Belongings	1	2	3	4	5	NA
Rebuilding Materials	1	2	3	4	5	NA
Labor & Services	1	2	3	4	5	NA
Other_____	1	2	3	4	5	NA

Please list the top 2 reasons why you chose this level of satisfaction for each type of housing recovery assistance:

Rental Assistance (1) _____

(2) _____

Replacing Belongings (1) _____

(2) _____

Rebuilding Materials (1) _____

(2) _____

Labor & Services (1)_____

(2)_____

Other (1)_____

(2)_____

28. How much damage to the place where you lived before the flood has been repaired? Where 0% indicates no repairs have been completed, 50% indicates half of the repairs have been completed, and 100% indicates all of the repairs have been completed at the place where you lived before the flood. *Circle the percentage that best describes the amount of repairs completed.*

No Repairs				All Repairs
0%	25%	50%	75%	100%

29. If all repairs to the place where you live before the flood have not been completed, please tell us why. *Place a check mark (✓) by all answers that apply.*

_____I am unable to obtain a building permit

_____I am unable to locate a contractor, electrician, or plumber

_____I do not have the money for repairs

_____I received assistance but not enough to complete the repairs

_____I do not have time to do the repairs

_____I had property in the flood plain

_____I can not meet the new zoning laws and/or ordinances

_____I am demolishing the housing structure

_____I have moved to a new residence in the community

_____I plan to move out of the community

_____I am selling the property

_____I do not own the property

_____Other (please specify) _____

30. Did you offer shelter to anyone affected by the flood? _____Yes_____No

If Yes, How many people took shelter at your home? #_____(persons)

How long did they stay at your home? _____

With regards to the people who sought shelter in your home, please check (✓) any of the following that describes them.

_____Friend(s) _____Church member(s)

_____Family member(s) _____Co-workers

_____Neighbor(s) _____Other (please specify)_____

31. Please tell us a little about yourself.

Sex _____Female _____Male

Age _____years

Marital Status

_____Single _____Married but separated _____Divorced

_____Married _____Widowed _____Other (please specify) _____

How many persons lived in your household before the flood? #_____(persons)

Did you have children 18 years of age or younger living in your household before the flood?

_____Yes_____No *If Yes*, please indicate how many. #_____(children)

Race/Ethnicity

_____Caucasian _____Hispanic _____Asian, Aluet, Pacific Islander

_____African American _____American Indian _____Other (please specify) _____

Approximate annual household income $_____.00

Education Level

_____Grade 9 or less _____High School graduate/G.E.D. _____College graduate

_____Some High School _____Some college or technical school _____Post graduate school

Length of residency in the community

_____1 year or less _____6 to 10 years _____16 to 20 years _____26 to 30 years

_____2 to 5 years _____11 to 15 years _____21 to 25 years _____Over 31 years

Thank you for your participation. Your answers will be treated anonymously and confidentially. Please place the survey in the attached white envelope. A research associate will pick up the completed survey within 48 hours.

HAZARD REDUCTION & RECOVERY CENTER

A United Nations (UNDHA) Collaborative Centre

Estimado Residente,

El Centro de Reducción de Peligros y Recuperación (HRRC - The Hazard Reduction and Recovery Center) en la Universidad de Texas A&M está realizando un estudio nacional de la recuperación de habitación después de un desastre natural. El HRRC es el centro multidisciplinaria más grande de investigación de desastres en el mundo. Somos un Centro Colaburadora de las Naciones Unidas (UNDRO).

Este proyecto de investigación enfoca sobre el uso y acudo a refugios y alojamientos provisionales por personas quienes hayan sidos afectados por desastres mayores. El proyecto está financiado por la Fundación de Ciencias Nacionales, quienes esperan que los resultados de éste estudio, ayudaran en el mejor planificación y entendimiento de eventos similares en el futuro.

Esta encuesta tomará unos veinte minutos para completar. **Por favor dénse cuenta que los resultados serán mantenidos anonímos y confidenciales. Ningún nombre sera útilizado.** En efecto, ni estamos pidiendo nombres de las personas quien nos cooperan. Además, los resultados serán presentados en formas estadisticas y tabulares para los reportajes y artículos científicos.

