"X MARKS THE SPOT: DECODING THE HURRICANE KATRINA 'X' THROUGH URBAN MEMORY OF NEW ORLEANS RESIDENTS"

by

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(Under the Direction of Steven Holloway)

ABSTRACT

This thesis explores the urban memory of residents of the Marigny and Bywater neighborhoods of New Orleans. The research project examines the memories and experiences of locals with Hurricane Katrina, particularly as they relate to the Hurricane Katrina Xs through grounded fieldwork, analysis of interviews, United States Census data, and archives. I explore the underlying motivations behind why residents either kept or erased the "X"s that were spray painted onto their residences by FEMA Urban Search and Response Teams during the aftermath of the storm. This thesis concludes that the Xs are not randomly distributed and that residents socially construct memories that transcend space and time.

INDEX WORDS: New Orleans. Hurricane Katrina, urban memory, wounded cities, forgotten cities, uneven geographies

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DEDICATION

I would like to dedicate this thesis to the hard-working and resilient citizens of New Orleans as they continue to rebuild their city in the years following Hurricane Katrina. The daunting task of recovery continues to be difficult, but this great city will once again rise from the ashes and come back as the mighty Queen of the Mississippi. Here's to more Jazz, jambalya, Mardi Gras, and that charismatic creole culture. As New Orleanians proudly profess-- *Laissez les bons temps rouler.*

Be a New Orleanian. Wherever you are.

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CHAPTER 1: INTRODUCTION

1.1 Summary of the Research Problem

In the immediate aftermath of Hurricane Katrina, urban search and rescue teams went around flooded neighborhood residences and businesses in New Orleans to save citizens. Victims were trapped in attics, on the roofs of buildings, or stuck in rooms of their houses. Individuals and families sometimes were trapped for days amidst oppressive heat, filthy floodwater, and hurricane debris. As emergency rescue teams went from house to house, they followed federal protocol by spray painting "X"s onto the flooded structures after they searched for victims. According to the National Urban Search and Rescue (US&R) Response System, each quadrant of the "X" has a specific meaning. The top quadrant lists the time and date that the rescuers checked the building; the right quadrant lists personal hazards and dangers; the bottom quadrant identifies the number of victims found inside, and the left is the name of the team that went through the house. Below is an image that unpacks the matrix of the "X":

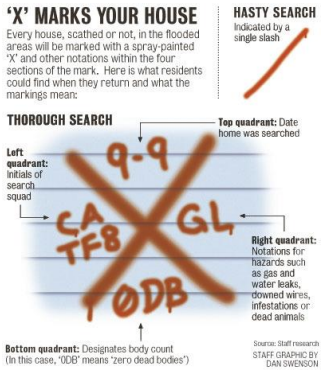

Figure 1.1. Hurricane Katrina "X" Graphic.
Source: (The Times Picayune 2006).

The "X"s are still visible on buildings seven years later, in some areas more than others. In some neighborhoods where devastated houses (or what is left of them) stand the "X"s collide

with the destructive background and it looks like it did the day after Katrina. In these haunted examples, time appears frozen and the "X"s are direct indicators of those horrific days when the floodwaters invaded century old houses and neighborhood streets, leaving behind only a vague semblance of a once vibrant and close-knit community. Neighborhoods less devastated than the 9th Ward also have the "X"s on their properties. In fact, some residents have gone beyond just keeping the "X" and have made artwork out of them. The most striking landscapes are those streets where two houses stand side-by-side, one still uninhabited and taken over by weeds next door to a lot where residents have returned and rebuilt their house on raised bricks with freshly-cut lawns. This imagery of the landscape is not uncommon as the city has experienced uneven redevelopment, where every level of the city has experienced disparate rebuilding. From the neighborhood to the block and down to the street level, repopulation is geographically uneven. Memories of Katrina are unearthed by witnessing the landscape from these uneven perspectives.

The recounting of Hurricane Katrina now consists of an impressively vast and continually growing literature that includes books, essays, policy reports, artwork, and filmography. Scholarship on learning from and understanding the implications of the storm is prolific. Research runs the spectrum from theoretical and empirical studies conducted by academics in fields such as Geography, Sociology, and Economics to public-oriented work such as surveys administered by local neighborhood non-profits, master rebuilding plans by the local government, and creative interpretations of the hurricane by film-makers and artists. Imbedded within these massive collections of research and analyses is foundational work about the Katrina "X"s. The visceral presence of the "X"s and research about their enigmatic symbolism is most notably captured by newspaper writers and photographers. The point of departure for my

research is this initial research into the Katrina "X", its spatial pattern in two New Orleans neighborhoods, and the social construction of the "X"s memory.

1.2 Summary of the Research Questions

Katrina +5: An X-Code Exhibition (2009) was a photography project created by artist Dorothy Moye that documented the "X"s throughout various New Orleans neighborhoods. The exhibit demonstrated how the "X"s have become a direct reminder imprinted on the landscape. They are urban memory made manifest throughout space and time. According to Moye, "The virtual exhibition presented here revolves around one iconic form in the visual landscape of Katrina in New Orleans…that became an indelible symbol on the streets…" (southernspaces.org 2010). The images were gathered and decoded as a way to understand the significance they held for residents. Some were disturbed by the memories and erased the "X" while others have preserved them for their powerful symbolism. For my project, I expand on what Moye started with a geographical case study of two New Orleans neighborhoods, the Marigny and Bywater.

In order to critically understand the underlying processes of the way residents treated the "X"s, I grounded my study within a theoretical framework situated at the intersection of geographical work on urban memory and the historically uneven socio-spatial residential patterns of New Orleans. Based upon these two frameworks, I posed the following two questions:

- *First, what are the social and physical locations of the "X"s within these two neighborhoods?*
- *Second, what are the motivations that lead to residents either keeping or erasing the "X"s?*

Based upon these two questions, my findings and analysis, and my interpretations of the data, I argue the following two main positions. First, the "X"s are not randomly distributed at the block level and statistical analysis suggests weak to moderate association between the "X"s

and pre-existing demographic variables from the 2000 Census. This first argument concurs with my first hypothesis that the "X"s cluster in parts of the neighborhoods closer to high proportions of racial minorities, lower-income residents, renters, and lower housing value. My analysis does not examine flooding because these two neighborhoods did not flood and only had minor street water, even though there was extensive property damage due to wind.

My second main argument is that residents socially construct memories from the "X"s that are temporally and spatially grounded within a post-Katrina context of a rebuilding New Orleans. The Hurricane Katrina "X"s are fundamentally different from other memorials because they were not originally intended to become memorials in the first place. The original purpose of the "X"s was to demarcate search and recovery efforts by Urban Search and Rescue teams. Thus the "X"s represent an anomaly to normal markers and memorials. Seven years later, residents have ascribed different symbolic meanings to them that stray away from their original purposes. I surmise that search teams did not spray "X"s with the intention that residents would return and turn them into art, preserve them for survival reasons, or erase them for defiance purposes. They were performing a job during a catastrophe and were following protocol. The "X"s are different from monuments, statues, and historic walls because their foremost function was to signal Katrina rescue missions. Over time and across space locals have culturally appropriated the "X"s and transformed them from a sign of rescue into a sign of memorial.

My two main arguments provide fruitful avenues for future research that my own study only initially takes up and analyzes. Through my research, I learned that the "X"s cannot be approached in a reductionist fashion. What is occurring is not a simple dichotomy of remembering versus forgetting or black versus white. In my findings and analysis, I show how a

confluence of factors plays a role in determining how urban memory becomes manifested socially, spatially, and temporally.

Few metropolitan areas in the United States have experienced a natural or human -made disaster on par with the scale of Katrina. The Great Chicago Fire of 1871, the San Francisco Earthquake of 1906, and Hurricane Andrew in 1992 are three examples of past catastrophic disasters of similar scope and magnitude. The most recent example is Hurricane Sandy which struck New York and the northeast in October 2012. Countless academics in different fields have researched and studied these disasters in order to gain a better and more in-depth understanding of the forces behind the catastrophes. As a geographer, I am interested in the way these cities have recovered spatially and how their memories have been constructed and maintained on and through the landscape. In the case of Katrina and New Orleans, every resident of the city has his or her own story to tell. These narratives have been documented and published via personal memoirs, literature, television shows, and documentaries. Through these various representations of Katrina and New Orleans, artists, musicians, photographers, and writers have retold their narratives of the storm, providing a memorializing account of the traumatic event.

I focus here on photographers who initially captured the "X"s. The fact that photographers have documented the "X" phenomenon is a testament to the power behind them. In no other major American city has this symbolic marker become as extensive in scope within the human-made landscape. At first, the "X"s were part of search and recovery. Seven years later, the symbols behind them have taken on multiple meanings, and it is this point of departure that I learned the social geography of the "X"s. This study reveals a side of the Katrina narrative that has not yet been fully exposed. The "X" has become a defining symbol of the storm just as

the fleur-de-lis is a defining symbol of the city's comeback. Through my project, residents have provided me with a new perspective of Katrina and New Orleans.

This topic serves as an important project that has yet to be studied from a geographical perspective. Moye makes a convincing argument that this photographic project is visually captivating and distinctly poignant:

> Here, in a virtual exhibition, Moye presents X-code images selected from the work of more than twenty-five photographers in the intervening five years. Visually striking and emotionally compelling, the X-code speaks through its sheer numbers, its rhythmic repetition across the curving network of city streets, its narrative traces of ciphered messages, and its graphic directness…(southernspaces.org, 2012)

Moye evokes the salience and evocativeness behind the "X"s in New Orleans neighborhoods. A transplant and former resident of the city, Moye worked in collaboration with about 25 artists to create this project. She argues that the "X"s are visually evocative and striking across the landscape and she documented them across the entire city. I argue that my project is important because I provide a more in-depth case study on two specific neighborhoods rather than the whole city. My project is interesting and compelling because I bring forth a new geographical lens that expands upon Moye's project and I shed light on the reasons behind citizen's decisions to memorialize the "X"s. The project makes both empirical and theoretical contributions. The purpose of the research is to provide a case study on how citizens of a particular city memorialize disasters. In conducting my research, I hope to show a side of urban memory not yet explored in the literature. What has occurred in New Orleans is generalizable to the emerging work on "wounded cities" (Till 2012) and it will provide a concrete and detailed study within the growing scholarship.

1.3 Review of the Preliminary Analyses

The inspiration for my project comes from preliminary research that was conducted by both Moye as well as journalists between 2005 and 2007. It was not until 2010 that the "X"

became a topic of serious inquiry, and my own work in 2012 represents the first academic study on these Katrina artifacts. These preliminary examinations come primarily from journalists who struggled to make meaning of these symbolic markers. Here, the "X" is referenced as "symbol", "graffiti", "hieroglyphic", "emblem", "mark", and "badge", and "painted scribbles". Just from looking at these code words that residents used interchangeably for the "X", it is clear that initial research on this phenomenon was not conclusive.

First and foremost, I focus on the multifaceted understanding of the "X"s. For residents and journalists alike, the "X"s was a new symbol never before encountered, even though the city had experienced its fair share of major hurricanes. The early months and years immediately after Katrina were a time of confusion and mixed emotion concerning the "X". Michael Perlstein (2005) illustrates. Perlstein was one of the first to try to decipher what the "X" means to residents. He writes, "Hurricane Katrina has turned New Orleans into a marked city…in what is sure to become one of the lasting reminders of the storm's devastation" (Perlstein 2005, 1). The date of this article is September 17, a half month after Katrina's landfall, which illustrates the sheer curiosity of the "X". Early estimates surmised that most residents would choose to get rid of it. Perlstein states, "To most returning residents, the markings will be strange and meaningless hieroglyphics, destined to be painted over. But inevitably, some markers will remain, to serve as harsh memorials for the perfect storm" (Perlstein 2005, 1).

By July of 2007, nearly two years had passed, permitting a sizeable repopulation of the city's neighborhoods, as well as a good window of time to allow locals who were rebuilding to make decisions on the "X". Here, I use a second journalist, Chris Rose (2007) to continue the theme of a multifaceted understanding of the "X". Rose seemingly extends a mixed-emotion towards the "X"s. He states, "part historic preservation, part act of defiance, the spray-painted

markings of Katrina rescue workers remain prominently displayed on many reoccupied New Orleans homes" (Rose 2007, 1). His both-and interpretation demonstrates the competing significations that different people hold towards the "X". He remarks,

> Imagine coming back to New Orleans from exile—to a home that suffered neither wind nor water damage—only to be faced with a $6,000 exterior paint job because some well-meaning but overzealous grad student on leave from Swarthmore branded CAT UNDER HOUSE in red 2,000-point type across the front of your house…(Rose 2007, 1)

I argue that Rose's findings are representative of a larger multilayered understanding of a very complex topic. Rose writes, "In retrospect, there was something almost biblical about those markings…many remain brightly resplendent in the full array of Crayola color selections employed by the National Guard" (Rose 2007, 1). At the most extreme sides, some residents hate it while some view it as a sign of resiliency. Rose conveys these overlapping and conflicting ranges of perspectives. Later in the article, he asks why the Bywater neighborhood, compared to any other neighborhood, has the highest quantity of "X"s. He hypothesizes that perhaps it is due to the more Bohemian feel of the area. He describes the Bywater as offbeat, craving the unusual, and embracing the weirdness of life. One resident exclaims, "I noticed a lot of homes around here were painted just before the storm…I guess like a lot of folks around here, I'll just let mine fade away on its own…complacency and budget play a role in the [preservation]" (Rose 2007, 2). Another local stated, "Those Xs and Ys and whatever. I don't want that on my house. I don't want to remember that. I don't need a souvenir" (Rose 2007, 3). Once again, he estimates that the "X"s will disappear. He states, "it stands in good reason that few such markings will be preserved for posterity's sake...most returning residents would rather be content to leave white blobs rather than all those cryptic messages" (Rose 2007, 3).

I argue that both Perlstein and Rose were halfway right yet also halfway wrong. Yes, there is not a black-white interpretation of the "X"s. Beneath the surface of these spray-painted

markers lies a very multidimensional sentiment towards and interpretation of these "X"s. Simultaneously, both journalists were erroneous by stating that residents will simply erase them. Their hypotheses were both simple and conclusive, and what Moye discovered five years later is an ominous proliferation of the "X"s across all neighborhoods. More specifically, she discovered that the "X"s concentrated most heavily in the older, downtown neighborhoods of the Marigny and Bywater. Her research went beyond the work initially conducted by the two journalists between 2005 and 2007. Since much of Katrina research is framed—as mine is—within a socio-spatial context, I stress the years. Much had changed from September 2005 to her work in 2010 and much changed between 2010 and 2012.

Moye's project describes how five years after the storm, the "X"s are fading and disappearing much faster than she originally thought they would. But, they are still there and the cumulative presence of these visceral messages communicates to the magnitude of their powerful history. I provide a sampling of quotations from interviews that Moye (2010) conducted that express the wide range of interpretations resident's articulated. These quotes were specifically chosen the capture the multifaceted feelings towards the "X"s. I argue that they are important and represent the wide spectrum of locals' motivations to either keep or erase the "X".

- "For me, they will always be stigmata of immense loss and unexpected death." ". . . there was something almost biblical about those markings on all the front doors around here."
- "conjuring a cross between…voodoo and a kind of military coroner's occupation."
- "Ah, the X—truly the most powerful symbol, for better or worse, that we have, I think."
- ". . .alarming . . . invasive . . .a violation . . .lawless graffiti . . . disrespectful."
- "I conserved my X for over two years as a historical relict (much to the consternation of my wife), but finally painted it over in December 2007. . . It pained me to paint it over, but honestly I haven't missed it since. Perhaps I over read its symbolic importance; perhaps I let the pragmatic trump the abstract . . . or perhaps time is softening the searing memories of that time."

Urban memory frames the various ways stakeholders decipher the symbolism behind the "X". For some, it evokes haunted memories of death. For others, it is a violation and mark of

graffiti. And still for others, it is a powerful reminder of the solidarity of the city and what it went through. Moye records how many residents she first encountered got rid of it entirely, disgusted and angered by its glaring presence. She also learned that others removed it for insurance purposes, thinking that real estate would view it as damaged—even when flooding did not occur. And finally, a minority of residents preserved it as a memorial or shrine-like structure to the memory of Katrina. A fourth category includes those residents who have not returned, thus leaving the "X" neglected and without a conscious decision as to how to treat it. Her works played a crucial influence in my desire to carry out this research project. I wanted to learn more behind the history of these "X"s, the memories carried with them seven years later, and why some residents kept them and some removed them.

1.3 Organization of the Thesis

The thesis is organized into the following chapters. Chapter 1 serves as an introduction to my study, and summary of the research questions and problems. Chapter 2 provides a social scientific perspective of studying Hurricane Katrina, a historical background of the storm, and an argument for positioning New Orleans within the current research. Chapter 3 is the literature review and theoretical framework. Sections explore the conceptual frameworks of uneven urban socio-spatial patterns of the city, disaster landscapes, and geography and the social construction of memory. Chapter 4 will be the research design where I provide an overview of the study area. I will lay out my methods and describe the systemic stages of research that I conducted. Chapter 5 is the findings and analysis chapter. Chapter 6 is the conclusion and final thoughts. I will also use this space to explore possible future avenues of research based upon my own study.

CHAPTER 2: SOCIAL SCIENCE, HISTORICAL BACKGROUND, AND HURRICANE KATRINA

"Two years later, the hieroglyphics of catastrophe still deface the city's surviving housing stock like some demented 90-square-mile contest of post-diluvian tic-tac-toe. X, zero, X, zero, ad infinitum" (Rose 2007, 1).

2.1 Social Science and Katrina

I argue that the context of Hurricane Katrina serves as a critical source of academic engagement that forced social scientists to fundamentally change the way they think about and study cities and disasters. Countless essays, books, collaborative conferences, and special collection archives have documented the experience of Katrina across multiple social science perspectives. For example, Brunsma, Overfelt, and Picou (2010) published an anthology of essays on Katrina, offering the central argument that researchers need to undergo a paradigm shift on the ways in which they study, analyze, and discuss disasters. They argue that Hurricane Katrina, unlike any prior disaster in North American history, was so unprecedented in scope and scale and across the physical and social sciences that it set the stage for a reformulation of the way we research disasters. Much of the influence of my work stems from two main fields—geography and urban sociology.