¿Por favor, podría tomar unos cuantos minutos para ayúdarnos? Es muy probables que inundaciones occurreran en el futuro en otras comunidades del país. Su información pueda ayudarnos ser mejor preparados para desastres en el futuro, y ayudarnos salvar vidas. **Otros tienen mucho que aprender de su comunidad y esperamos que les agrade ayúdarnos.**

Si tiene cualquier pregunta, porfavor llámenos a HRRC en Texas A&M University. El número es (409) 845-7813.

Le agradecemos su cooperación.

Patricia M. Starr
Investigadora Asociada

College Station, TX 77843-3137 • Telephone 409/845-7813 • Fax 409/845-5121 • email hrrc@archone.tamu.edu
College of Architecture • Texas A&M University • Affiliated with the Texas Engineering Experiment Station

HAZARD REDUCTION & RECOVERY CENTER

A United Nations (UNDHA) Collaborative Centre

El Dr. Wenger es uno de los catedráticos principales del Centro de Reducción de Peligros y Recuperación de la Universidad de Texas en College Station, Texas.

El Centro esta involuncrado en un estudio nacional para aprender como comunidades se recuperan de desastres y planifican para futuro necesidades de habitación. Estamos analizando circumstancias enfrendadas por víctimas de desastres con la esperanza de mejor entender cuales soluciones son mas eficaz. Este estudio esta financiada por la fundación de Sciencias Nacionales, localizada en Washington, D.C. Esperamos que otras comunidades enfrentadas con desastres puedan aprobechar de su experiencia, y estaremos muy agradecidos con su cooperación.

Si quiere mas información acerca del Centro o el trabajo hecho ahí, por favor comuníquese con nosotros en el Centro de Reducción de Peligros y Recuperación, parte de la Universidad de Texas A&M en College Station, Texas. Nuestro número de telefóno es (409) 845-7813. Le Agradesemos su ayuda de antemano.

Michael Lindell
Director

College Station, TX 77843-3137 • Telephone 409/845-7813 • Fax 409/845-5121 • email hrrc@archone.tamu.edu
College of Architecture • Texas A&M University • Affiliated with the Texas Engineering Experiment Station

HAZARD REDUCTION RECOVERY CENTER

A United Nations (UNDHA) Collaborative Centre

La Señorita Kim Galindo trabaja con el Centro de Reducción de Peligros y Recuperación de la Universidad de Texas en College Station, Texas.

El Centro esta involuncrado en un estudio nacional para aprender como comunidades se recuperan de desastres y planifican para futuro necesidades de habitación. Estamos analizando circumstancias enfrendadas por víctimas de desastres con la esperanza de mejor entender cuales soluciones son mas eficaz. Este estudio esta financiada por la fundación de Sciencias Nacionales, localizada en Washington, D.C. Esperamos que otras comunidades enfrentadas con desastres puedan aprobechar de su experiencia, y estaremos muy agradecidos con su cooperación.

Si quiere mas información acerca del Centro o el trabajo hecho ahí, por favor comuníquese con nosotros en el Centro de Reducción de Peligros y Recuperación, parte de la Universidad de Texas A&M en College Station, Texas. Nuestro número de telefóno es (409) 845-7813. Le Agradesemos su ayuda de antemano.

Michael Lindell
Director

Dennis Wenger
Catedrático Principal

College Station, TX 77843-3137 • Telephone 409/845-7813 • Fax 409/845-5121 • email hrrc@archone.tamu.edu
College of Architecture • Texas A&M University • Affiliated with the Texas Engineering Experiment Station

Texas A&M University
Centro de Reduccion de Peligros y Recuperación
College Station, Texas 77843-3137
(409) 845-7813

El Centro de Reducción de Peligros y Recuperación (HRRC - Hazard Reduction & Recovery Center) fue fundado en la Universidad de Texas A&M en 1988. HRRC realiza investigaciones en la mitigación de desastres, preparación de desastres, respuestas a emergencías, y recuperación de desastres. Además HRRC prepara analísis de peligros y desarrolla planes para respuestas a emergencias. El personal de HRRC es interdisciplinario e incluyen expertos en los campos de acquitectura, planificación, sociología, psicología, analísis de politicas, geografía, e ingenieros.