The academic writings, policy reports, and governmental responses have catalogued an amazingly expansive collection of Katrina-related research. In reviewing the literature, one begins to gain a sense of the unprecedented nature of Katrina and its impacts on society. Here, I specifically focus on the ways Hurricane Katrina has influenced the social sciences. First and foremost, the storm uncovered and explicitly placed issues of race, poverty, and urban inequality

in the public eye. In fact, Katrina was the first disaster in the history of American media to be featured 24/7 (Watkins 2011, 2). As the real-life drama played out on millions of Americans' televisions, the country was faced with the dark realities that extend far beyond New Orleans proper and into other American cities.

To demonstrate my argument, I engage with the works of several academics, starting with the work of Brunsma, Overfelt, and Picou. In this collection of essays, the authors extend their core premise that Katrina provided the foundation for the conceptual and analytical paradigm shift of studying the urban environment. This reformulation of thought stems from years of research on cities and disasters and the various approaches taken by different disciplines and interdisciplinary scholars. For example, Hartman and Squires (2006) suggest, "Katrina as a sociological event requires a paradigm shift in disaster research and a reorientation of important research themes…Hurricane Katrina was a 'destabilizing event', a disaster that...forces a rethinking of the nature of modern catastrophic events" (1). Take for instance the way geographers study migration, both nationally and internationally. Katrina, as a unit of analysis, created the "largest internal U.S. diaspora of displaced people as a result of a natural disaster in American history"(Hartman and Squires 2006, xv). Thus, Katrina provided a fruitful avenue of research and thinking on issues of cities, race, class, politics, government, institutions, poverty, racism, and disaster preparedness and recovery.

In addition to engaging with paradigm shifts, some social scientists posit that Katrina was more than a "traditional" natural disaster. Debate is prominent—was Katrina a natural disaster? Human-made disaster? Indeed, one can single out one of many factors: the flooding, breeching of the federally designed levees, failure of the government response, the toxic spilling of oil into the Gulf and marshlands, and the thousands of stranded residents at the Superdome and

Convention Center. However, the question remains—what exactly makes Katrina "different?" First, the literature states that prior to Katrina, disasters were framed into a dichotomy of "natural" disasters versus "technological disasters" (Hartman and Squires 2006, 3). The term "natural" refers to such events as hurricanes, earthquakes, tornadoes, and other weather phenomena. Conversely, the term "technological" refers to the breaking down of human invention such as the *Exxon Valdez* oil spill in 1989. Eventually, four categories became the norm in this area of research—natural, technological, natural-technological, and terrorism. Hurricane Katrina, they argue, serves as the prototypical natural-technological disaster. The creation of this fourth category paved the way for paradigmatic shifts of studying urbanism and disasters.

I break down the "natural" versus the "technological" elements of Katrina for analytical purposes. "Natural" occurred via the immediate flooding and wind damage during the direct landfall of Hurricane Katrina. "Technological" involved the breaking of the levees constructed by the Army Corps of Engineers. In addition, the oil spills and the overtopping of the three main levees—17th Street Canal, Industrial Canal, and the London Avenue Canal—were also technological, or as most residents proclaimed, "human-made". Additionally, Katrina was the third largest oil spill in North American history, falling behind the Exxon Valdez and Deepwater Horizon BP oil spills in 1989 and 2010, respectively (Picou, Gill, and Cohen 1997). Complex factors play out in the "na-tech" disaster of Katrina: the breakdown of FEMA; the poor communication among all three levels of government; the lack of aid; the standing floodwaters for days; the urban search and rescue efforts, and the long-term mental health effects years later.

While typologies and categorization in research serves important heuristic purposes, they must be studied within a particular conceptual framework. It is not enough to just label disasters.

We must seek to understand the manifold consequences that play out in the human landscape. As disaster scholarship reflects, many former "natural" disasters increasingly are critiqued as more anthropogenic than first imagined. Hurricane Katrina initiated this conversation through its paradigmatic shift introduced to academics. Top scholars such as Kai Erikson (*Everything in Its Path: Destruction of Community in the Buffalo Creek Flood,* 1976) and Eric Klininberg (*Heat Wave: A Social Autopsy of Disaster in Chicago,* 2003) serve as foundational academic works to study urban disasters, and the discipline continues to evolve, especially after 2005. For instance, Erikson was the first to discuss the *collective trauma* behind disasters. He defines this phenomenon as the total population within a geographic area (such as a city or small town) that suffers from a catastrophic event. The consequences following these crises play out temporally and spatially and affect the community at large. The notion of collective trauma relates to the collective urban memory that is the focus of my study.

Through place attachment, especially when there is collective trauma, residents create physical memories, such as the "X"s. Human agency plays out when residents respond to Katrina by preserving the "X"s on their houses. As a result, the disaster landscape becomes superimposed upon a transformed sociocultural landscape. The collective trauma becomes collective memory and undergoes a temporal and spatial renegotiation as years pass. I use the "X"s and New Orleans as a case study of urban memory, and I situate my research within the broader context of disaster and geographical research in the social sciences.

2.2 Katrina in the Context of Other Disasters

According to Hartman and Squires (2006), there is no such thing as a natural disaster. Hurricane Katrina, while unique in many regards, fits into a more generalizable pattern of disaster research. Here, I provide a conceptual lens to understand the ways academics have

historically studied and contextualized disasters. I specifically include the cases of The Great Chicago Fire of 1871, The San Francisco earthquake of 1906, the Mississippi Flood of 1927, and Hurricane Andrew in Miami in 1992. I use these four events for primarily two different reasons and all four fall into either one or both of the categories. First, I use the earthquake, flood, and hurricane because they are severe weather events. Severe weather refers to any perilous meteorological phenomenon that has the capability of destroying life and land. Second, I use Chicago, San Francisco, and Miami because they are all major American cities with densely populated urban centers. Thus, my research fits into this framework because Katrina was a severe weather event that caused catastrophic destruction in a major city. Each different disaster offers lessons to be learned and questions to be answered. However, for the purposes of this section, I will draw from each disaster one theme that relates to what happened to New Orleans during Hurricane Katrina.

The Chicago Fire devastated a huge chunk of the city proper in 1871, destroying 18,000 homes and businesses and leaving 300 dead and 100,000 homeless. Similar to Katrina, the most severely affected and vulnerable residents were the poorest populations. Aid was acute, recovery was designated to the private realm and little sympathy was given to the poor because it was considered to be their own fault (Miller 1990). An important lesson to be learned from the fire was that city officials and urban designers steadfastly argued that the city would not and should not be rebuilt the same. Following the disastrous effects the fire caused, Chicago officials realized that the city could grow the way it was prior to the fire—densely packed wooden structures that did not allow for easy access to extinguish the fire. In New Orleans, a similar argument was made—the city should not rebuild as it was prior to the storm. For some flood

victims, the question became either should they relocate to higher ground or will they remain in their neighborhood and raise their house to a certain elevation above sea level.

The next biggest American disaster was a devastating 7.8 magnitude earthquake and fire in San Francisco in 1906. The city was criticized for building on areas where people should not have settled and inhabited in the first place (Fradkin 2005), a discussion highly reminiscent of the debates surrounding the rebuilding of low-lying, flood-prone New Orleans. Roughly a quarter of a million were left homeless and the fire leveled 2,800 acres of the city's built environment. Just like Chicago, redevelopment was spearheaded by the private sector, leading to an uneven redevelopment of the city along class lines. Fast forward to 2005, the same mistakes were made, leaving the most disenfranchised populations at the bottom.

The Chicago fire and San Francisco earthquake directly relate to the questions surrounding the rebuilding of New Orleans. Discourses about rebuilding the city in the years following the storm have segregated planners and residents into three general camps as summarized by Campanella (2008). "Abandonists" oppose the rebuilding of the city, guided by a hard-scientific and economic perspective of the city. On the other end of the spectrum, "maintainers" are ardent proponents of rebuilding the city by all means. Their ideology is the most humanistic, culturally influenced by the city's unique history and way-of-life as worth preserving. In the middle "concessionists" struggle to balance hard-scientific data with their love of the city's heritage. They advocate increasing the city's density and shrinking the overall urban footprint instead of rebuilding the worst-off areas. Seven years later, a *laissez-faire* approach has become the standard, allowing for residents to rebuild where and how they please, including the most devastated neighborhoods such as the Lower Ninth Ward.

The Mississippi Flood of 1927 occurred due to steady periods of heavy rains in the Midwest floodplains. There were a total of 145 breaches in human-made levees, covering 1.6 million acres of land inhabited by 930,000 people and damaging 160,000 homes while completely obliterating 41,487. Recovery relied more heavily on a federal response, compared to the two previous major disasters. Notwithstanding, recovery efforts—specifically in regards to land resettlement—occurred on an unequal measure, disproportionally neglecting blacks and poor citizens. One of the biggest take away messages from the flood revolved around the nature of the relationship between man and landscape (Barry 1997). It "altered the underlying theory regarding man's relationship with nature from one of domination to one of accommodation" (Hartman and Squires 2006, 26). The flood proved that a levees-only policy was sealing the river off from its natural flow, leading scientists to advocate for a more hands-off approach that included less human domination of nature. This lesson is critical for understanding the case of New Orleans, which relied almost exclusively on levees-only policies in the 1960s and onward, thus cutting off the natural flow of the Mississippi River and consequently depleting the marshlands of their necessary nutrients. Often viewed as the city's best natural defense against hurricane, marshlands were all but destroyed during the 2005 storm. However, seven years later, the levees have been rebuilt at the expense of replenishing the natural marshland areas.

The most recent historical precedent for understanding Katrina is Hurricane Andrew, which struck South Florida on August 24, 1992. The category 4 hurricane destroyed close to 30,000 homes and damaged more than 100,000 and killed 65 individuals, either directly or indirectly. Most of the damage fell disproportionately on the lower class and elderly. Researchers have framed their studies of Andrew within a socio-political and ecological framework (Peacock, Morrow, and Gladwin 1997). Government response was a mixture of short

and long term recovery efforts, but it still lacked cohesion among all three levels of government. However, Hurricane Andrew was the first time that the government addressed issues of long-term, rather than short-term rebuilding. These rebuilding principles are as follows: revitalize, do not just rebuild; involve affected persons in their own recovery; conduct oversight and provide accountability; carefully consider ecological balance; and take action to address issues that the private sector cannot adequately handle (Hartman and Squires 2006, 24-26). Similarly for New Orleans, various principles of rebuilding have been proposed to better protect the city for future disasters. The final plan for rebuilding, which is rooted in a long-term vision for the city, is titled "Plan for the 21st Century: New Orleans 2030" (City of New Orleans 2013).

I focus on these four critical North American disasters as a way to contextualize the history and narrative of New Orleans and Hurricane Katrina. I use these works to better understand some of the following points: who was affected primarily and why; what were the social and physical consequences of these events; what lessons have policy makers taken away for the future? Again, I stress the importance of choosing these four phenomena for either their urban focus or their meteorological basis, or sometimes both. First, and most importantly, all four cities have rebuilt, repopulated, and recovered from their respective disasters. The media as well as physical and social scientists focused heavily on the question of if and should New Orleans come back. What these four disasters illuminate is that recovery, while not easy or short-term, is possible and it suggests that New Orleans will rebuild following Katrina. Secondly, history repeats itself, a lesson ominously witnessed by New Orleanians when the levees broke just as the levees broke during the Great Flood in 1927. The physical and social consequences of the tornado, fire, flood, and hurricane parallel what happened in New Orleans,

thus demonstrating that the devastation is not unique to the city. As a result, research becomes broadened, paving the way for various research questions, theories, and empirical analyses.

Arguably, these four disasters provide an important analytical lens to talk about what happened in 2005. They have set foundational precedents for studying and researching disasters from a social science lens. I aim to contribute to this growing literature through my own geographical and urban frameworks. In order to address issues of the socio-spatial nature of the storm and its effects upon the city, we must understand the history of what other disasters have taught us. From here, I argue for positioning Katrina into this literature and I apply a specific geographical framing through my study of the "X"s in the Marigny and Bywater neighborhoods.

2.3 Historical Background of Hurricane Katrina

Hurricane Katrina was the 11th named storm, fifth hurricane, third major hurricane, and second category 5 storm of the 2005 Atlantic hurricane season. It was also the sixth strongest hurricane ever recorded and the third strongest hurricane to make U.S. landfall (NOAA 2005). Below, I present two tables on Hurricane Katrina that provide a historical background on its impacts and consequences.

Table 2.1. Hurricane Katrina Facts.

Category	Figure	Additional Notes
Category	3	Louisiana Landfall
Deaths	1,833	3rd deadliest in US since 1900
Buildings damaged or destroyed	1.2 million including 126,000 severely	some confirmations unsure if damage due to Hurricane Rita (September) or Wilma (October) due to proximity of landfalls
Estimated damage	$128 billion	2012 dollars; costliest in US history
Insured losses	$48.7 billion	2012 dollars
Homes without power	3 million in at least eight states	
FEMA assistance Approved	738,318 applications	
People Displaced	600,000 families homeless one	1.2 million ordered to evacuate along the Gulf Coast

month after storm

Source: (Newman 2012).

At first glance, Katrina was a powerful storm by all accounts. It is the only hurricane to make the top 5 deadliest-list since 1950 and it is the costliest hurricane to ever strike U.S. land, nearly double that of the second costliest storm, Hurricane Sandy, which made landfall in New York City in October of 2012 (The New York Times 2012). Of Katrina's total casualties, 1577 were in Louisiana; 238 in Mississippi; 14 in Florida; and 2 in Georgia and Alabama, each. I focus on Hurricane Katrina's landfall in Louisiana and the northern Gulf Coast, rather than its effects on Florida. Arguably, the media focused more on New Orleans and the surrounding region than Florida, and the damage was much more severe and widespread on the Gulf Coast rather than in Florida. Furthermore, since the core of my research is on two neighborhoods within the city proper, I justify my use to focus on only New Orleans.

Table 2.2. United States Hurricanes since 1900.

Top 5 Costliest	~2012 dollars	Top 5 Deadliest	Deaths
Katrina (2005)	~128 billion	Galveston (1900)	~8,000
Sandy (2012)	~65 billion	Lake Okeechobee, Florida (1928)	~2,500
Andrew (1992)	45.6 billion	Katrina (2005)	1,833
Ike (2008)	27.8 billion	Florida Keys/ South Texas	~600
Wilma (2005)	20.6 billion	New England (1938)	~600

Source: (Gibney, E. J., E. S. Blake, and C. W. Landsea 2010; Time 2013).

According to the official report provided by the National Hurricane Center and edited by Brown, Knabb, and Rhome (2005), Hurricane Katrina developed first as Tropical Depression 10 on August 23, 2005, about 175 miles SE of Nassau, the capital of the Bahamas. It elevated to a Tropical storm on August 24, and a hurricane on the 25th, reaching 80mph wind speeds. Its first U.S. landfall was on the 25th in southern Florida as a Category 1 hurricane on the Saffir-Simpson scale. From here, it entered the Gulf of Mexico, which was experiencing abnormally high water

temperatures that year. This fact, along with the perfect combination of atmospheric elements, enabled Katrina to blow up into a category 5 hurricane by August 28th.

At its peak, the storm reached a category 5, the most dangerous and powerful level for a hurricane, with hurricane force winds clocking in at 175 mph winds and an atmospheric pressure of 902 mb, the 6th lowest pressure on record. Katrina's hurricane force wind range extended 105 miles from the eye of the storm and tropical storm winds extended outwards of a 230 mile radius. By August 28th, hurricane warnings stretched from Morgan City, in southwest Louisiana, all the way to the Florida/Alabama border on the northern Gulf Coast. This warning included the city of New Orleans as well as Lake Ponchartrain. On August 29th, the storm made its second U.S. landfall in Buras, Louisiana as a category 3 hurricane with winds of 110 mph and pressure of 920 mb. For a brief period of time, the eye of the storm entered over gulf waters one more time before making its third and final U.S. landfall at the Louisiana/Mississippi border, with winds of 105 mph and pressure of 928 mb. The following two figures from the National Oceanic and Atmospheric Administration (NOAA 2007) are satellite images of Hurricane Katrina during its peak intensity over the Gulf of Mexico as well as a storm forecast map advisory, which was issued at 4:00am the morning Katrina made landfall.

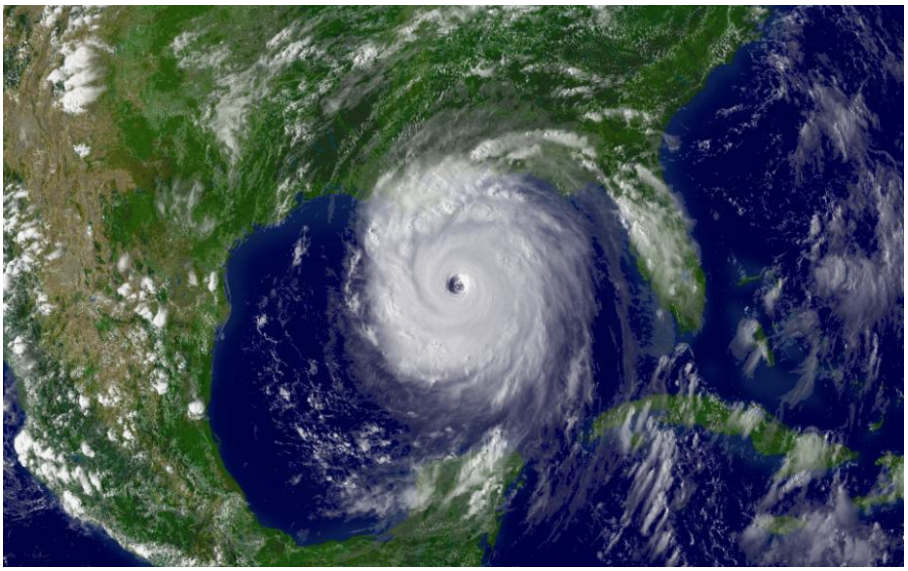

Figure 2.1. Hurricane Katrina Satellite Image.
Source: (NOAA 2007)

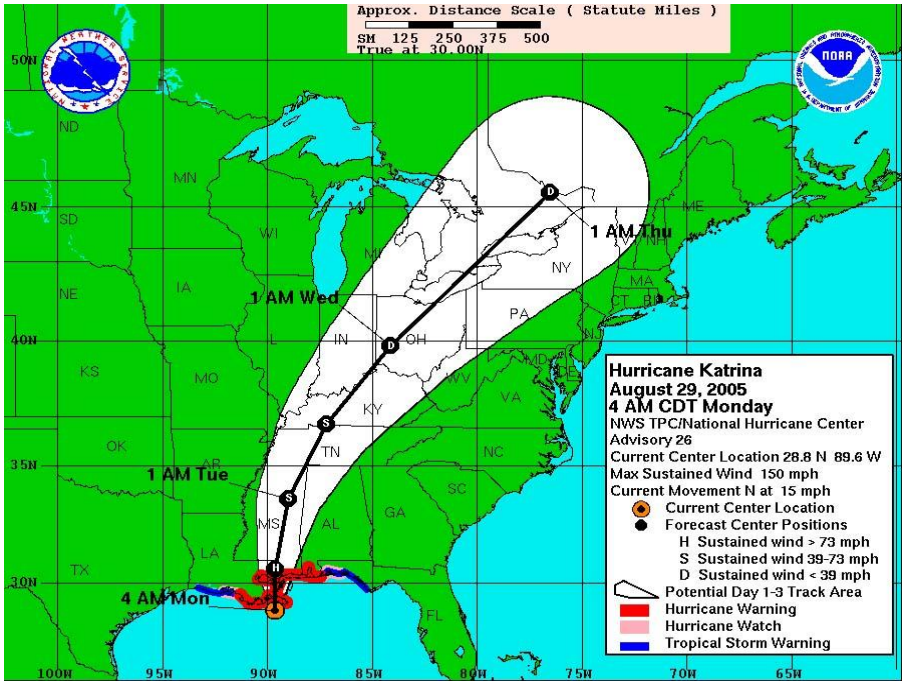

Figure 2.2. Hurricane Katrina Forecast Map.
Source: (NOAA 2007)

As with most hurricanes, the most devastating effects were on the eastern eye of the storm, an area within the internal structure of hurricanes that contains the highest wind shear and speeds, the heaviest rainfall, and the lowest pressure gradient (Aguado and Burt 2013). The deepest depths of rain occurred along the Mississippi/Louisiana border, with 8-12 inches

commonplace as it rotated inland. A total of 43 tornadoes spawned within storm cells. Despite the high accumulations of rain totals and the intermittent occurrence of tornadoes, the majority of deaths were after Katrina made landfall due to the breaking of the levees and the miserable aftermath in the New Orleans area. Aid took days to arrive, with residents stranded on rooftops and stuck in sweltering August heat for days without food or water. Official reports declared that the overwhelming proportion of fatalities was persons aged 60 years or older, particularly within Louisiana. In Mississippi, the vast number of deaths was the direct result of the monstrous storm surge in coastal beachfront counties, wiping entire communities off the map.