La Universidad de Mujered de Texas
Departamento de Sociologia y Trabajo Social
Denton, Texas 76204
(904) 898-2117

La Universidad de Mujeres de Texas fue fundada en 1901. Es una universidad publica deamplio espectro, principalmente para mujeres, pero admiten personas de cualquier sexo a todos sus programas. Es una universidad donde se enseña y se hace investigación. La universidad enfatija las artes liberales y los estudios profesionales o especializados.

Refugios de Emergencia Y Habitación Perovisional Despues de Desastres:

Un Estudio Nacional

Investigaciones tomadas por:

Texas A&M University
Centro de Reduccion de Peligros y Recuperación
College Station, Texas

y

Texas Woman's University
Denton, Texas

¿Qué se la investigacion de refugios de emergencia y alojamiento provisional después de desastres?

Es un estudio nacional de como las personas usan refugios y adquieren alojamiento provisional después de heber sidos afectados por un desastre.

¿Quién esta financiando esta investigación?

Este estudio esta respaldado por la Fundación de Ciencias Nacionales en Washington D. C.

¿De como me seleccionaron?

Su hogar fue seleccionada al azar del conjunto de habitaciones que sufrieron daños a causa del desastre. Los datos recolectados en su comunidad van ha ser añadidos a una base de datos que recoje información de un máximo de seis comunidades dentro de Los Estados Unidos.

¿ Cuál es el proposito de esta investigación?

Con esta investigación proponemos apredner como las personas se recuperan despues de un desastre, y analizar los patrones de refugio, situaciones enfrentadas en la recuperación de alojamiento, y obtener mejor entendimiento de las soluciones más eficaces. Esperamos que otras personas enfrentadas con futuro desastres puedan aprovechar de su experiencia.

Por Qué quiere hablar conmigo?

Estamos interesados en aprender de personas directamente afectadas por el desastre. Esperemos que le agrade cooperarnos.

¿Cuanto tiempo va tomar la encuesta?

La mayoria de encuestas toman aproximadamente trenta minutos.

¿Cuál sera el resultado de esta encuesta?

Los resultados seran publicados en libros, monografías, artículos, y manuales que podrán ser utilizados por comunidades locales que enfrentaran desastres en el futuro. Los materiales estaran disponibles al final del proyecto y le seran provistos a pedido.

¿Mi nombre saldra publicado el los resultados de la investigación?

Ningún nombre actual sera publicado en ninguna forma durante ésta investigación, incluyendo lo resultados, y tampoco usaremos los nombres actuales de las comunidades participantes.

¿Como procesaran los datos?

Además de su anonimeto, los datos seran tratados confidencialmente. Ninguna persona fuera del equipo de investigación tendra acceso a la información adqurida durante este estudio.

Le agradecemos mucho su tiempo y ayuda. Si despues de leer éste folleto, tiene cualquier pregunta en relación a éste proyecto o quiere más información acerca del Centro de Reduccion de Peligros y Recuperación de Texas A&M University, por favor llame al (409) 845-7813.

Estimado Residente,

Por favor responda a las siguentes preguntas de la manera más precisa posible. Si Ud. no conoce el número exacto, dé un valor approximado. Es posible que haya más de una respuesta para algunas preguntas. Donde está indicado, para sus respuestas coloque el símbolo (√) en cada espacio provisto. Si ninguna de las opciones corresponde, vaya al espacio "Otro" y llene con la respuesta adecuada.

1. ¿El lugar donde vivía antes de la inundación fue afectada por el agua?_____Sí_____No
Si la respuesta es Sí, aproxime lo que Ud. piensa es el porcentage de daño sufrido.

	Ningún Dano				Destruido
La estructura de la casa	0%	25%	50%	75%	100%
Sus bienes personales	0%	25%	50%	75%	100%

2. ¿Fue evacuado de su hogar a causa de la inundación?_____Sí_____No

Si la respuesta es **No**, entonces continue con la **pregunta #30 en la página #9**

Si la respuesta es Sí, indique cuando fueron evacuados de su hogar? *La inundación occurrío el 19 de octubre, 1998.* _____Fecha_____Hora AM o PM

3. ¿De como fue informado de lugares donde podía encontrar refugio? Ponga un (√) al lado de todas las respuestas que corresponden.

_____Radio _____Amigo(s) _____Bombero(s)/ Policia(s)
_____Periódico _____Vecino(s) _____Miembro(s) de la Iglesia
_____Televisión/Cable _____Pariente(s) _____Líder(es) de la comunidad
_____Folletos _____Patrón(es) _____No fue informado
_____Otro (por favor indique como)_____

4. ¿Cuál fue **el primer lugar** a que acudió después de evacuar su hogar?

_____Casa de un pariente _____Colegio medio/preparatoría _____Carro
_____Casa de un amigo(a) _____Colegio secundaría (jr. high) _____Apartmento
_____Casa del vecino(a) _____Club de Cuero _____Hotel/Motel
_____Hospital _____Iglesia Bautista _____Centro de ancianos del
_____Fuera de la ciudad (Por favor especifique donde) _____ condado DeWitt
_____Otro (Por favor especifique donde) _____

5. ¿Cuáles fueron las dos razones principales para acudir refugio á ese lugar?
(1)_____

(2)_____

6. Por favor diga approximadamente cuanto tiempo se quedó en el **primer** lugar después de la inundación.

_____Mes(es) _____Semana(s) _____Día(s) _____Hora(s)

7. ¿Se mudó a un segundo refugio? _____Sí_____No

Si la respuesta es No, entonces continue con la pregunta #14en la página # 3

Si la respuesta es Sí, indicá donde se mudo

_____Casa de un pariente
_____Casa de un amigo(a)
_____Casa del vecino(a)
_____Hospital
_____Compró una casa
_____Trailer FEMA o caravana
_____Colegio medio/preparatoría
_____Colegio secundaría (jr. high)
_____Club de Cuero
_____Iglesia Bautista
_____Alquiló una casa
_____Carro
_____Apartmento
_____Hotel/Motel
_____Centro de ancianos del condado DeWitt
_____Fuera de la ciudad (Por favor especifique donde)_____
_____Otro (Por favor especifique donde)_____

8. ¿Cuáles fueron las dos razones principales porque se mudó del segundo lugar?

(1)_____

(2)_____

9. Por favor diga approximadamente cuanto tiempo se quedó en el segundo lugar después de la inundación.

_____Mes(es) _____Semana(s) _____Día(s) _____Hora(s)

10. ¿Se mudaron a un tercer lugar? _____Sí _____No

Si la respuesta es No, entonces continue con la pregunta#14 en la página #3

Si la respuesta es Sí indique donde se mudo.

_____Casa de un pariente
_____Casa de un amigo(a)
_____Casa del vecino(a)
_____Hospital
_____Alquiló una casa
_____Centro de ancianos del condado DeWitt
_____Colegio medio/preparatoría
_____Colegio secundaría (jr. high)
_____Club de Cuero
_____Iglesia Bautista
_____Trailer FEMA o caravana
_____Carro
_____Apartmento
_____Hotel/Motel
_____Compró una casa
_____Fuera de la ciudad (Por favor especifique donde)_____
_____Otro (Por favor especifique donde)_____

11. ¿Cuáles fueron las dos razones principales porque se mudó al tecer lugar?

(1)_____

(2)_____

12. ¿Cuánto tiempo se quedó en el tercer refugio? *Por favor indique el tiempo que pasó allí.*

_____Mes(es) _____Semana(s) _____Día(s) _____Hora(s)

13. ¿Cuantas veces se ha mudado desde le inundación? #_____Mudanzas

14. Por favor indique si Ud. está de acuerdo con las siguientes fraces que describen el lugar en el que se quedó después de la inundación. El número 1 muestra que Ud está de desacuerdo total y el número 5 indica que ud. esta de acuerdo total. *Por favor marque el número que mejor corresponde a su experiencia en cada caso. Si no tiene una opinión, o no está seguro, marque el "NA" para estas respuestas.*