In addition to the official report released by the National Hurricane Center, the National Oceanic and Atmospheric Administration (NOAA) published a preliminary report on the climatological perspective on Katrina that provides additional facts and understandings of the storm and its far-reaching effects (Graumann, Houston, Lawrimore, Levinson, Lott, McCown, Stephens, Wuertz, Eds 2005). For example, an official NOAA Buoy reported a peak storm surge wave height of 55 feet, approximately 50 miles east, southeast of New Orleans. This measurement was the highest ever measured by NOAA. Similar reports were being issued on the hour as Katrina was making Louisiana landfall, leading to what media and government officials called New Orleans' "worst-case scenario".

Eight years later, experts and lay people alike now know that Katrina was not the worst case scenario. Had the eye moved about 60 miles westward, it would have been even more devastating for New Orleans. However, for all intents and purposes of my thesis, Katrina was one of the worst for the metropolitan area. For comparison purposes, Hurricane Camille followed a similar path in 1969, but was a category 5 hurricane with winds reaching 190 mph and a storm surge of 24.2 feet. However, unlike Katrina, the hurricane was much more compact,

caused 244 deaths, and reached damage expenses of 8.9 billion (2012 dollars) (Graumann, Houston, Lawrimore, Levinson, Lott, McCown, Stephens, Wuertz, Eds 2005)

By the time Katrina made its final landfall around 10:00am near the Mississippi Gulf Coast, winds were still around 110-120 mph, and storm surge easily topped 24-28 feet. Specifically, one of the highest recorded was 27.8 at Pass Christian, Mississippi. Nonetheless, since Hurricanes rotate counter-clockwise, wind and water were pushing into the New Orleans region, leading to extreme inundation in the eastern parts of the city, including New Orleans East, St. Bernard Parish, and the 9th Ward. On August 30, the failure of the pumps and the massive inflow of water led to the first breaks in the levee system. NOAA states the following: "Significant failures in the levee system occurred on August 30 on the 17th Street Canal, Industrial Canal, and London Avenue Canal levees. Water poured into the city, which sits mostly below sea level. Eventually 80 percent of the city was underwater at depths of up to 20 feet." (Graumann, Houston, Lawrimore, Levinson, Lott, McCown, Stephens, Wuertz, Eds 2005, 3). It was not until September 20th that the city was completely pumped dry—that is, until Hurricane Rita hit south central Louisiana on September 23rd. The storm surge of Rita reached into the New Orleans area, causing a new breach in the already broken Industrial Canal levee.

2.4 Housing Infrastructure and Damage in Katrina

Now that I have provided a historical account of Hurricane Katrina, I switch my attention to a more focused view on the negative effects on housing structures in the Gulf coast areas affected by Katrina. The focus of my study hones in on two specific neighborhoods, the Marigny and the Bywater, but it is necessary to situate them within the larger context of the city and region as a whole. A demographic non-profit group, known as the Greater New Orleans Community Data Center (GNOCDC), publishes reports on the recovery of the storm. Their

primary source stems from the Census, and they specifically report information on race, class, housing, unemployment, and transportation. Their work is immensely useful for my research.

For example, GNOCDC published the following on damage to housing units in Orleans Parish during Katrina (Plyer 2006):

Table 2.3. Hurricane Katrina Housing Units Damage in Orleans Parish.

2000 Total housing units	Minor damage	Major damage	Severe damage	Total damage	% Occupied with damage
215,091	29,241	26,405	78,918	134,564	71.5%

Source: (Plyer 2006).

An astonishing 71.5% of occupied housing units in the city of New Orleans experienced structural damage to their house. Orleans was one of a total of 14 counties/parishes that incurred "severe" flooding and/or structural damage. A total of 2.5 million received some degree of damage. In addition, the following census demographics reveal degrees of damage:

- 40,000: catastrophic damage, regardless of flood damage
- 652,000: flooded, excluding areas of catastrophic damage
- 5,600: non-flooded, extensive damage
- 13,700: non-flooded, moderate damage
- 1,747,000: no damage or flooding, or limited damage only

The majority of flooding concentrated in Louisiana, which represented 97% of the total (Falk 2005, 7). When considering specifically the effects on Orleans Parish, the report singles out African Americans, thus demonstrating the importance of the relationship between race and the storm. For instance, blacks are estimated to account for 44% of storm victims in the city proper. Also, an estimated 272,000 African Americans were displaced due to flooding and structural damage, making up 73% of the population affected and displaced.

2.5 Government Response and FEMA

Up to this point, I have detailed a socio-temporal history of Hurricane Katrina and I have situated it within the broader context of disaster research. This next section deals in particular

with the governmental response and urban search and rescue efforts in the days immediately following the storm's Louisiana landfall. In popular media and journal articles, the consensus is that the government response was an all-around failure. The communication was a horrendous failure across all three levels of government and aid did not arrive for days, leaving thousands of residents stranded on rooftops and without food, water, and resources at the Superdome, Convention Center, and interstate.

During Hurricane Katrina, former President George Bush was in close communication with then Secretary of Defense Donald Rumsfeld and the Director of FEMA, Michael Brown. These three key federal government officials were in emergency mode alongside Louisiana Governor Kathleen Blanco and the former Mayor of New Orleans, Ray Nagin. The story of the government communication (or lack thereof) between these formative players is much too complex to go into, but history will forever recount the "blame game" between these officials in terms of who bore the responsibility for the devastation wreaked upon inhabitants.

No federal response plan existed until 1979, with the creation of the Federal Emergency Management Agency (FEMA) under President Carter. After multiple revisions, the incorporation of similar agencies and organizations, and several federal acts, FEMA fell under the jurisdiction of the Department of Homeland Security in 2003, following the terrorist attacks of 9/11. By the time Katrina struck in 2005, the proper protocol, which was referred to as the *National Response Plan*, was as follows: planning and response fell under the auspices of the local government, and when resources are exhausted, aid assumes a bottom-up approach, ranging from the county to the state, and in the case of large-scale catastrophes—such as Katrina—to the federal level . The implementation of this protocol was not properly followed during Hurricane Katrina. The immediate question was, "Whose responsibility is it?" While the purpose of this research is not

specifically on the government accountability of Katrina, it is essential to understand what the procedure was is large-scale disasters. Katrina, arguably, was the first true test, and ultimate failure, of this coordination.

In the preparation stages of Katrina, FEMA initiated preliminary strategies to mitigate the extent of disaster. Efforts included logistical supply deployments and the organization of buses to transport evacuees without transportation to nearby cities of Baton Rouge and Houston (unfortunately, it was revealed that these buses were never utilized due to inadequate communication) (Phillip 2005). The National Guard was called to save hundreds of residents trapped in the floodwaters and in neighborhoods ravaged by storm surge. On the nongovernment side, an extensive network of volunteers coordinated relief efforts within hours of landfall, from rescuing flooded rooftop victims to providing water to stranded residents throughout the city.

2.6 The Katrina "X"

Imbedded within the narrative of Hurricane Katrina, the catastrophe of New Orleans, and the recovery efforts, there exists an untold story of the Katrina "X". This section yields critical insight into a facet of New Orleans that has been covered in the media, in blogs, and in art/photography, but not yet in the academic literature. My research contributes to the work by engaging with an explicitly geographical lens to shed light on the history, present-day meaning, and future speculation of the Hurricane Katrina "X"s.

Under the auspices of FEMA is the Urban Search and Rescue task force, which has four areas of specialization: immediate search efforts for victims; rescue to bring humans and animals to safety; technical to provide structural support to rescuers, and medical which allocates necessary aid supplies. In these search efforts, the "X" marking is defined as follows: "a separate and distinct marking system is necessary to conspicuously denote information relating

the victim location…in the areas searched. The Search Assessment marking system is designed to be used in conjunction with the Structure and Hazards Evaluation marking system" (FEMA 2003, 55).

Under FEMA, 28 US&R teams exist throughout the United States. While the majority of the "X"s were the officially sanctioned deciphered markings, it is critical to note that due to the chaos and wide-spread destruction of Katrina, first responders included other agencies (formal and informal), who often used a derivative of the "X". Many improvised their own version, and some may not have used a marking system at all. These organizations include various state National Guard units, police and fire department first responders from cities all over the U.S., the United States Coast Guard, and legion of volunteers who used their own boats to rescue victims.

Once the initial crisis died down, FEMA implemented a more standardized method aimed at efficiency and accuracy so as not to duplicate search efforts and to maximize recovery time before it was too late. The dates in the upper quadrant of the "X" range from August 30th to late October. The location of "X"s on houses is indicative of the extent of flooding experienced in that particular neighborhood. Lakeview, which experienced 20+ feet of water, located the majority of their "X"s on rooftops. Some neighborhoods, such as Gentilly, have "X"s painted over water lines, which is evidence that they were applied after the waters receded. The most common "X", those of which are the ones I recorded in my research, are on front doors and windows, conspicuously placed so as not to create repeat searches. Other locations for the "X" are garage doors, side paneling, and plywood used to protect windows from breaking during high winds.

There is a cumulative array of "X"s scattered unevenly throughout the city and across neighborhood boundaries, traversing flooded and unflooded sections of the city. Moye writes,

"The repetition of the X-code on house after house after house on mile after mile after mile of streets composed a powerful architectural narrative during the weeks following the storm as they appeared on structures spanning the socioeconomic mix of the city" (2010). The official code demarcated by the Urban Search and Rescue division under FEMA and the following guide will help further illuminate what the various codes mean: Below are two images that unpack the "X"s:

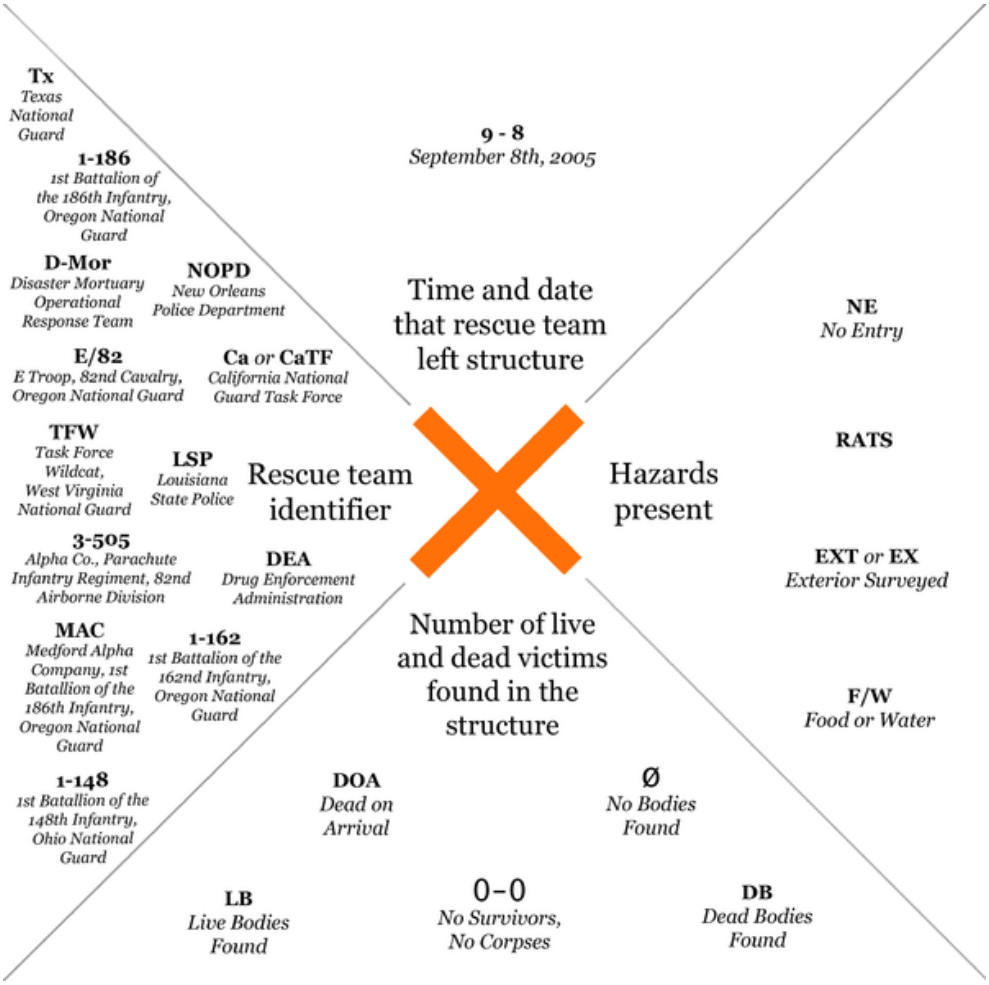

Figure 2.3. Katrina "X" Matrix.
Source: (Klein 2012)

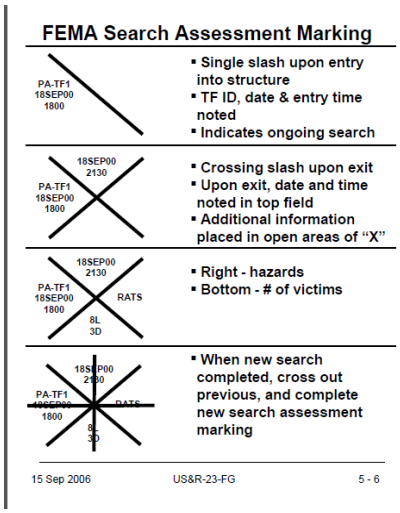

Figure 2.4. FEMA Markings.
Source: (FEMA 2008)

In addition to these officially sanctioned government markers, Moye discusses the "mysterious TFW Code". Moye states how there is still much speculation as to who exactly left these search markings and what they mean. This variant of the "X" is found mainly in the Upper Ninth Ward, which, depending on race and nativity, some consider to be the Bywater (Campanella 2011). There are two versions of this alternate marking: one with "TFW" and the date, and one with "TFW" in a circle with the date plus additional information. Moye notes that this acronym has taken on a sort of urban legend, with the following possible meanings as designated by local residents:

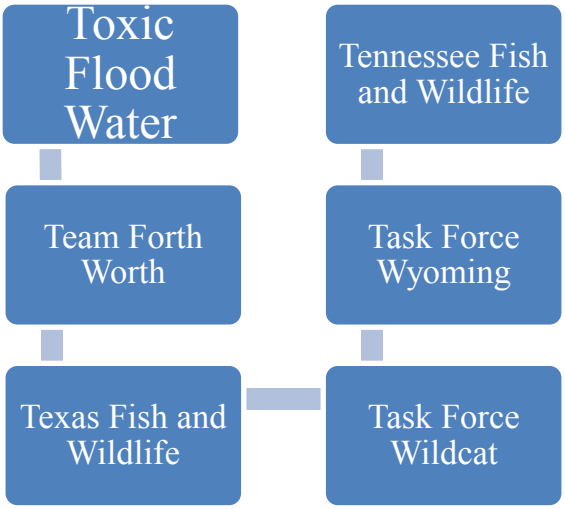

Figure 2.5. Alternate Hurricane Katrina Markings.
Source: (Moye 2010).

There is little if any information on the TFW code. The extent of my research goes so far as the work that Moye has conducted. For instance, Moye interviewed Fire department personnel told Bob Thomas, director of the Center for Environmental Communication at Loyola University. He insisted that the code stood for Task Force Wildcat but simultaneously emphasized the uncertainty of its meaning, stating, "not everyone agrees with [my] interpretation. Amazing how hard it is to find info… But, while they were doing the S&R, no one was even thinking of keeping records" (Moye 2010). In a similar light, she interviewed another historian, Douglas Brinkley, who reported the following on his interpretation: "Cans of DayGlo spray paint were handed out by FEMA to second and third responders…When these self-deployed teams and individuals marked, the meaning of the resulting spontaneous codes usually left town with the painters" (Moye 2010).

In email correspondences between Moye and myself, she stressed the enigmatic nature of the TFW code, and that no work otherwise has been done to investigate is history due to a lack of information. It would nonetheless be interesting for future research to delve into this matter.

Similar smaller deviations are sporadically scattered throughout the city. Table 2.4 explains alternate markings. Figure 2.6 shows the traditional "X" versus the "TFW" marker.

Table 2.4. Hurricane Katrina Alternate Search Markings.