Por ejemplo: *el lugar...*	Primer lugar Desacuerdo Total / Acuerdo Total	Segundo lugar Desacuerdo Total / Acuerdo Total	Tercer lugar Desacuerdo Total / Acuerdo Total
Estabá lleno	1 2 3 **(4)** 5 NA	1 **(2)** 3 4 5 NA	1 2 3 4 5 **(NA)**
Permitía privacidad	1 **(2)** 3 4 5 NA	1 2 3 4 5 **(NA)**	1 2 **(3)** 4 5 NA

el lugar...	Primer lugar Desacuerdo Total / Acuerdo Total	Segundo lugar Desacuerdo Total / Acuerdo Total	Tercer lugar Desacuerdo Total / Acuerdo Total
Estabá lleno	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Permitía privacidad	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Admitia mascotas	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Me hizo sentir bien acogido	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Estuvó bien provisto de recursos	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Habia reglas/ restricciones estrictas	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Adecuadamente provista con baños	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Mantuvieron un ambiente limpio	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
Tuvieron un ambiente seguro	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA
No hubo malos entendimientos entre personas	1 2 3 4 5 NA	1 2 3 4 5 NA	1 2 3 4 5 NA

15. Por favor cuéntenos de las otros personas que estuvieron con Ud.(s) en los distintos lugares, de acuerdo a las siguientes características. 0% indica ni un refugiado, y 50% indica una mitad de los refugiados, y 100% indica todos los refugiados en ese lugar tenían estas características. No se incluye a si mismos en los porcentages aproximados. *Marque el porcentage que mejor describe la gente en cada instancía. Si estaba solo en algún lugar donde acudio ha refugiarse, marque el "NA" en la columna derecha.*

Qué procentage de los refugiados eran ...	Primer lugar						Segundo lugar						Tercer lugar					
	Nadie				Todos		Nadie				Todos		Nadie				Todos	
Distribuídos en familias	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Personas ancianas	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
De bajos ingresos	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Minoria étnicas/racial	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Enfermos	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA
Conocidos	0	25	50	75	100	NA	0	25	50	75	100	NA	0	25	50	75	100	NA

16. Por favor indique su satisfacción general con los diferentes lugares donde se alojó después de la inundación. 1 indica que Ud(s) estuvo muy insatisfecho y 5 indica que Ud(s) estuvo muy satisfecho con el lugar. *Por favor marque el número que mejor corresponde a su nivel de satisfacción en cada caso, si está sin opinión, marque el "NA" en la columna derecha.*

	Insatisfecho		Neutral		Satisfecho	
Primer lugar	1	2	3	4	5	NA
Segundo lugar	1	2	3	4	5	NA
Tercer lugar	1	2	3	4	5	NA

¿Cuáles fueron las dos razones principales porque elegio ese nivel de satisfacción para cada lugar donde acudió refugio?.

Primer lugar (1)_____

(2)_____

Segundo lugar (1)_____

(2)_____

Tercer lugar (1)_____

(2)_____

17. ¿Ha vuelto Ud. al lugar donde vivía antes de la inundación? _____Sí_____No

Si la respuesta es Sí, continue con la pregunta#20 en la página #5

Si la respuesta es No, por favor indicá donde vive actualmente ahora?

_____Casa de un pariente _____Hotel/Motel _____FEMA trailer o caravana
_____Casa de un amigo(a) _____Carro _____Compró una casa
_____Casa del vecino(a) _____Apartmento _____Alquiló una casa
_____Trailer of caravana que no es de FEMA
_____Fuera de la ciudad (Por favor especifique donde)_____
_____Otro (Por favor especifique donde) _____

18. ¿Cuánto tiempo se puede quedar en el lugar donde está ahora?

_____Año(s) _____Mes(es) _____Semana(s) _____Día(s)
_____No se _____No hay límite _____Otro (Por favor especifiqué)_____

19. ¿Ud. considera su residencia actual permanente? _____Sí_____No

20. ¿Cuántas personas viven con Ud. acutalmente? *(incluye todos viviendo con Ud. aunque esten allí iprovisionalmente)* #_____(personas)

21. ¿Cuánto paga de hipoteca o aquiler mensual por el lugar en donde vive(vivó)?