Symbolic Marker	Definitions
NE	the structure was not entered
SELA	Southeast Louisiana (a search unit)
F/W	indicate that food and water were left for animal rescue
0 A, 0 D	no one was found, alive or dead
3 LV or 3 L	3 live persons found
HSUS	Humane Society of the United States
SPCA	Society for the Prevention of Cruelty to Animals

Source: (Moye 2010).

Figure 2.6. Photographs of Hurricane Katrina Xs.
Source: (Photographs taken by author June 2012).

In addition to the varying differentiations of the "X"s, it is important to note that New Orleans and Katrina was not the first time these markers were used. In her email correspondences with me, Moye informed me that both California, following the earthquakes of the early 1990s, and Greenville, North Carolina, following Hurricane Floyd in 1999, have "X"s. Moye also documents "X" codes uncovered in the Cabbagetown neighborhood of Atlanta, Georgia, after a tornado struck in March of 2008. Another small-scale usage of the "X" occurred in 2008 during the search and rescue efforts in and around Galveston, Texas, following the landfall of Hurricane Ike in early September.

Katrina and New Orleans are the largest and widest scale of using "X"s for search and recovery and it is for this reason that I aim to study my two neighborhoods. Speculating whether or not Katrina represents the widest usage of the "X"s, I emailed Moye to inquire into this matter. She provides two sources of evidence that New Orleans is the most prominent. First, she discovered through her many interviews with US&R task force members that the sheer quantity and scale of the "X"s across New Orleans overwhelmingly outnumbers anything ever experienced before Katrina, with the bulk of them concentrating in the Marigny and Bywater. In a local newspaper article, an urban search and rescue commander declared, "What we are doing is unheard of in the history of recovery operations…I searched for space shuttle debris for 17 days, but I've never searched house to house in a city this size" (Perlstein 2005, 1). Secondly, she has visited the city and her findings conclude that New Orleans has the greatest quantity of FEMA "X" markings than any other geographical space in the United States. She states, "This practical and more manageable protocol for communication will no doubt have fewer side effects, but from a visual point of view, can never achieve the apocalyptic graphic impact seen in post-Katrina New Orleans" (Moye 2010).

An important question that remains to be answered is how and who took the Katrina "X" photographs that Moye used in her exhibition and website. First, during the recovery months of August through October, FEMA contracted professional photographers to accompany the Urban Search and Rescue teams. In flooded areas, they searched in boats, but in most cases they went door to door with task force teams to document the efforts. Moye states that the earliest dated codes and photographs date back to August 30, 2005, by Marvin Nauman and Jocelyn Augustino. This fact reveals that US&R teams went to work within 24 hours. FEMA contracted photographers gained authorized access to capture in photographs the speedy recovery efforts.

> They captured images of personnel painting the codes, leaving notices explaining the search in mailboxes, entering to search, of codes on structures that had floated to the middle of streets or landed atop vehicles, of boats on roofs and pieces of houses jumbled together, of successive lines marking where the water had settled, and the wreckage left behind when the water had receded. Their archives are remarkable for their on-the-scene immediacy…(Moye 2010).

The second source of "X" documentation emerges from artists and photographs, including Moye, many of whom had the original intent of detailing various aspects of the ruins and devastation. These artists ranged from local New Orleanians to recent transplants, to professionals from cities such as Portland, Oregon or Atlanta. Katrina provided a disaster landscape that motivated various artists and photographers to serve as witnesses who were able to capture their unique perspectives on the city and its damage. From here, I will delve into the core of my project, which is on the "X"s in two specific neighborhoods, the Marigny and the Bywater. Through urban memory and uneven geography frameworks, I will explore themes that expand upon Moye's project on the social construction of memory through the Katrina "X"s.

CHAPTER 3: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

3.1 New Orleans' Uneven Spatial Patterns

The field of geography captures the complex unevenness of the modern North American city across race, class, and gender lines. My work builds on this extant and prolific body of literature by analyzing the historical socio-spatial patterns of land settlement of post-1960s New Orleans. Historically speaking, the city has followed similar patterns of uneven development

and segregation based upon lines of race and class that permeates other major urban areas. This chapter will investigate the deeply divided urban landscape that characterized New Orleans before Hurricane Katrina as well as the uneven recovery patterns that fell into place after the storm. I argue that in order to understand the present urban geography of the city, the reader must first critically engage with the historic urban morphology that paved the way for what occurred during Katrina and what is in place today. In a more colloquial manner, this connection between the past and the present relates to the ways many New Orleanians frame their lives—everything is phrased as "pre" and "post" Katrina. The historical trends of urbanization set the stage for the disasterscape that characterizes the uneven destruction and uneven rebuilding of the city. To understand the geography of the "X"s, we must understand the geography of the city.

In the following section, I will lay out the conceptual frameworks of uneven urban geographies, forgotten communities, and disaster landscapes. The landscape of New Orleans is an uneven geography that spatially isolates racial minorities and lower socioeconomic classes. This uneven geography is important to understand because it serves as evidence that Katrina was a social disaster rather than a natural disaster. The flooding and degree of catastrophic damage followed a specific pattern that overwhelmingly affected the poor, African Americans, and low-lying, below sea-level areas. Smith makes the claim that Katrina was a social disaster. He provides a convincing critique that Katrina was not a "natural" disaster, stating the following:

> It is generally accepted among environmental geographers that there is no such thing as a natural disaster. In every phase and aspect of a disaster—causes, vulnerability, preparedness, results and response, and reconstruction—the contours of disaster and the difference between who lives and who dies is to a greater or lesser extent a social calculus. Hurricane Katrina provides a most startling confirmation to that axiom…(2006, 1).

I agree with Smith's assessment. Katrina, while it did not set out to hit certain areas, devastated particular areas—predicted areas—more than others. This is not to say that hurricanes are not a

phenomenon of nature—that would be scientifically incorrect. Rather, what Smith proclaims is that Katrina was a social disaster, disproportionally affecting the historically neglected populations of the poor and racial minorities, which in the case of New Orleans falls disproportionately to African Americans. I argue that these disenfranchised groups of the poor and minorities constitute abandoned populations. They were neglected before the storm, and they were abandoned during Katrina, left to suffer for days on end in the Louisiana Superdome and Convention Center. These patterns continue to remain as the city rebuilds. Post-Katrina recovery efforts place these communities at the bottom of the totem pole of redevelopment.

New Orleans historically has been a city characterized by uneven social and spatial patterns. Campanella (2008) provides a historical geography of the city, from its founding in 1718 to a few years following Katrina. However, for the purposes of my study, I focus on 1960s and onward, which marks a temporal and spatial shift in New Orleans' peak population and the gradual decline in population up to 2005 (Campanella 2008). Campanella notes of 1960s New Orleans, which like many other major American cities, experienced white-flight and the abandonment of the inner-city for the suburbs: "New Orleans population peaks at 627,525…[then] profound transformations in society and infrastructures, affecting cityscape at every level…greater spatial disaggregation by race and class, even as *de jure* segregation ends" (2008, 53). Furthermore, as Lewis (2003) states on the 1960s-1980s, "New Orleans was more segregated than it had ever been, and the inequities between rich and poor were as extreme as at any time since the legal end of slavery" (128).

Socio-spatial processes of segregation heightened from the 1970s-1990s, leading up to the 2000 census. Suburban-style land developments drew thousands of white New Orleanians away from the inner urban core and "between 1960 and 1970 the census recorded the first

absolute decline in Orleans Parish's population since the first U.S. census in 1810—and that decline continued through the 1970s and 80s" (Lewis 2003, 125). What happened in New Orleans also mirrored the housing and racial segregation patterns that took place on the larger national scale. Following the U.S. Housing Act of 1937, the Housing Authority of New Orleans (HANO) created subsidized housing in many of the city's oldest, most historic districts outside of the French Quarter and Central Business District. Following racial segregation and the creation of city-wide projects in the 1960s, white-flight gained massive speed and "there was an ominous growth of segregation in New Orleans, the alienation of black and white populations, and the decay of inner-city neighborhoods and public service" (Lewis 2003, 71). This pattern of urban morphology exacerbated well into the twenty-first century. Consequently, "Greater New Orleans' racial geography by the early 2000s ironically formed more segregated spatial patterns than it did in the early 1800s…creating a so-called 'two centuries of paradox'" (Campanella 2008, 183).

I argue that New Orleans has historically created and maintained these abandoned groups through racial formation projects. Omi and Winant's theory of racial formation helps to analyze the urban social processes that have taken place in the city. I use their book both for their spatial as well as temporal frameworks that aid in grounding my study. Their research is useful for my own thesis because it focuses on the same time period as my research (post 1960s) and it helps frame my exploration on the way racial formation played a deliberate and purposeful role in the uneven disparity of the disaster. Omi and Winant's seminal work, *Racial Formation in the United States: From the 1960s to the 1990s* (1994), argues for a social constructionist approach toward race in America. In addition, they suggest that racial formation "is a kind of synthesis, an outcome, of the interaction of racial projects on a society-wide level…" (Omi and Winant 1994,

60). According to their research, they argue that a racial project is a situation where essentialist racial ideologies become materialized through either micro or macro institutional policy. The way they explain and understand race refocuses an understanding of institutional racism, which they argue characterizes the majority of racial projects.

Omi and Winant's theory helps me make the case that the creation of housing projects as well as the decision of whites to self-segregate from blacks by moving to the suburbs is an example of a racial formation project. Through the next decades, New Orleans became a majority African American city polarized through housing. While it is important to study the macro-level disasterscape of New Orleans, it is equally important to critically engage with the more micro-scale levels at the neighborhood, block, and street level. The geography of housing and land settlement is a way to apply Omi and Winant's thesis. Dreier (2006) states, "Housing discrimination and the concentration of subsidized housing have contributed to the city's economic and racial segregation. Over two-thirds of New Orleans residents, but only one-fifth of suburban residents, are African American." (Dreier 2006, 3). On the federal level, urban housing policies helped shape urban segregation in New Orleans. Consequently, the poorest and racial minorities experienced the worst of the flooding. Figures 3.1 and 3.2 demonstrate the extent of flooding in relation to the racial make-up of pre-Katrina New Orleans. I direct the reader to the "Uptown" area on the first map and then compare that same area on the second map. One can see a geographic pattern that emerges between race and flooding as there is. The whiter areas experienced the least amount of flooding just as the higher proportions of percent black witnessed the maximum flood depths.

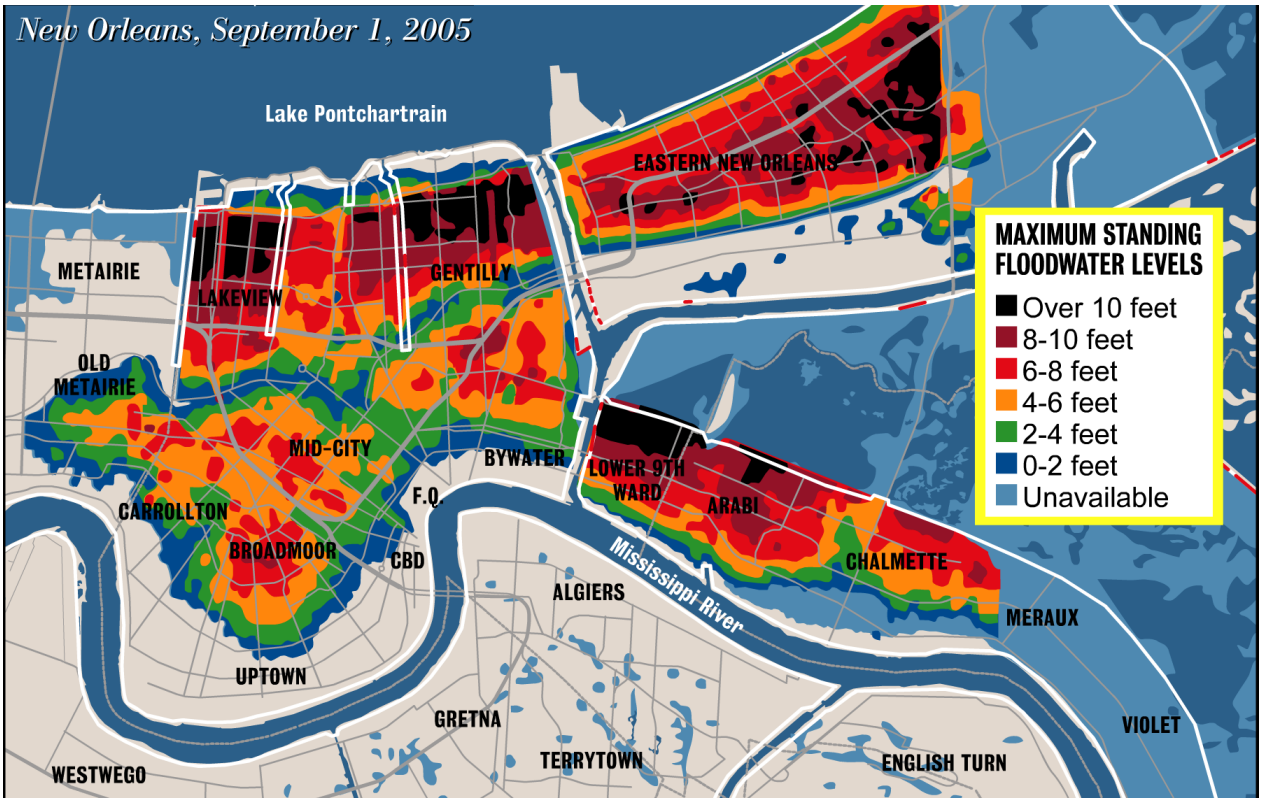

Figure 3.1. Katrina Flooding.
Source: (The Times Picayune 2006c).

Topography creates a third important and dynamic element to the geography of housing in New Orleans. Smith writes, "In New Orleans, however, topographic gradients doubled as class and race gradients, and as the Katrina evacuation so tragically demonstrated, the better off has cars to get out…[but] the poorest population in New Orleans [was] the most vulnerable" (2006, 2). Powell (2009) describes how one of New Orleans' nicknames is "The City that Care Forgot", a moniker attributed to the city during the Great Depression, and which has stuck with it to this day. I raise this description to propose that the city's poorest and blackest neighborhoods are the most forgotten. Smith cites then Senator Obama in saying, "the people of New Orleans weren't just abandoned during the hurricane, but were abandoned long ago" (Smith 2006, 2). The city's topographic gradients range from a few feet below sea level to only a few feet above sea level. While this difference in feet seems miniscule at the surface, the consequences of

elevation determined whether a house was inundated with one foot of water versus twenty feet of water. Figure 3.3. displays a map of the city's elevation. When spatially overlaying elevation with race and flooding, it appears that the highest elevated areas of the city (which are geographically closer to the Mississippi River) were the whitest and least likely to flood. Conversely, African Americans live in the lowest lying and most flood-prone areas.

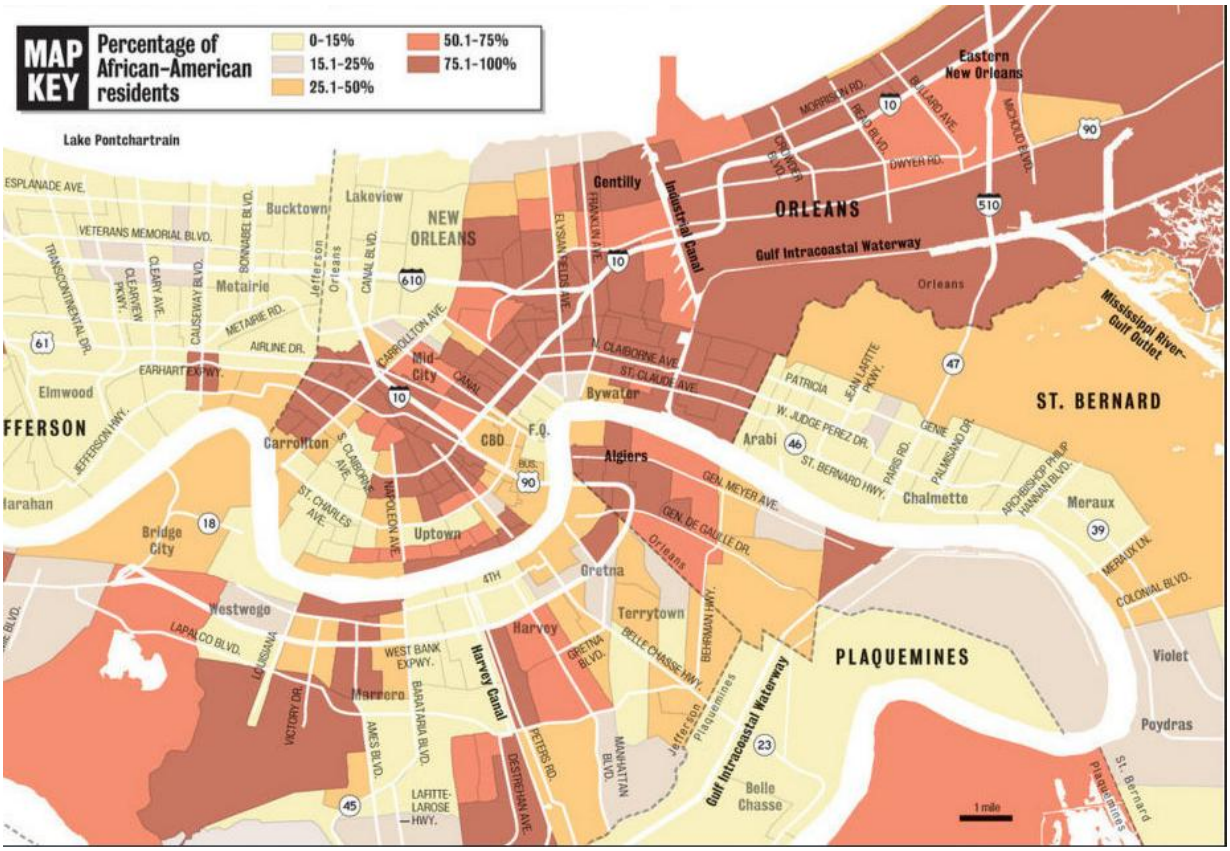

Figure 3.2. 2000 Racial Geography of New Orleans.
Source: (The Times Picayune 2011).