Donde vivía antes de la inundación

_____Menos de $49.00 _____$200.00 to $249.00 _____$400.00 to $449.00
_____$50.00 to $99.00 _____$250.00 to $299.00 _____$450.00 to $499.00
_____$100.00 to $149.00 _____$300.00 to $349.00 _____Más de $500.00
_____$150.00 to $199.00 _____$350.00 to $399.00 _____No pagaba hipotecaria ni alquiler

Donde vivo actualmentte

_____Menos de $49.00 _____$200.00 to $249.00 _____$400.00 to $449.00
_____$50.00 to $99.00 _____$250.00 to $299.00 _____$450.00 to $499.00
_____$100.00 to $149.00 _____$300.00 to $349.00 _____Mas de $500.00
_____$150.00 to $199.00 _____$350.00 to $399.00 _____No pago hipotecaria ni alquiler

22. Por favor indique su satisfacción general con el lugar donde vivió antes de la inundación y el lugar donde vive ahora. 1 indica que Ud(s) estuvo muy insatisfecho y 5 indica que Ud(s) estuvo muy satisfecho con el lugar. *Por favor marque el número que mejor corresponde a su nivel de satiisfación en cada caso.*

El lugar donde ...	Insatisfecho		Neutral		Satisfecho
vivia antes de la inundación	1	2	3	4	5
vivo actualmente	1	2	3	4	5

¿Cuáles fueron las dos razones principales porque elegio ese nivel de satisfacción para cada lugar?

El lugar donde . . .

vivía antes de la inundación (1)_____

(2)_____

vive ahora (1)_____

(2)_____

23. Por favor indique si los siguientes individuos, agencias, o organizaciones le asistieron en encontrar alojamiento adequado después de la inundación. 1 indica que el individuo, organización o agencia no le asistio, y 5 indique que el individuo, organización o agencia le asistió mucho. Si no solicitó asistencia del individuo, organización o agencia, marque "NA" en la columna derecha. *Por favor marque el número que mejor corresponde al nivel de asistencia que recibio de cada individuo, organización, o agencia en su busqueda de alojamiento adequada\o.*

	non fueron serviciales				fueron muy serviciales	no busque asistencia
Pariente(s)	1	2	3	4	5	NA
Amigo/a(s)	1	2	3	4	5	NA
Vecino/a(s)	1	2	3	4	5	NA
Patrón(es)	1	2	3	4	5	NA
Cruz Roja	1	2	3	4	5	NA
Ejercito de Salvación 1	2	3	4	5		NA
Organziación(es) de la Iglesia	1	2	3	4	5	NA
Organización(es) de la comunidad	1	2	3	4	5	NA
Bancos locales	1	2	3	4	5	NA
Autoridad de habitación	1	2	3	4	5	NA
Municipalidad	1	2	3	4	5	NA
Agencia Estatal	1	2	3	4	5	NA
FEMA	1	2	3	4	5	NA
Otro (Por favor sea especifiquo)____	1	2	3	4	5	NA

_____

24. Por favor indique su satisfacción general con la ayuda que recibio en encontrar habitación adequada después de la inundación. 1 indica que Ud(s) estuvo muy insatisfecho y 5 indica que Ud(s) estuvo muy satisfecho. *Por favor marque el número que mejor corresponde a su nivel de satisfación en cada caso.*

Muy Insatisfecho		Neutral		Muy Satisfecho
1	2	3	4	5

¿Cuáles fueron las dos razones principales porque elegío ese nivel de satisfacción?

(1) _____

(2) _____

25. ¿Recibió ayuda designada especificamente para la recuperación de habitación? _____*Sí* _____No

Si la respuesta es Sí, (1) **Paso 1**-- Marque un (√) al lado de cada individuo, agencia, o organizacion que le ayudó en la recuperación de su habitación.

(2) **Paso 2**-- Para cada individuo, agencia, u organizacion que marcó, por favor indique el tipo de ayuda que recibío de ellos en la columna apropiada. Si ninguna de las opciones se aplican, llene el espacio "otro" apropiadamente.

Por Ejemplo	Ayuda con el alquiler	Reemplazo de bienes personales	Materiales para la reconstrucción	Servicios y ayuda Manual	Otro (por favor sea (especifico)
√ Pariente(s)	√	√		√	√Materiales de limpieza
NA Vecino(s)					

Tipo de ayuda de recuperación de habitación

	Ayuda con el Alquiler	Reemplazo de bienes personales	Materiales para la reconstrucción	Servicios y ayuda Manual	Otro (por favor sea (especifico)
_____Pariente(s)					
_____Amigo/a(s)					
_____Vecino(s)					
_____Patrón(es)					
_____La Cruz Roja					
_____Ejercito de Salvación					
_____Organización(es) de la Iglesia					
_____Organización(es) de la comunidad					
_____Autoridad de habitación					
_____Municipalidad					
_____Agencia Estatal					
_____FEMA/Subvención IFA					
_____Préstamo para negocios pequeños					
_____Banco(s) local					

continuación de pregunta #25

	Tipo de ayuda de recuperación de habitación				
	Ayuda con el Alquiler	Reemplazo de bienes personales	Materiales para la reconstrucción	Servicios y ayuda Manual	Otro (por favor sea (especifico)
_____Seguro privado	_____	_____	_____	_____	_____
_____Seguro de inundación	_____	_____	_____	_____	_____
_____Beneficio de veteranos	_____	_____	_____	_____	_____
_____Otro_____	_____	_____	_____	_____	_____

Si su respuesta fue No, por favor diganos las dos razones principales porque no recibió asistencia para la recuperación de habitación.

(1)_____

(2)_____

26. ¿Como fue informado de las distintas formas de ayuda para la recuperación de habitación que existía después del desastre? *Por favor marque con (√) todas las respuestas que corresponden.*

_____Radio
_____La Cruz Roja
_____Organización cívica(s)
_____Patrón(es)
_____Folletos
_____Municipalidad
_____Vecino(s)
_____No fue informado
_____Otro (por favor indique como)_____

_____Amigo(s)
_____Periódico(s)
_____Pariente(s)
_____Autoridad de habitación (Housing Authority)
_____FEMA Centro de alivio de desastres
_____Centro(s) de distribución de la Iglesia
_____Centro de distribución del Ejercito de Salvación

_____Televisión/ Cable
_____Líder(es) de la comunidad
_____Agencia(s) Estatal

27. Por favor indique su **satisfacción general** con cada tipo de **ayuda para la recuperación de habitación** que ha recibido. 1 indica que Ud(s) estuvó muy insatisfecho y 5 indica que Ud(s) estuvo muy satisfecho. Si no recibío uno de los siguentes formas de ayuda, marque el "NA" en la columna derecha. *Marque el número que mejor corresponde a su nivel de satisfactión en cada caso.*

Tipo de ayuda...	Muyt Insatisfecho		Neutral		Muy Satisfecho	No recibio ninguna
Ayuda con el alquiler	1	2	3	4	5	NA
Reemplazo de bienes personales	1	2	3	4	5	NA
Materiales para la reconstrucción	1	2	3	4	5	NA
Servicios y ayuda manual	1	2	3	4	5	NA
Otro_____	1	2	3	4	5	NA

Por favor diganos las dos razones principales porque elegio ese nivel de satisfacción para cada tipo de asistencia de recuperación de habitación que recibio:

Ayuda con el alquiler (1)_____
(2)_____

Reemplazo de bienes personales (1)_____
(2)_____

Marteriales para la reconstrucción (1)_____
(2)_____

Servicios y ayuda Manual (1)_____
(2)_____

Otro (1)_____
(2)_____

28. ¿Que procentaje del daño a su habitación previo de la inundación ha sido reparado? 0% indica que ninguna reparacion ha sido completada, 50% indica que una mitad de las reparaciones han sido completadas, y 100% indica que todas las reparaciones han sido completadas en el lugar que vivía antes de la inundación. *Marque el porcentaje que mejor discribe la cantidad de reparaciones que han sido completadas.i*

Ningun reparación				Todas la reparaciones
0%	25%	50%	75%	100%

29. Si **todas la reparaciones en el lugar donde vivía antes de la inundación no han sido completadas**, por favor indique por que. *Marque con(√) todas las respuestas que corresponden.*