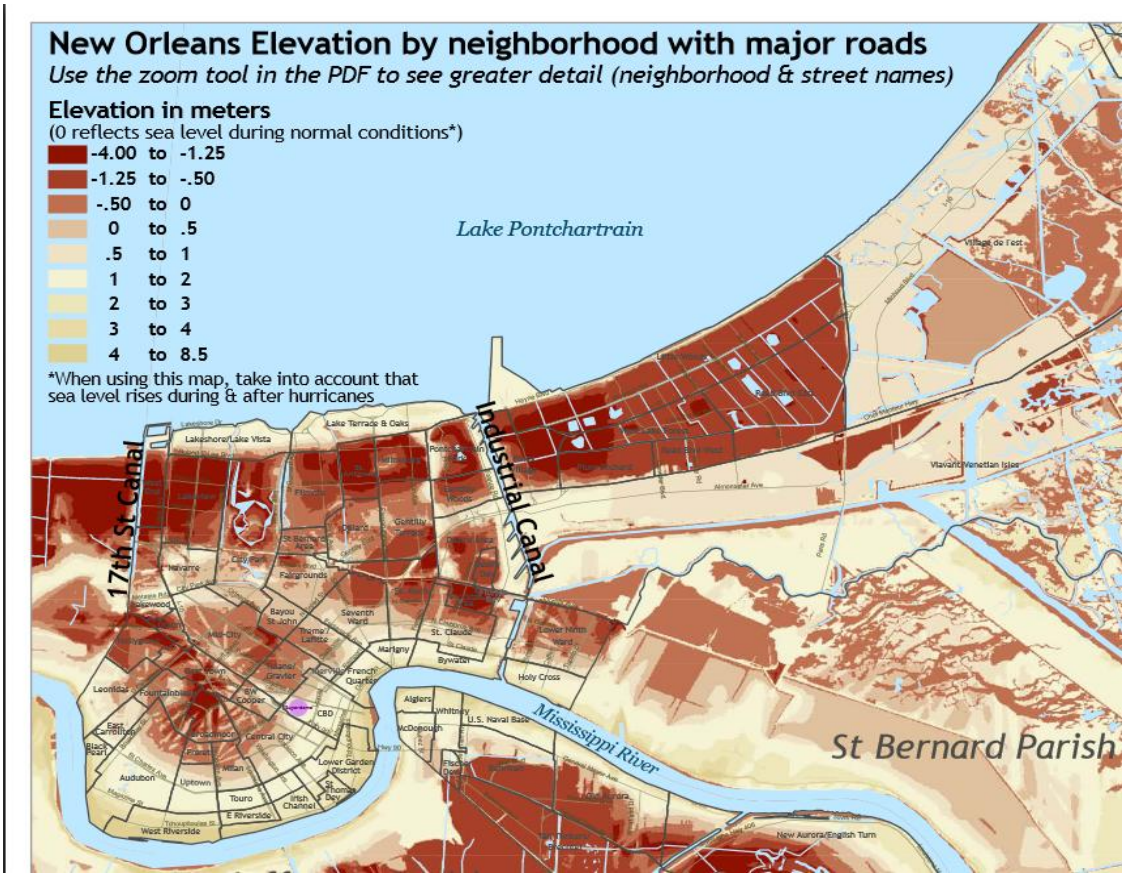

Figure 3.3. Elevation of New Orleans.
Source: *Source:* (Greater New Orleans Community Data Center 2005).

Many urban scholars have conducted research exploring the nature of devastation and rebuilding in specific neighborhoods of the city. One of the most well-known examples, which I attribute to the extensive coverage it received in the media, is the Lower 9th Ward. For example, in his article "Jungleland" Rich (2012) provides a provocative thought piece on the abandonment of New Orleans and its citizens, focusing on the Lower 9th Ward. He suggests that the 9th Ward is symbolic of other neighborhoods that have experienced socio-historic patterns of uneven urban development since the 1960s. As Rich illustrates, "Through the weeds, you could just make out a cross marking the spot where Brock's neighbor had drowned" (2012, 2). Here, this cross mimics the Katrina "X"s, in the ways that the two function as symbolic memorializing markers.

I posit that displaced residents of the storm, many of whom have not returned to the city seven years later, make up a third group of abandoned residents. According to the New York Times, Hurricane Katrina represents the largest internal American diaspora since the Civil War (New York Times 2005). Figures 3.4 and 3.5 display two different maps of the Hurricane Katrina Diaspora. The first map displays the percentage of displaced residents via a dot density map while the second map represents displacement at the county/parish level using a choropleth map. Rich proffers a discussion surrounding displacement. Many have yet to return, leaving their properties abandoned and forgotten. The city's poorest minority residents have been the least likely to return due to a lack of resources, money, and federal aid.

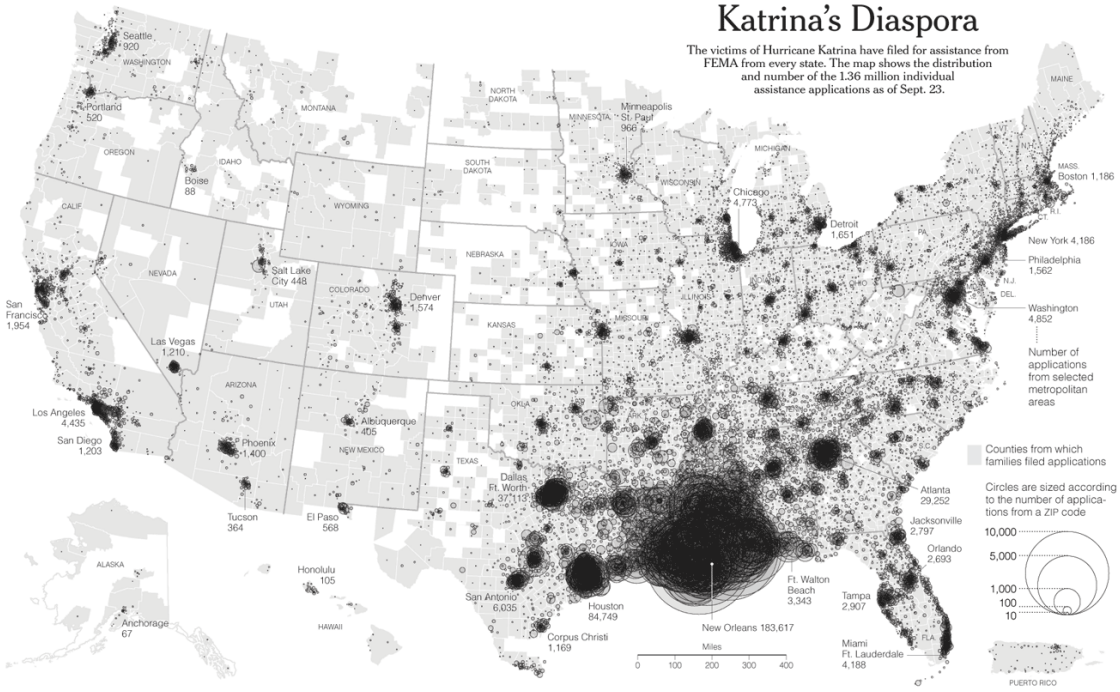

Figure 3.4. Katrina's Diaspora.
Source: (The New York Times 2005).

While I focused on only two neighborhoods, I surmise that a greater proportion of "X"s in more devastated neighborhoods are due to citizen displacement. While my study does not focus on this aspect, Rich argues for the significance of studying displacement, stating, "The ruination has attracted geographers and ecologists, especially those in the burgeoning field of catastrophe studies …Katrina was not merely destructive; it brought about a catastrophic reimagining of the landscape" (Rich 2012, 6).

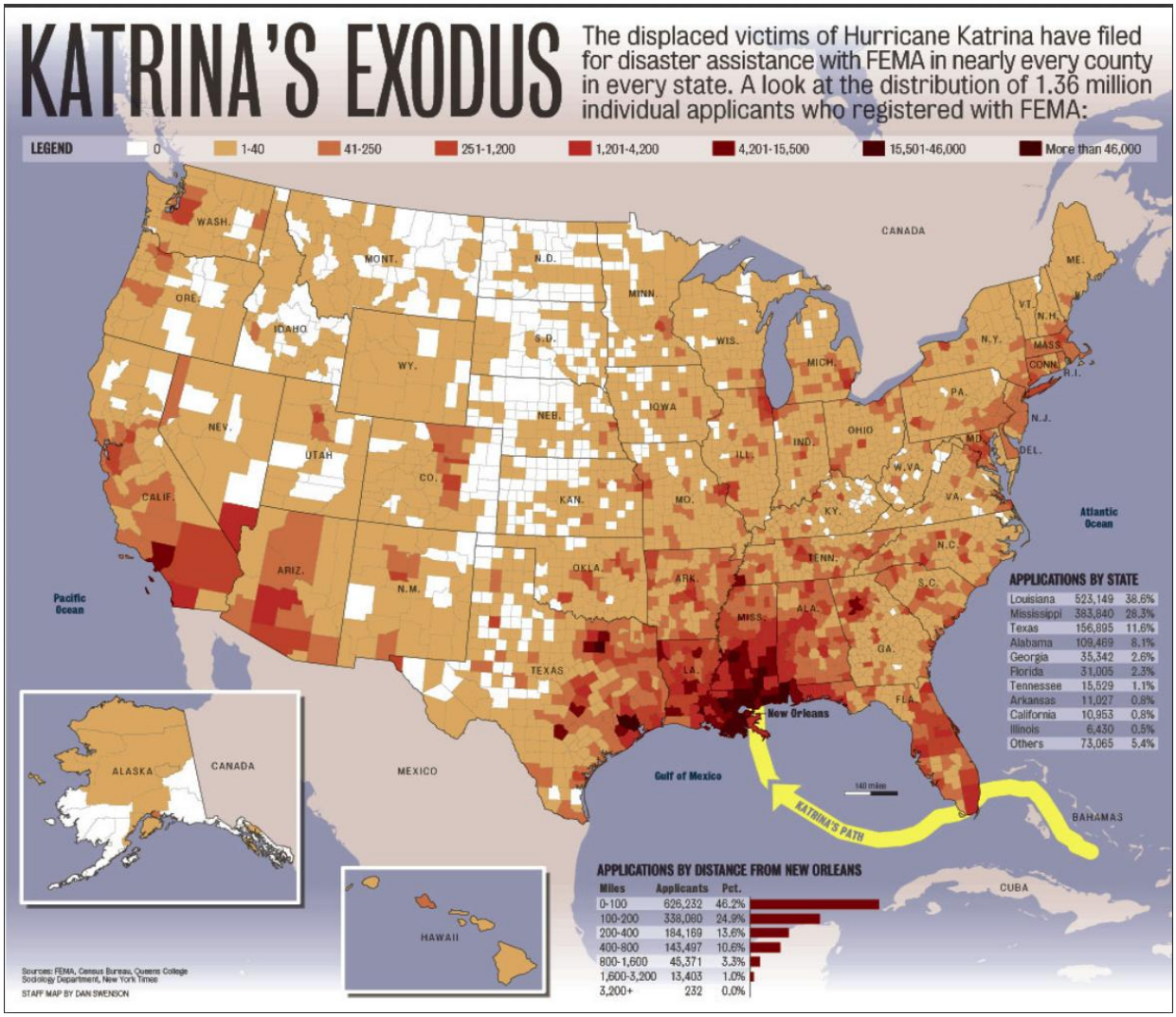

Figure 3.5. Katrina's Exodus .
Source: (The Times Picayune 2006b).

Uneven socio-spatial geographies did not stop with Katrina and in fact, it characterizes much of the rebuilding efforts years later. The redevelopment of the city has followed a *laissez-*

faire approach whereby government policies on both the local and federal level have left rebuilding decisions up to citizens. These post-Katrina rebuilding strategies have largely neglected the poor and minorities. Dreier discusses the relationship between power and rebuilding. His work rearticulates the sentiment that disasters "force us to hold a mirror up to society and see it as it really is" (2006, 16). For instance, Dreier argues that housing for flood victims is a primary concern, and rather than continuing to concentrate federally subsidized housing in racially and economically disenfranchised areas, he posits, "neighborhoods should include homeownership and rental housing, market-rate homes and homes affordable to low-income and middle-class families" (2006, 13). I use Dreier's work to more effectively discern the ways that uneven patterns of geography stem from a complex web of politics, economics, and socio-spatial historic trends of urbanization. His work is useful in understanding Omi and Winant's argument that urban phenomena, such as racial segregation, are outcomes of deliberate racial formation projects maintained by hegemonic groups. I use these two conceptual frameworks as a rationale for why I hypothesized that the "X"s would reflect the pre-Katrina patterns of uneven socio-spatial patterns along the dimensions of race and class.

In this section, I have stressed the importance of Dreier's argument that the hurricane was not a natural disaster. He states, "Katrina was a human-made disaster more than a natural disaster." (Dreier 2006, 1) especially in the way that it exposed the race and class fault lines of the city. His thesis closely mirrors the findings that sociologist Klinenberg concluded in his work on a different weather phenomenon in Chicago. His book, *Heat Wave: A Social Autopsy of Disaster in Chicago* (2002), explores the uneven effects of a deadly heat wave that disproportionally claimed the lives of the poor and racial minorities. Katrina mimics the social disparity of those individuals who died Chicago in 1995. Both cases resemble each other in that

both victims were geographically and socially isolated. These populations of the poor and minority were without adequate resources to survive such a disaster. What occurred in New Orleans was not arbitrary, just as Klinenberg discovered that what happened in Chicago was not accidental and followed very specific social patterns. The historical geography of New Orleans played a key role in who died and who survived.

3.2 Disaster Landscape

This section deals with disaster landscapes and I will discuss the connections between disasters and geography, applying the theoretical frameworks to the case of New Orleans. Here, I use the word "landscape" to reference the urban area of New Orleans. I use Schein's definition (1997) who defines landscape as "a tangible, visible entity, one that is both reflective and constitutive of society, culture, and identity… Landscape is seen as symbolic, as representative, and as a representation…[it is] central to the (re)production of social life" (1). The qualities that make up a landscape are both material and conceptual and the social relationships are always grounded in a particular space. The city proper is located within Orleans Parish, which is all encompassing of the city's boundaries. Geography provides an analytical lens to explore disasters and the ways that social phenomena interact within a spatial context. For example, Kirmayer (1996) argued well before Katrina that New Orleans was an example of a *traumatic landscape*. By "traumatic", Kirmayer argues that the city is geographically uneven across race and class. It is important to recognize that history represents an evolving pattern that is fluid and constitutive of the present, rather than static and representative of one moment in time. This recognition illuminates the historical urbanization processes that were taking root in 1960s New Orleans. The urban morphology of the city is what paved the way for the disaster landscape

caused by the hurricane. The study of disaster landscape helps to contextualize the spatiality of forgotten communities.

Landphair (2007) yields a linkage between understanding the frameworks of disaster landscapes and forgotten communities in New Orleans. She exhibits how Hurricane Katrina brought to the forefront "the destructive forces on a society: the hurricane; the geographical vulnerability of New Orleans; government neglect; and urban poverty and racial polarization" (2007, 837). In addition, Landphair brings into the conversation a discussion surrounding urban memory. She explains how Hurricane Katrina evoked "distant memories of another disaster [Hurricane Betsy, 1965]" and that certain peoples and neighborhoods remember more than others. Hurricane Betsy, undoubtedly the second biggest storm to hit New Orleans, evokes memories of who flooded then versus who flooded now. A similar pattern occurred during Betsy: the most heavily damaged geographies in 1965 were the same areas that flooded the worst during Katrina (Landphair 2007). In other terms, the poor and racial minorities, both of whom were living in the lowest lying elevations of the city, were the ones who incurred the most severe degrees of flooding and destruction.

Up to this point, I have incorporated several maps to serve as evidence for the uneven geography of disaster that Katrina created. Additional sources that I draw from provide further logic and rationale for my own proposed hypotheses stated in the beginning of the thesis. Watkins (2011) helps position my own work into studies already conducted on Katrina and the social effects upon different populations of the city. His research, which uses statistical analyses, demonstrates how certain social factors are statistically related to rates of flooding. In addition, he frames his findings within the overall post-1960s socio-spatial demographic changes in urban New Orleans. It is also important to know that Watkins refers to New Orleans as a disasterscape.

He states, "although the storm may be a discrete event, the disaster is the derivative of decades of social change within the city" (Watkins 2011, 124). Within his research, he uses statistics and GIS to ultimately showcase that race mattered more than class in who was most severely affected by Katrina's floodwaters. His argument is based around Omi and Winant's theory of racial projects and urban race relations that geographically situated the poor and African Americans in residential areas most prone to the greatest levels of destruction.

Watkins' study serves as a guide for my own research questions and I use his statistical methods of correlation analysis as a rationale from which I base my own methods. For example, he specifically asks, "What was the relationship among race, income, and Hurricane Katrina-induced patterns of inundation in New Orleans? What was the relationship from 1970 until Katrina's landfall in 2005?" (Watkins 2011, 117). He generated data from both the United States Census Bureau and the United States Geological Survey (USGS). For his statistical variables, he used the racial categories of whites and blacks for the race variable and median household income for the class variable to measure the two against inundation patterns. He conducted two analyses, isolating and controlling each variable against the other. The results were as follows:

> There exists a significant relationship among inundation, race, and income, and relative to income, race demonstrates a more salient relationship with inundation…the increase in proportion of African Americans in a given block group increases the probability of inundation by a factor of 3.13…compared to 1.06 for median household income…(Watkins 2011, 123).

Thus, Watkins concludes, "these empirical results suggest that race, not income, is the most salient variable related to Katrina's inundation…" (Watkins 2011, 124).

Not only has research discovered that race mattered the most in destruction, but additional studies have shown how the variable race is still a factor in the recovery stages. For instance, Chen (2008) discusses how "New Orleans' 'recovery' in the wake of the storm is built

on the city's old demons of racial and class strife" (1). One again, this argument evokes the salience of Omi and Winant's racial formation theory. The post-storm redevelopment, she argues, reflects a "wholesale abandonment of the city's most vulnerable" (Chen 2008, 1). The foundation that racial formation projects created led to a situation in which recovery aid, once again, disproportionately left out the city's poorest and blackest. Based upon this finding, I argue that the racial urbanization patterns of New Orleans are rooted in a socio-temporal historic geography of the city. This urban morphology serves as a precedent upon which the disaster landscape formed and created uneven geographies of destruction and recovery.

3.3 Social Vulnerability

This section defines social vulnerability and explains how this analytical framework is a useful tool for geographers in understanding how urban segregation creates vulnerable populations. Cutter and Finch (2007) write the following insightful passage:

> During the past four decades (1960-2000), the United States experienced major transformations in population size, development patterns, economic conditions, and social characteristics. These…altered the American hazardscape in profound ways, with more people living in high-hazard areas than ever before…The concept of social vulnerability identifies sensitive populations that may be less likely to respond to, cope with, and recover from a natural disaster… (2301).

They define social vulnerability as the dynamic interconnection between environmental and social systems that lead to uneven geographies of proneness, response, and recovery before, during, and after natural and social disasters. Their units of focus include hurricanes, tornadoes, floods, and other similar weather phenomena. Social vulnerability, they posit, is a measure of a particular geographical unit's capability to react effectively to and recover well from the impacts of disasters and hazards. They argue that vulnerability is composed of a complex set of variables, such as race, class, and geographic location. Other critical variables include gender, age, migration patterns, and housing tenure. Although the make-up of vulnerable populations

varies by regional geography, the following groups of populations generally have the highest rates of social vulnerability: racial minorities, the elderly, lower socioeconomic classes, migrant communities, the disabled, females, and children. The literature on social vulnerability is increasing in geography and helps to better analyze how geography combines with social systems to create uneven spaces of destruction and recovery.

Their foundational work, upon which other geographers have used their theories to conduct their own research, serves as an acute lens for my own study. I relate their work on vulnerability to the previous sections on uneven geographies of New Orleans and the ways that racial formation projects created and maintained a systematic process of racial, topographical, and class segregation. As already touched upon, geography, in so much as it works in conjunction with neglected communities, shapes the degree of vulnerability. Cutter and Finch provide a useful example to contextualize social vulnerability along the category of age:

> For example, the literature has cited many reasons why the elderly are more vulnerable in the event of a disaster: physical limitations that influence their inability or unwillingness to comply with mandatory evacuation orders; postdisaster psychological stress…;and fewer economic resources to repair damaged homes, especially by elderly residents on fixed incomes…(2007, 2013).

My thesis focuses primarily on race. However, this quote provides a fruitful exercise for understanding how other social variables play a role in disasters. My focus on race and class makes the case that in regards to Hurricane Katrina, as stated earlier, race becomes one of the most useful categories for defining and explaining social vulnerability in New Orleans.

Birch and Wachter (2006) add an historic approach to social vulnerability. They discuss how previous hurricanes in New Orleans, such as Betsy in 1964 and Camille in 1969, also affected the same types of vulnerable groups as did Katrina. Not much has changed between these storms in the 1960s in terms of who was affected most severely during Katrina in

2005. This historical trajectory leads to an ongoing consequence of vulnerable communities repeatedly bearing the brunt of natural and human-made disasters. The most disenfranchised populations and neighborhoods were developed during the white-flight era of 1960s New Orleans and they were geographically situated to receive the worst of the destruction. Consequently, these low-income minority neighborhoods are the least prepared for hurricanes, normally have no way to evacuate the city, and suffer from a lack of immediate city services in the days following storms. What Katrina illuminated was the fact that the most disadvantaged populations in New Orleans lived in the most hazardous geographies of the cities. Similarly, the socio-spatial segregation patterns before Katrina parallels the disparate responses of rebuilding along race, class, and neighborhood lines (Birch and Wachter 2006). Many residents along these lines have yet to return, leaving an unequal and highly visual spatial rebuilding of streets and neighborhoods.

Cutter lends an even more in-depth understanding of social vulnerability by providing a specific case study of New Orleans. Cutter fleshes out her theoretical framework and applies it to Katrina. She states, "The ideology of conquering and taming nature, rather than living in harmony with it, was (and still is) the driving force in the production of the physical vulnerability of the metropolitan area" (Cutter 2005, 2). She illuminates the inextricably intertwined relationship between the city's human and physical geographies. For example, New Orleans has historically enacted a pro-levee policy, which leaves certain communities more vulnerable than others. Rather than allowing the Mississippi River to run its natural course that builds up the marshland and coastline, the levees create a scenario where natural barriers are depleted. As a result, marshes no longer serve as the first line of defense, leaving coastal communities at the mercy of storm surge. The breaching of the levees is another example of a human-environment

interaction that had deadly consequences during Hurricane Katrina. Cutter stresses, "it is the interaction between nature and society that produces the vulnerability of place" (Cutter 2005, 2) This crucial consideration between nature and society has long been neglected in New Orleans, which "is why one of the city's nicknames, "The City that Care Forgot" seem so poignant" (Cutter 2005, 3).

Now that I have discussed the linkage that social vulnerability creates between the physical and the social geographies of the city, I will specifically apply the theory of social vulnerability to racial geography of the city. Within this complex matrix of socio-spatial patterns among the city's landscape is the white teapot, an area of land within the city-proper that contains a racialized demographic pattern of White New Orleanians. Figure 3.2 gives an accurate representation of the white tea-pot geography, which Campanella sums up:

> Map out nearly any socio-economic data about New Orleans—election returns, family size, population density—and an odd, teapot-shaped cartographic feature emerges. The plotted statistics correlate to an underlying racial geography: a contiguous swath of historical neighborhoods, stretching from Carrollton to Bywater [which includes the Marigny], comprises only 10 percent of the city's human-occupied footprint, but houses 42 percent of its white population… (2008, 185).

Post-Katrina gentrification efforts are exacerbating the white-teapot—filling up the remaining "black pockets" and enlarging the white areas. Figure 3.5 is map of the 2000 racial demographics superimposed with what Campanella refers to as "gentrification hot spots".

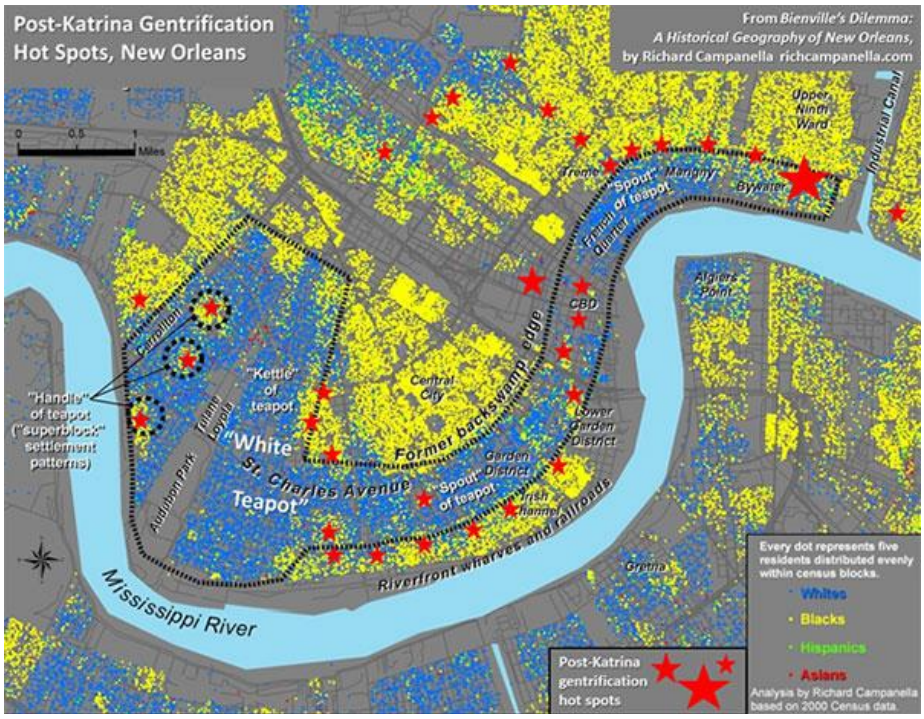

Figure 3.6. The White Teapot Geography of New Orleans.
Source: (Campanella 2013).

The map displays the 2000 racialized geography of the city. The blue dot-plot represents whites and each dot represents five residents distributed evenly within census-designated blocks (Campanella 2013). Yellow dots represent blacks, green is for Hispanics, and red corresponds to Asians. The areas that are starred graphically represent areas that have witnessed an overwhelming increase in educated whites. Campanella argues that these settlement patterns represent racial gentrification and as a result, "the teapot has broadened and internally whitened" (Campanella 2013, 1). What this racial patterning means is that any pockets of blacks within majority white areas that existed before Katrina are disappearing as whites "fill it in", thus making the entire area white. One explicit case is the area around Tulane and Loyola Universities, near the bottom left of the map. The three proximal pre-Katrina black areas are internally whitening to the point where there will no longer be pockets of African Americans.

My review on social vulnerability research makes the case that the devastation of Katrina followed a very predictable and systematic pattern. Not only was social vulnerability an influential factor in uneven *disasterscapes*, but it also is a determining factor in uneven recovery rates. Emrich and Cutter (2010) provide a deeper perspective on the mitigation and recovery efforts. They state, "socioeconomic stratification and its distribution in the city continue to influence the long-term recovery and mitigation efforts currently underway" (Finch, Emrich, and Cutter 2010, 180). What I have demonstrated in this section is how the theory of social vulnerability relates to the uneven social and physical geographies of New Orleans, before, during, and after Hurricane Katrina. The urban socio-spatial processes of post-1960s New Orleans are critical to understand for the purposes of my project. These patterns set the precedent for the uneven destruction and subsequent uneven redevelopment of the city's diverse neighborhoods following Katrina. 2005 and the seven years following have marked a dramatic transformation of the city's urban geography: it is whiter, less dense, gentrifying, more-educated, wealthier, and rebuilding on higher ground.

From here, I now provide a transition into my second major framework, which is urban memory. Hurricane Katrina was undoubtedly a historical event in the minds of New Orleanians. I surmise that the memories of the storm will not be forgotten and that the storm will continue to impact citizens in one way or another. Smith, in his discussion surrounding the social disaster of Katrina, notes the importance of memory in the following: "The results of Hurricane Katrina and responses to it are as of this writing still fresh in our memory but it is important to record some of the details so that the rawness of what transpired not be rubbed by historical rewrite" (2006, 2). Smith concludes that these dilemmas are not unique to the city but rather are generalizable to many more vulnerable cities. Academics and practitioners should learn from the past mistakes

of New Orleans. The city will continue to rebuild itself, but the memory of the storm will forever remain a part of its urban landscape.

3.4 Geography and Memory

Residents of New Orleans socially construct memories out of the Hurricane Katrina "X"s. These narratives stem from their unique experiences and memories of the storm and they have a profound role in how they interpret the meanings of the "X"s. While life has returned to normal for many New Orleanians, and for others, Katrina's wounds are fresh for many others. I hope to advance theoretically the conceptual framework of urban memory within the context of the Marigny and Bywater neighborhoods of New Orleans. I break down the sections into the following important themes on urban memory: memory matters; memory is socially produced, not materially grounded; memory is produced about and through geographical space; and memory changes over time because both the people change and the place changes materially.

French sociologist Maurice Halbwachs (1992 [1951]) was the first to propose that memory matters. He argues that it is a social and collective practice. He termed the phrase *collective memory* and defines it as a collective, transactive, spatial, and temporal process that permeates a group of persons at a micro scale or a community at a macro scale. Collective memory is maintained and perpetuated through an ongoing production and reproduction of representational forms or practices, such as memorials or ritual dances. His theory is a critical source that I use to frame my awareness of the "X"s as a memorial. Halbwachs further discusses how space and memory are inextricably linked. According to his theory, every collective memory occurs within space. He argues, "therefore every phase of the group can be translated into spatial terms, and its residence is but the juncture of all these terms. Each aspect,

each detail, of this place has a meaning intelligent only to members of the group…" (Halbwachs and Coser 1992, 2).

The foundation of Halbwachs' theory greatly influenced the emergence of memory studies in geographic research in the 1990s. It is during this time that human and cultural geographers began to seriously inquire about the relationship between place and memory. Investigations into memorialization (Heffernan 1995) and public memory (Johnson 1995) as well as landscape studies (Zukin 1995) have all merged to provide a wide literature on urban studies and memory. The intersection of collective memory, identity politics, and civil rights rose as another area of study for geographers around the turn of the century (Crang and Travlou 2001; Dwyer 2000; Edensor 1997). Hoelscher and Alderman (2004) argue that memory is socially constructed across space and time. In fact, much of the earliest work on geographical memory explicitly references Halbwachs as their prominent framework. For example, Hoelscher and Alderman state, "Taking their cue largely from the work of the French sociologist Maurice Halbwachs (1992 [1951]), many scholars, including geographers, have come to see memory as a social activity, as an expression and active binding force of group identity" (2004, 348). Similarly, Nora and Roudebush (1989), explain how memory is inextricably tied to physical sites, from burial places to heritage landmarks, from memorials to urban festivals and commemorations. I use their theory of a *lieux de memoire* and apply it to my research to argue that the Katrina "X"s on urban infrastructure serve as sites of memories. The "X"s are a physical representation of an historic event in New Orleans, and as such, I treat them with the same analytic tools that Nora and Roudebush used to analyze monuments and landmarks. Just as they delved into the history and interpretations of burial sites and historic markers, I have also provided a history and interpretation of the "X"s. Geography helps show that remembering is a

socio-spatial process. Remembering becomes embedded into the landscape as a material practice and it becomes manifest through memorials. The memories of natives represent "indigenous understandings of the past" thus making them "part of an ongoing legacy of conquest" (Hoelscher and Alderman 2004, 349) .

Urban memory is constructed through the actions and processes of residents in a geographic space. Foote and Azaryahu (2007) provide a synthesis of the emerging themes behind the various approaches through which geography explores memory. They describe how memory becomes materialized in some physical manner—a ritual, a memorial, reenactment, or in my case, a symbolic marker of an "X". After reviewing an extensive literature on geographical approaches to urban memory, Foote and Azaryahu found a common theme that permeated much of the research. Their findings and conclusions revealed that memory is socially constructed and it is in a constant state of renegotiation. As such, memory is produced and reproduced over time and space and it is a constant state of flux, depending on the interpretations of residents. "This conception advances upon earlier notions of collective memory in that memory is seen as socially constructed, not innately given, and always shaped by economic, social, cultural, economic, political, and ideological contexts of its creation. In this sense, memory is…invented" (Foote and Azaryahu 2007, 126). Public memory is culturally produced and reproduced. It refers to both the medium of presentation (an "X" on a house) as well as the process of interpretation (Foote & Azaryahu 2007).

I use the concept of urban morphology as a conceptual framework for understanding the theory that memory is socially constructed over space and time. For example, imagine an African American neighborhood in Montgomery, Alabama where there exists various monuments commemorating the Civil Rights Movement of the 1960s. Now imagine that this

area has been experiencing an urban renaissance of sorts, including an influx of white, more affluent residents, a surge in condo construction and older housing demolition, and the overall visible changes of the streetscape such as new restaurants, boutiques, and bars. According to the theory of urban memory, the newer, younger residents will have a different interpretation of the symbolic markers. Nothing about the monument has changed—it is still present in the same location as when it was erected. What has changed is the social make-up and social relationships of the neighborhood itself. As a result, the memories and understandings of the Civil Rights movement, as evoked by the monuments, differ greatly between the older and newer residents. These memories are inarticulable by the newer groups who, more times than not, eventually displace the already-present population. Inversely, these newer groups inscribe their own identities and memories into the landscape. Halbwachs states on these urban processes, "this arrangement was the work of an earlier group, and what one group has done may be undone by another. But the design made by the original people was embodied in a material structure" (Halbwachs 1992 [1951], 3). Crang and Travlou (2001) pick up on these understandings. They frame social construction of the memories behind the material objects within the larger context of urban transformation. This insight is essential to comprehending the process of the "X"s and how their meanings and interpretations by residents change over time and across space. As the Marigny and Bywater undergo change, so will the meanings behind the "X"s. Halbwach's central thesis of the collective memory is a foundation for understanding how geography interacts with memorialization.

Foote and Azaryahu argue that relics become both "witness" and "evidence" through human production (2007, 128). In addition, "the chronology of the memorialization process is important to understanding how memories are represented and reproduced. Participants, victims,

survivors, and families usually exert the greatest control of meaning…" (Foote & Azaryahu 2007, 129). However, through "memory work" other parties come to play a role in the redefining of memory. Some memories are added and others disappear. Meanings become eroded. Alderman and Hoelscher (2004), in their review article, highlight studies focused on memorials, rituals (performances rather than physical sites), street naming, and burial sites. The spatial and the social, they argue, are inextricably linked, and it is within the spatial that "the continually unfolding nature of memory" occurs (Alderman and Hoelscher 2004, 348). They again reinforce the argument that memory is socially and spatially produced and reproduced over time. Additionally, Dwyer and Alderman (2008) state, "these sites are produced by, and are in turn productive of, partisan views of collective memory and urban space ostensibly related to the past but the results of which are directly implicated in the shaping of alternative futures" (Dwyer and Alderman 2008, 166). The "X"s are a complex hybrid of the past and future—some witness it as a testament to the past while some preserve it for purposes related to the future.

The various geographic works by Alderman, Dwyer, and Hoelscher, who commonly have written research papers in collaboration with each other on this subject, serve as useful intellectual explorations on the construction of urban memory. First, Dwyer and Alderman (2008) suggest that memorials (such as the "X") need to undergo a critical historical investigation. Why and how were these memorials created? What purposes do they serve? Whose voice is actively presented behind the markers? I use their proposal as a justification for my central argument. The Hurricane Katrina "X"s are fundamentally different from other memorials because they were not originally intended to become memorials in the first place. The original purpose of the "X"s was to demarcate search and recovery efforts by Urban Search and Rescue teams. Thus the "X"s represent an anomaly to a normal markers and memorials.

Seven years later, residents have ascribed an entirely different meaning to them that strays away from their original intent. I surmise that search teams did not spray "X"s with the intention that residents would return and turn them into art, preserve them for survival reasons, or erase them for defiance purposes. They were performing a job during a catastrophe and were following protocol. The "X"s are different from monuments, statues, placards, and historic walls because their foremost function was to signal Katrina rescue missions. Over time and across space citizens of New Orleans have culturally appropriated the "X" and transformed it from a sign of rescue into a sign of memorial.

Cultural appropriation of the Katrina "X"s is important to understand primarily because of the way gentrifying residents interpret them and ascribe meanings to them. Hoelscher and Alderman (2004) describe cultural appropriation as the adoption of geographical memory of one cultural group by a different cultural group. These processes can be either positive or negative, and in their work they describe the various ways dominant groups culturally reappropriate the memories of subordinate groups. As such, the dominant groups are able to utilize and manipulate the past in a powerful way. While my study does not focus on a dominant versus subordinate understanding of these neighborhoods, I find their use of cultural appropriation to be insightful for understanding how gentrification affects memoryscape. As I will reveal, the Marigny and Bywater are undergoing massive rates of gentrification. As a result, I believe that my interview responses and my own understandings of the "X"s are highly reflective of gentrification and the influx of new residents. I do not think I would have had the same outcome nor the same understanding of the "X"s had my project focused on a different neighborhood. Newer, gentrifying residents arguably have a completely different insight into the "X"s, and my analysis will reflect this particular urban process as compared to the works of other geographers.