_____No he podido obtener un permiso para constuir
_____No he podido encontrar un contratista, electrisista, o polmero
_____No tengo el dinero para las reparaciones
_____He recibido ayuda, pero no lo suficiente como para terminar las reparaciones.
_____No tengo tiempo para hacer las reparaciones.
_____Mi propiedad está en la llanura sujeta a inundaciones.
_____No puedo satisfacer las nuevas layes de división u ordenazas.
_____Estoy destrozando la estructura de la casa.
_____Me he mudado a una nueva habitación en la comunidad.
_____Planeo trasladarme de la comunidad.
_____Estoy vendiendo mi propiedad.
_____No soy properietario.
_____Otro (Por favor sea especifiquo)_____

30. ¿Ha refugiado a alguien quien fue afectado por la inundación? _____Sí _____No

Si la respuesta es Sí, ¿Cuánta gente tomó refugio en su hogar? #_____(personas)

¿Cuánto tiempo se alojaron en su hogar? _____

En acuerdo con la gente que se refugío con Ud., por favor indique con un (√) si las siguietes caractéristicas se les aplican.

_____Amigos _____Miembro(s) de la Iglesía
_____Parientes _____Conducípulos de trabajo
_____Vecinos _____Otro (por favor sea especifico)_____

31. Por favor cuéntenos un poco de Ud.

Sexo _____Mujer _____Hombre Edad _____Años

Estado Civil

_____Sóltero(a) _____Casado(a) pero serparado(a) _____Divorciado(a)
_____Casado(a) _____Viudo(a) _____otro (Por favor sea especifiquo) _____

¿Cuantas personas vivieron en su casa antes de la inundación? _____(personas)

¿Tuvó niños menos de 18 años viviendo con Ud.(s) antes de la inundación? _____Sí _____No
Si su respuesta es Sí, por favor indique cuatos niños vivian con Ud(s). #_____(niños)

Raza/ minoría étnica

_____Caucásico (blanco) _____Hispano _____Asiatico, Aluet, Pacific Islander
_____Negro _____Americano Nativo _____Otro (Por favor especifique donde) ___
_____

Ingreso aproximado por hogar $_____.00___

Nivel de educación

_____nóveno grado o menos _____Bachilerato or G.E.D. _____Titulo Universitario
_____nivel medio _____tecnico superior o más de un año de universidad _____Post grado

Tiempo que ha vivido en la comunidad

_____1 año o menos _____6 a 10 años _____16 a 20 años _____26 a 30 años
_____2 a 5 años _____11 a 15 años _____21 a 25 años _____Mas de 31 años

Le agradecemos mucho su cooperación. Sus respuestas seran tratadas anonimamente y confidencialmente. Por favor mete esta encuesta dentro del sobre blanco provisto. Un investigador vendra a recóger la encuesta dentro de 48 horas.

VITA

Kim Blanca Galindo
1920 W. Villa Maria Ste. 301 * Bryan, Texas * 77801
(979) 823-1920, kim_blanca@yahoo.com

Education

Texas A&M University
Doctor of Philosophy in Urban and Regional Sciences 8/07
Emphasis in Disaster Prevention and Recovery
University of Texas, Austin
Masters of Science in Social Work 5/93
Emphasis in Administration and Planning
Texas A&M University
Bachelors of Science in Sociology 12/89
Bachelors of Arts in Modern Languages, Spanish 12/89
Minors in History and Anthropology

Professional Experience

R. A. Galindo — Bryan, Texas
Vice President of Operations — 8/04 – 12/05

Texas A&M University — College Station, Texas
Admin. Assist. for International Programs Office — 11/96 – 5/04

Texas A&M University — College Station, Texas
Graduate Research Assistant — 5/98 – 3/01

Communities in Schools, Central Texas, Inc. — Buda, Texas
Program Manager — 11/93 – 1/96
Aerofit, Inc. — Bryan, Texas
Board of Directors — 6/94 – 12/98

Border Community Health Education Institute — El Paso, Texas
Graduate Level Social Worker — 1/93 – 5/93

Project Arteaga — Arteaga, Mexico
Project Director — 1/91 – 6/91

Austin Rehabilitation Center — Austin, Texas
Chemical Dependency Counselor — 3/91 – 11/ 91