The cultural appropriation that citizens have bestowed upon the "X"s is inextricably intertwined to space. Geographical location matters and helps explain my fourth theme—that memory is produced in space. Till's formative work *The New Berlin* is case study on urban memory. She argues that structures in the landscape inscribe memory where the past becomes constituted by the present. Berlin serves as a place of "heterogeneous references, ancient scars" (2005, 5). Till writes the following:

> Places of memory narrate urban pasts and futures through the spaces and times of a city that is itself a place of social memory. [Cities] are fluid mosaics and moments of memory, matter, metaphor, scene, and experience that create and mediate social spaces and temporalities…When people feel personally and culturally haunted by the past, they may evoke ghosts by making places that commemorate, question, remember, mourn, and forget…When people make places of memory, they often give evoked ghosts a spatial form through landscape…(2005, 8-9).

Till focuses on the spaces of Berlin and "why people make places to create meaning about who and where they are in the world and how, in the process of place-making, they communicate feelings of belonging and attachment" (2005, 11). The ongoing process of social memory enables groups to interpret their understandings of life experiences through time and space. For Till, "memory is built". The past becomes negotiated via public memorials. Similar to the way New Orleanians frame their lives, Berlin residents use the phrase *vor* or *nach der Wende* (before or after) the fall of the Berlin Wall in a way that reflects the use of "pre" and post" Katrina. The salience of Till's thinking provides a foundational conceptual framework for my research questions. She argues that people construct memory in order to interpret and make claims to the past. The Marigny and Bywater, in addition to all neighborhoods and streets of the city that received an "X", function as sites of memorialization. As physical markers, the "X"s become a medium through which people tell their stories and share their experiences of the storm. She argues, "*site* reminds us that places are embodied contexts of experience, but also porous and

mobile, connected to other places, time and peoples" (Till 2008, 105, emphasis author). What has occurred in my two neighborhoods of study is not isolated from the rest of the city. It is part and parcel of a much larger history of the storm.

As Dwyer and Alderman discuss on memory and space, "a memorial's relative location or situation is typically examined more broadly in relation to the rest of the city…vis-à-vis the area's mosaic of class and identity based antagonism, such as race…historical meanings are layered onto them, thus challenging the notion that these symbols have a final, established meaning" (2008, 169). I argue therefore that the "X"s are a prime example of this iterative process, especially within my two neighborhoods of study. The history of the meanings behind the "X"s has changed within a time span of seven years and internally within the Marigny and Bywater. Additionally, Till stresses that memory changes over time because place changes and because people change. Till believes that it is important to singularly examine each geographical space within the context of that particular event. Till states, "Trauma does not occur from an event or occurrence that caused pain or suffering per se, but from an individual's inability to give the past some sort of story"(2012a, 22). Again, this notion of rearticulation of memory comes into play as Till stresses the importance of understanding the historical patterns that lead to and subsequently continue on in the present day urban landscape. I agree with her stance and the data from my research illustrates the importance of using New Orleans as a case study on urban memory.

I use New Orleans and the "X"s as a case study to explore themes of memory constructions, and how these processes occur over space. One of the most important points I garner from geographers is the link they draw between urban morphology and the obliteration of material memories. For example, Crang and Travlou (2001) argue that there are typologies and

temporal stages of memory that evolve over space. Their main framework stems from Halbwachs and they push forth the notion that material objects can be easily interpreted as part and parcel of the historical geography of a space. They stress that the meanings behind these historical artifacts are oftentimes—if not always—unintelligible to outsiders, and only understood by members of the space. This argument is central to the thesis that cities are constantly evolving over time through processes such as suburbanization and inner city decay. The ever-changing social, economic, cultural, and political processes of cities transform in tandem with the physical morphology of the city. New people are always moving in while older residents move out. Urban theory suggests that groups of people along similar social categories such as race and income move to new spaces and displace the already present population. This process brings with it sometimes dramatic in the physical spaces of the city. A once dilapidated and economically depressed neighborhood might transform into a booming hub of local restaurants, bars, and mixed-use housing.

Till's recent work has expanded upon her theory of urban memory. She has evolved her research into the direction of what she term "wounded cities". This framework can be applied to understanding the memory and socio-historic inequalities of New Orleans neighborhoods. Till defines wounded cities as "densely settled locales that have been harmed and structured by particular histories of physical destruction, displacement, and individual and social trauma…that continue to structure current social and spatial relations" (2012b, 16). Again, urban memory is critical to her work on wounded cities. I use these two theories to conceptualize the memorialization of the "X"s. While her geographic sites of study differ from own my research areas, her rationale serves as a guide for understanding urban memory in New Orleans. Different

reasons for keeping the "X" contrast different reasons for erasing the "X". There is no one universal reason for the either/or maintenance of the symbolic marker.

Shields (2012) responds to Till's work by stressing the importance of the emerging literature on wounded cities. Whether natural or physical disaster, urban trauma is becoming more commonplace and it is the role of the geographer to grapple with a keener understanding of the relevant issues surrounding memory and rebuilding. In fact, Shields draws from New Orleans and Katrina. He states, "spatial imaginaries of post-disaster are also practices of story-telling built around object survivors that are the material scaffolding of memory" (Shields 2012, 15). Garmany (2012) also advances the concept of wounded cities. He responds to Till and agrees that memory helps shape our understanding of historically traumatic events in urban spaces. For the most part, he agrees with Till's assessment, but his one major divergence is that he believes wounded cities can be applied more generally. He advocates a more nuanced definition of the term, and that other lesser extreme factors can contribute to a city being "wounded", as defined by Till. I agree with his assessment. Generalizability helps to broaden studies to other locations. Whether it is graffiti tags or bullet holes (such as those described by one interviewee), or even the "X"s, Garmany argues "these wounds remain open, festering even, and are only later redrawn and rearticulated by individuals who are gifted to illustrate the sadness, destruction, and strange beauty that inhabit such environments" (2012, 18).

I conclude this section by combining the frameworks from which I study the Katrina "X"s with what Walter Benjamin calls the "open wound", where past, present, and future collide (1999). Walter Benjamin, a German social theorist, studied city life of Paris in the nineteenth century. His primary research focused on urban crises. His findings led him to define what he termed as "shock experiences", events that stir citizens down to a deep conscious level and

physically and mentally rupture their normal everyday lives. These experiences, such as revolts, disasters, and economic depressions force people to consciously re-think the way they relate to the city. Although my case differs from what he studied, I use his work for one of his core arguments. Benjamin posited that shock experiences lead people to reinterpret the past in connection to the present. This renegotiation of the past is framed temporally and spatially and, in the most extreme of cases, fundamentally transforms the lives of residents. Consequently, residents create a dichotomy of a pre- and post- life that centers on the shock experience. This thinking has aided me in my stages of research to constantly think about how Katrina functions as a shock experience and how the urban memory of Katrina "X"s fit within this context.

3.5 The Case of New Orleans

Steinberg and Shields (2008) edited a critical anthology of New Orleans and Hurricane Katrina that engaged with the multiple complex social realities of the storm. One chapter offers an important perspective on memory. I use their work to legitimate my own scholarly decision to use New Orleans as a case study on urban memory. They state at the beginning, "In New Orleans, memory is forevermore overlit with trauma" (Steinberg and Shields 2008, 125). Not only is memory intertwined with trauma, but it is unevenly experienced across the landscape. They, in addition to Caruth (1995), argue, "trauma is generally inarticulable except as obsessive storytelling in an attempt to 'gain access to a traumatic history'" (Steinberg and Shields 2008, 127). Furthermore, Steinberg and Shields write, "While disaster destroys family, neighborhood, and community—the thresholds between self and other—storytelling, which may be in the form of public monuments, reintegrates and rebalances the relationship between self and society…" (2008, 128). These traumas produce and reproduce space and are constitutive of social reality. This research is important, and my research on post-Katrina New Orleans will add to the

growing literature, because as they argue, "the process of forgetting and remembering in the city, of investing in certain memories and de-investing in the memories of others, has been overlooked in urban analysis" (Steinberg and Shields 2008, 131).

Geography offers useful insights into how urban memory operates as a socio-spatial phenomenon. Memory becomes a process rather than an event, and it is as much as recollection of space as it is a recollection of time. The geography of the past is in a constant dialogue with the present urban morphology of cities. The Katrina "X"s serve as mnemonic devices and different meanings are attached to them. The "X" can be seen as a way of combatting forgetting through the citizens' acts of remembering. As the analysis chapter will explain, some interviewees saw the "X" as serving this purpose, while others did not. As Markusen states, "places do not forget other places—only thinking human beings are capable of this, alone and with others" (Markusen 2004, 2303). The "X"s are unevenly scattered over space depending on the respective motivations of citizens. In this case, the "X" has been treated in a certain way and it is more than just a reductionist formula of forgetting or remembering. Through an analysis of interviews and statistical correlations, I will analyze where the "X"s are located and how residents have socially constructed memory seven years after the storm.

CHAPTER 4: RESEARCH DESIGN

4.1 Study Area and Units of Analysis: Marigny and Bywater: Pre- and Post-Katrina

To critically understand the temporal and spatial underpinnings of the "X"s that are scattered throughout these two neighborhoods, I argue that it is necessary to understand the context of the geographical spaces themselves. The Marigny and Bywater have undergone massive neighborhood transformations between the 2000 and 2010 censuses. Specifically, these two neighborhoods are gentrifying at rapid rates, as compared to many other areas in the New Orleans region (MacCash 2013). Gentrification started roughly in the 1980s, starting first in the Marigny, and then picking up pace in the 1990s. In the late 1990s and at the turn of the century, the Bywater started to pick up, beginning a second wave of gentrification. Hurricane Katrina was a pivotal turning point because it drastically sped up the process.

First, I will contextualize the history of my two study areas. According to the *Faubourg Marigny's Improvement Association (FMIA)* website, the neighborhood was established as an unincorporated French Creole plantation area adjacent to the original city *Vieux Carré* (now called the French Quarter). It was incorporated into the French City of *La Nouvelle Orléans* in 1805 as the third municipality, thus becoming the first suburb of the city. In 1974, the neighborhood was listed as a National Historic District, with the majority of the Creole cottage and shotgun architecture remaining intact. During the first half of the nineteenth century, waves of immigration characterized the neighborhood, with French, German, Italian, and Irish comprising the bulk of the demographic makeup.

From around 1850 to the Second World War, the Marigny and other downtown neighborhoods took on a second-class role because they refused to Americanize like the growing

Garden District and Uptown white, English speaking neighborhoods. It continued to maintain its Creole and French identity until after WWII. Post-war New Orleans, like most North American cities at this time, experienced rapid rates of suburbanization and white-flight out of inner city neighborhoods. African Americans rapidly replaced whites in these areas because of the construction of the interstate system and white-flight between the late 1940s and up to the 1970s. Public perception viewed these changes in race and class make-up negatively, especially considering the old and preserved character of the neighborhood as well as its proximity to the French Quarter. However, no sooner had blacks moved in than whites began to move back. The website states, "Faubourg Marigny's renaissance began in the 1970s when young professionals saw the charm of street after street of predominately nineteenth century buildings…" In addition, the neighborhood association was developed to "dedicate its early years to protecting the built environment to the point that the area arguably now has one of the most intact nineteenth century stock of houses in the country" (Reynolds 2011).

Today, the Marigny resembles an older city within the city, with narrow streets, buildings built up to the sidewalk, old corner stores, and preserved historic architecture. As some residents describe, the Marigny and Bywater have been rediscovered as valuable areas to live. Gentrification, which picked up in the 1980s and 1990s, gained the greatest traction in the 2000s, culminating with the after-effects of Hurricane Katrina. In fact, the only flooding to occur in the Marigny and Bywater was minor street flooding, thus adding even more appeal to these neighborhoods. I began my research into these neighborhoods erroneously thinking that they had flooded in the storm. Although the evidence was contradictory to what I expected, I discovered that the reasons they did not flood were because they are built on higher ground and because they are built up next to the natural levee of the Mississippi River. They are now one of

the most coveted neighborhoods in the city, and property values have skyrocketed. As I will demonstrate with Census date, it is whiter, more affluent, and more heavily populated by educated, younger professionals.

The Bywater follows a much similar pattern as the Marigny, but to a much lesser degree. Geographically, it is farther from the French Quarter and it borders the poorer and blacker neighborhoods of the Upper and Lower Ninth Wards. The data from my interviews suggest that residents believe the Bywater is in the gentrification trajectory where the Marigny was in the 1990s, and they predict that five to ten years from now, both areas will have completed gentrification. Historically, the Bywater dates to 1721, when it was chiefly agricultural farmland and plantations operated by French and Spanish immigrants. It was much more sparsely populated in the 1800s and grew at a much slower rate. The neighborhood was inhabited by Creoles, Germans, and Italians, and its urban form consisted of more industrial and commercial activity, especially as one moved closer to the river. It was incorporated into New Orleans in 1807, two years after the Faubourg Marigny. The Bywater is also listed as a National Historical District. According to the Bywater Neighborhood Association, "more than 87 percent of the structures in Bywater date from 1807-1935… Along with Creole cottages, Bywater boasts the highest concentration of shotgun houses (single, double, side hall and camelback) in America" (Bywater, 2011). Following federal housing acts in the 1950s that subsidized suburban areas away from the city, The Bywater experienced mass white, middle class exodus. It transitioned into a low-income, African American neighborhood. Gentrification efforts followed later and more slowly, beginning in the 1980s, slowly progressing in the 1990s and early 2000s, and hitting momentum after Katrina.

Today, locals view the Bywater as the quintessential artsy, bohemian, and hipster neighborhood. Residents are restoring houses at rapid rates, and there is a drastic increase in the number of local restaurants, art galleries, health and wellness studios, and coffee shops. Many interviewees expressed the view that the Bywater's gentrification is not as dramatic as the Marigny. The two neighborhoods' gentrification patterns, while comparable in most regards, do have slight nuances that make them different. While more professionals such as doctors, lawyers, and business people inhabit the Marigny, more artists, musicians, and working class residents reside in the Bywater. This difference in occupational make-up is referenced several times in my interviews. Nonetheless, the key point I argue here is that Hurricane Katrina did not create the impetus for gentrification—it merely sped the process up. As most predict, these two neighborhoods will transform even more in the next few years.

4.2 Research Methods

My research consists of a triangulation of methods. My methods combine grounded fieldwork, interview analysis, archival media analysis, and analysis of Census data. By using multiple methods, I argue I am able to more accurately and effectively interpret my results, thus giving stronger credence to my main arguments. As a point of reference, I restate my questions here. First, what are the social and physical locations of the "X"s within these two neighborhoods? Second, what are the motivations that lead to residents either keeping or erasing the "X"s? The purpose of choosing these three methods is that they are in conversation with one another. Yin (2008) argues for the efficacy and success of triangulation. He suggests that this methodological approach leads overall to a stronger analysis. The diversity of methods that I use will shed greater light on the ways residents socially construct memories out of the "X"s and the ways they are spatially patterned throughout the neighborhoods.

My research lasted between June 2012 and February 2013. During June and July, I conducted fieldwork in New Orleans in order to create a quantifiable log of the Katrina "X"s. Since my project requires a key visualization approach that relies on the spatiality of the "X"s, it was important for me to go into the neighborhoods and conduct research on the ground. I created a catalogue of the "X"s so that I could map them using GIS and correlate them with the social variables that I generated from the Census. I spent the month of June manually recording every address in the two neighborhoods that had an "X". This stage of the research was designed to explicitly answer my first research question, which was to find out where the Xs are located at the address level. I used the neighborhood boundaries provided by Greater New Orleans Community Data Center (GNOCDC). I walked down each and every street, recording the "X"s that I could see on the houses. I stress here that I wrote down what was visible to the human eye. In addition to writing down the addresses, I conducted a classification schema of aesthetic qualities of the "X". I wrote down five basic typologies: art, faded, blobbed out, TFW, and just "X" for all regular ones. I also photographed an accompanying picture to match the "X" with the address for visualization purposes. My photographs illustrate the "X"s across a spectrum of housing—houses that have been rebuilt, houses overgrown with weeds, and everything in-between. In certain cases, I had to note "DSG", which stands for Double Shot Gun, an architectural design that prevails in this neighborhood with two occupancies (two addresses) splitting one house. At the conclusion of this initial stage, I recorded a total of 344 "X"s.

The second stage of research took place in July and lasted until the first week of August. I conducted semi-structured interviews with 20 residents. Similar to Till's work on memory and place, I am "interested in the stories people tell about the places they make…[using] different narratives and representational forms to tell stories about places of memory and to retell the

stories about place…" (Till, 2005, p. 11). The purpose of this method was to answer question two of my proposed research questions—what motivates residents to either keep or erase the "X"s? Table 3.1 is an in-depth description of my interviewees.

Table 3.1. Interviews Descriptive Characteristics.

Interviews	Gender	X or no X	Length of Residence and place of origin	Neighborhood
Interview 1	M	No X	native; Marigny 8 years	Marigny
Interview 2	F	No X	2 years; California, Washington DC, and New York City	Marigny
Interview 3	F	No X	7 months; Nevada	Marigny
Interview 4	F	No X	2 years; Pasadena, CA	Marigny
Interview 5	F	No X	3 years; Boston, MA	Marigny
Interview 6	M	X	10 years; upstate New York	Bywater
Interview 7	M	X	15 years; Arlington VA	Bywater
Interview 8	M	X	21 years; Baton Rouge, LA	Marigny
Interview 9	F	No X	7 years; born Baton Rouge, LA; Connecticut 35 years	Marigny
Interview 10	F	No X	15 years; (not here 2005-2010); Florida panhandle	Bywater
Interview 11	F	No X	4 years; (attended Tulane University, 1992-1996); Memphis, TN	Bywater
Interview 12	M	X	12 years; Washington DC and Arlington, VA	Bywater
Interview 13	F	No X	50 years; Hattiesburg, MS	Marigny
Interview 14	M	X	native; Bywater 3 years	Bywater
Interview 15	F	No X	native; Bywater 54 years	Bywater
Interview 16	F	X	8 years; Belmont, NC	Bywater
Interview 17	M	No X	native; Bywater 2 years	Bywater
Interview 18	M	No X	4 years; Philadelphia, PA	Bywater
Interview 19	M	No X	35 years; Greensberg, LA	Marigny
Interview 20	F	X	8 years; Chicago, IL	Marigny

Source: (Interviews conducted by author June and July 2012).

I developed the pool of research participants with a multi-step procedure. I chose two main streets that traverse the two neighborhoods from beginning to end—Dauphine and Burgundy. I chose snow-balling sampling which went as follows: I started at the very beginning of the neighborhood and street, chose a random house, knocked on their door, and asked them to

participate in my research study. When they agreed, I read my participation waiver, and when they chose not to participate, I went along to the next house. There were two main reasons that people decided not to participate. The first and most common reason was that they were tired of discussing Katrina and no longer wanted to talk about it. The second reason was that they had already participated in too many research studies following the storm. The interviews lasted one hour, and they took place at their residence. I did not record my interviews and instead I hand wrote what they had to say, sometimes pausing them to reflect on what they had just said or asking them to repeat something that I thought was important. Once the interview was complete, I used a snowball technique in which I asked them if they could direct me to another resident who they think would participate. For the most part, this method worked. One weakness of this method is that I conducted my interviews during the workday, and I ran into instances when nobody was home. When these occurrences happened, I went through a trial and error tactic and kept knocking on doors until I found someone to participate.

By the end of this second stage, I had conducted a total of twenty interviews to explicitly help me in answering my second research question. Eleven interviewees were from the Marigny (55%) and nine were from the Bywater (45%). Of the twenty residents randomly selected for interviews, 7 had "X"s and 13 did not have "X"s. 45% were male (9) and 55% were female (11). The breakdown of residency/place of origin was as follows: Native (born in New Orleans): 4 (20%); 0-7 years (post-Katrina): 7 (35%); 8-15: 6 (30%) 15+: 3 (15%). A second important weakness of my method that I must note involved who I did—or rather did not—interview. I was disappointed that I was unable to conduct any interviews that involved African Americans. This unfortunate limitation took a long time for me to reconcile. This is not to say that I purposefully did not seek out African Americans or that I did not encounter them. In fact, near

the end of my study when I realized that I had yet to conduct any interviews with African Americans, I actively sought to remedy this limiting factor. However, by the time I concluded my research, I encountered a total of twelve African Americans, and none of them wanted to participate. They did "not want to talk about Katrina", or as one man stated, "Another white boy coming to interview blacks". I think this fact is important because it reveals an underlying narrative that I did not explore, but could be explored for future projects. The fact that African Americans do not want to talk about the "X" is a story in and of itself. Indeed, the neighborhoods are gentrifying, pushing many of them out of their neighborhoods. I refer to this unwillingness to talk as a silencing of the memories of the "X"s. This silencing of African Americans runs along the lines of displaced residents who have yet to return, thus contributing to a more literal silencing and/or inability to discuss their own perspectives. In the end, I had to work with the data that I had, but I believe this particular weakness of my study can lead to fruitful research down the line.

The next stage of research involved transcribing my interviews, which involved typing up all of my handwritten notes. This stage of the research was a continuation of my efforts to answer the second research question. By going through my notes, I was able to gain a stronger analytical lens on the urban memories of residents and their treatments of the "X"s. I systematically coded the transcripts, searching for common themes among all responses, question by question. In order to do this, I broke down each coding by individual questions. I did all of the first questions first, and then the second set second, and repeated this pattern until the final questions. By coding in this order, I was able to focus my attention on one type of response. Rather than coding interview by interview, this approach allowed for a more fluid and cohesive analysis. To code my interviews, I used the methods prescribed by Mason (2002).

Mason, in her work on qualitative research techniques, defines strategic techniques to organize and index data for coding analysis. She stresses that cataloguing and coding data is not analytically neutral. Researchers use conceptual frameworks and scholarly lenses that lead them down particular analytical pathways. Furthermore, she suggests three primary ways of reading data: literally, interpretively, and reflexively (Mason 2002, 148). For my research, I utilized an interpretative approach, which she defines as working through the data, moving through and beyond what participants said, and trying to get down to the underlying meanings of what they expressed. This approach required a lot of deciphering on my end, but I was able to use the tools she provided and the frameworks from my literature review to guide my thinking.

I searched for analogous and comparable answers that could fit under a generalizable thematic category for analytical purposes. This step was an iterative process, in which I went back-and-forth, creating and erasing categories, and collapsing and merging others. I returned to these transcriptions a month later to conduct the process a second time in order to refine it and flesh it out once more. This second stage of editing led to an even more finely grained categorization. By systemically revisiting and revising my interviews and their emergent themes, I was able to produce a more coherent and stronger analysis. I carefully carried out this stage of the study so that my research methods closely matched my research outcomes, thus leading to a stronger analysis to answer my second research question. In most cases, I was able to reduce six to eight categories into four to five primary themes. This rationality was based upon what I deemed to be common themes that I found to be frequently evoked and uniformly brought up throughout the transcription of interviews. The transcription and coding stages of my research led to the final stage of my own analysis.

My second method was archival analysis. My primary source is *The Times Picayune*. I used both Google Scholar as well as Academic Lexus Nexus to find articles that directly dealt with my research. I decided to analyze two major sources: those articles that dealt with the Katrina "X"s and those that dealt with the changing social geographies of the Marigny and Bywater. The articles on the "X"s date back between the years 2005 and 2007, and the news stories on my neighborhoods stem from 2012 and 2013. My second medium of archival analysis is from Dorothy Moye's Project, *Katrina +5: An X Code Exhibition*. As I have explained, my email correspondences with Moye led me down certain analytical pathways that influenced my own interpretations of the "X"s, especially during the early stages of my research. I view her project as a foundation from which I was able to produce questions for my own research.

This stage of the research was to answer both my first and second research questions. By sorting through the newspaper articles and Moye's project, I first learned where they were focusing their efforts. They were seeking to answer a basic question—where are the "X"s located? The newspaper archives and Moye's research directed me to choose the Marigny and Bywater as my areas of study. From here, I chose to find "X"s at the smaller scale of the address level, thus leading me to first research question. Secondly, both mediums—newspaper and Moye—used interviews in their preliminary exploration of the "X"s. This method influenced me to also use interviews to answer my second question. I treated my archival data in much the same way that I treated the coding of my interviews. I highlighted potential common themes within the news articles, focusing primarily on the ways journalists investigated the "X"s. These articles consist of reporters interviewing locals on their opinion over the "X"s. Coding these data allowed for a preliminary way of thinking through and possibly foreshadowing the possible responses that I would analyze within my own interviews. I coded, much like my interviews,

along categories of why they kept or erased the "X", and how they socially constructed memories out of them. These journalistic investigations augmented my own interviews because their findings similarly mirrored my own findings.

My fourth and final method is analysis of demographic data obtained from the U.S. Census Bureau (American Fact Finder interface), Social Explorer, and the Greater New Orleans Community Data Center. From GNOCDC, I used their extrapolated data to temporally compare the pre- and post-Katrina demographic characteristics of the two neighborhoods as a way to put them into a larger context of neighborhood changes. This stage of the research was to answer the second part of my first research question—what are the social geographies of the Katrina "X"s? From American FactFinder and Social Explorer, I collected data from the 2000 and 2010 censuses. I queried data into specific categories in order to narrow down what exactly I was searching. I then used this information in STATA, a statistical software system I used to conduct regression analysis to explore the spatiality of the "X"s in relation to social variables. I also used the Poisson Distribution Probability theorem to determine if the spatial pattern of the "X"s was random. Poisson was used to determine whether or not the "X"s were random, a further necessary component to answer my first research question concerning the spatiality of the "X"s.

First, I used Social Explorer to extrapolate data for the *block group* level. A combination of block groups makes up a *census tract*. The Marigny consists of block groups 1 and 2 for census tract 18 and block groups 1 and 2 for census tract 26 (gnocdc.org 2012; socialexplorer.com 2012). The Bywater consists of block groups 1-3 for census tract 11 and block groups 1-3 for census tract 12. Figure 4.1 shows a map of my study area by *census tract*. If you compare this figure to the map figures in Chapter Three (Katrina flooding, 2000 racial geography, elevation, white teapot), you will be able to place the area of study within a larger

social context. For example, one will see that the Marigny and Bywater are part of the "white teapot" geography exemplified in Figure 3.6. These comparisons will better enable the reader to situate the neighborhoods within the city as a whole. I extracted the following variables for the block-group level: Gross Median Rent; Median Housing Value; Educational Attainment of Populations older than 25; Total Housing Units; Housing Tenure; Median Household Income and Vacancy Status. I used American Fact Finder to collect data for the *block* level. Many blocks make up a block group, which then makes up a census tract. I extracted the following variables: Total Population, and Races. Table 4.1 summarizes each data set and what variables were generated for each.

Table 4.1. Marigny and Bywater Data Collection Sources.

U.S. Census Block Level	Social Explorer Block Group Level
• Total Population • Race	• Educational Attainment • Total Housing Units • Gross Median Rent • Median Housing Value • Housing Tenure • Median Household Income • Vacancy Status

Source: (Graphic by Author, April 2013)

I used Census demographic data for two main purposes. The first purpose was for STATA analysis and the second was for descriptive statistics to compare the 2000 and 2010 demographic changes in the neighborhood. For analysis purposes, I created two data files, one for blocks and the other for block groups. Both files had a column for Katrina "X"s, which represents the count of "X"s within each geographical unit. For example, "Block 1040, Block Group 1, Census Tract 11, Orleans Parish, Louisiana" had a total of 3 "X"s. The second purpose

for using Census information was to compare 2000 and 2010 demographic changes in the Marigny and Bywater. I summarized the information into tables for comparison purposes. After this stage, and in collaboration with three fellow graduate students, I used ArcGIS to create three maps for visualization purposes. The maps were designed with the intention of using them as visual aids in order to spatially correlate the addresses (which are represented as points) of the "X"s with a specific social variable. These maps serve as important visual aids that spatially map out the "X"s within the two neighborhoods. The maps represent the outcomes of my fieldwork methods that I conducted in order to answer my first research question. They show the distribution of the "X"s across block and block group level and in correlation to varying social demographics.

My research on the Hurricane Katrina "X"s and the urban memory of residents in the Marigny and Bywater neighborhoods took the form of four specific methods. First, I conducted fieldwork on the ground, in which I recorded the addresses of Katrina "X"s within the geographical confines of my study area. Second, I interviewed residents and transcribed our conversations. Third, I engaged in archival research of newspaper articles and Moye's art project. Lastly, I conducted statistical analysis of U.S. Census data to correlate various 2000 social demographics in relation to the spatial distribution of the "X"s. I deliberately chose these four methods to answer my two primary research questions—what are the physical and social locations of the "X"s and what are the urban memories of residents that motivated them to keep or erase the symbols? I have laid out a template in this section that describes in detail each stage of my research and the varying degrees to which the selected methods allowed me to answer my research questions. The fieldwork and Census information mainly helped in answering my first research question whereas the interviews and archival data addressed my second question. There

was overlap between methods and what questions they addressed, and I always strove to make sure that I engaged in an iterative dialogue between the four stages of the research design. I argue that my methods successfully addressed and answered my research questions, which accordingly paved the way for a stronger findings and analysis chapter.

In conclusion, Mason (2002) provides a few guiding principles that aided me in conducting the most rigorous and replicable research possible. I strived for a systematic and accurate collection and interpretation of data. This notion reflects back to Yin's (2008) use of a triangulation of methods, where my three main methods of interview, archival, and Census analysis are in an iterative process of dialogue. For instance, my qualitative interviews tell the stories behind the statistics, which in turn were mapped out. Another example is the fact that the social characteristics of my interview participants reflect the Census demographic data. This mutual interaction among all three techniques allowed for a stronger argument within my findings and analyses. Secondly, I aimed for my research design to be a strategic as possible while also allowing for flexibility and contextualization. These two factors reflect two examples. For flexibility, I allowed, for example, for a semi-structured format that permitted interviewees to go down tangents that were not necessarily a part of my pre-defined interviews. Finally, I always aim to explain my arguments in as cohesive and coherent a style as possible. Mason argues for research—vis-à-vis methods—to be generalizable. I advocate for continued research on this subject, both through my own weaknesses and limitations as well as possible new directions for future studies. The ultimate goal of my primary and secondary research methods is to make an argument based upon my data of the "X"s in order to explain how residents socially construct memory over time.

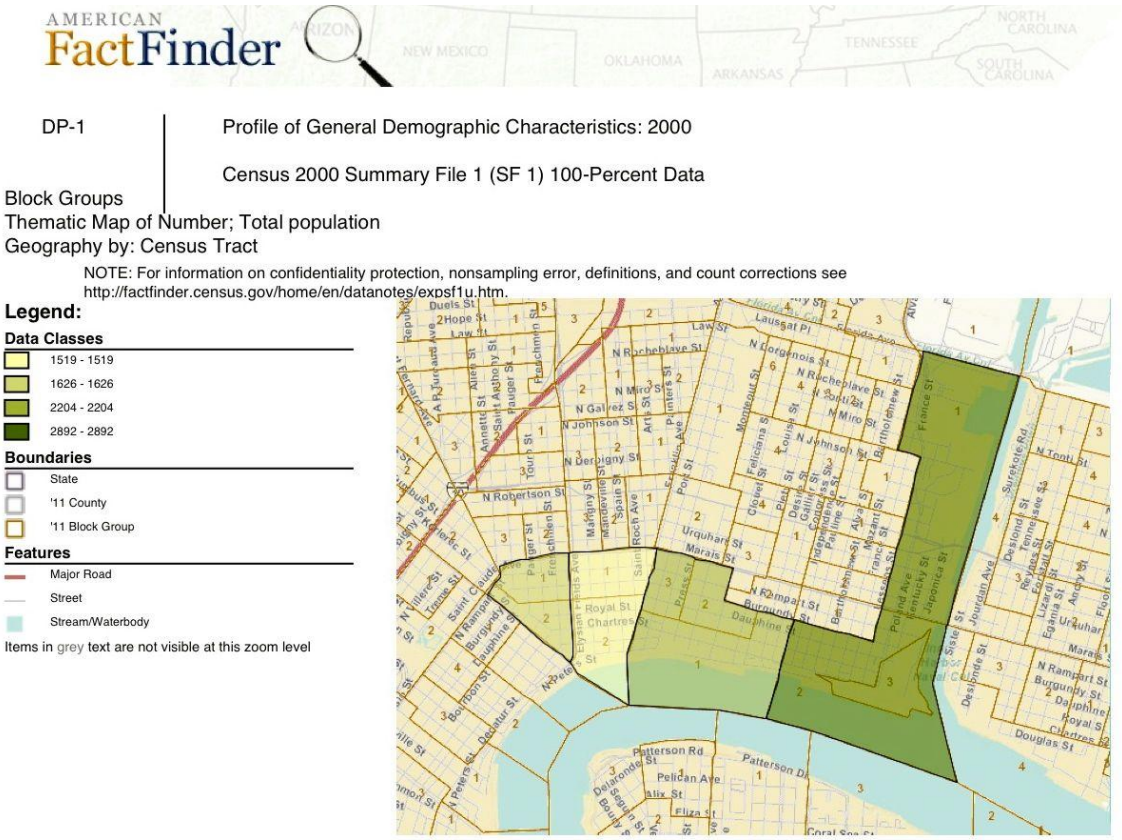

Figure 4.1. Marigny and Bywater.
Source: (American Fact Finder 2012).

CHAPTER 5: RESEARCH FINDINGS AND ANALYSIS

5.1 **Gentrification and Displacement: Two Sides of Neighborhood Changes**

Hurricane Katrina set the stage for an unprecedented acceleration of gentrification in the Marigny and Bywater. I realized that I could not successfully tell the story of urban memory of the "X"s without detailing the larger context of the neighborhood changes underway in my two neighborhoods of study. One cannot understand what, why, and how residents memorialized the "X" without first understanding the context of social and economic transformations of these two areas. Tables 5.1 and 5.2 are comparisons of the 2000 and 2010 census, comparing key variables that make up the social and economic dimensions of the Marigny and Byater. All economic figures are adjusted to 2010 inflation numbers. According to GNOCDC, The Marigny is bounded by Esplanade Avenue, St.Claude Avenue, the Mississippi River, and Franklin Avenue. Bywater is bounded by the Mississippi River, Franklin Avenue, St.Claude Avenue to Lessepps and Mazant Street then Florida Avenue and bounded by Poland Avenue. While I recognize that neighborhood boundaries are socially constructed, I decided to use them to bound my study.

It is evident that certain patterns are taking root in the pre-and post-Katrina worlds of the Marigny and Bywater. Both have seen an increase in white population (+3.85%, +73.15%) with a simultaneous decrease in black population (-28.25%, -45.74%). Educational attainment beyond the high-school level has increased +39.44% in the Marigny and doubling in the Bywater at 102.25%. In economic terms, the percentage of population living in poverty has decreased (-61.00%, -36.79%), accompanied by an increase in median household income (+46.20%, +22.02%). I argue, based upon the data on race, income, rent, home-value, and education, that

there are, in fact, patterns of gentrification efforts within these two downtown neighborhoods. While the literature on gentrification is constantly in flux (it has multiple definitions among a wide array of social science disciplines) (Lees, 2000; Slater, 2006; Van Weesep, 1994), I argue that gentrification uses these variables as a critical starting point.

Table 5.1. Marigny Census Demographics, 2000 vs 2010.

Category	2000	2010	Percent Change
Population	3,145	2,973	-5.47%
Households	1,960	1,881	-4.03%
Race % White	72.7%	75.5%	+3.85%
Race % Black	17.7%	12.7%	-28.25%
Total housing units	2,349	2,359	+0.42%
Occupied units	83.4%	79.7%	-4.43%
Vacant units	16.6%	20.3%	+22.3%
Owner occupied	32.9%	36.3%	+10.33%
Renter occupied	67.1%	63.7%	-5.07%
Median HH income	$46,799	$68,421	+46.20%
People in poverty	24.1%	9.4%	-61%
Median gross rent	$503	$850	+69%
Median housing value	$136,000	$271,050	+99.3%
Bachelor's degree	32.2%	44.9%	+39.44%

Source: (Greater New Orleans Community Data Center 2012).

Table 5.2. Bywater Census Demographics, 2000 vs 2010.

Category	2000	2010	Percent Change
Population	5,096	3,337	-34.52%
Households	2,263	1,763	-22.09%
Race % White	32.4%	56.1%	+73.15%
Race % Black	61%	33.1%	-45.74%
Total housing units	2,725	2,498	-8.33%
Occupied units	83%	70.6%	-14.94%
Vacant units	17%	29.4%	+72.94%
Owner occupied	38.1%	42.4%	+11.29%
Renter occupied	61.9%	57.6%	-6.95%
Median HH income	$35,652	$43,504	+22.02%
People in poverty	38.6%	24.4%	-36.79%
Median gross rent	$424	$934	+120.28%
Median housing value	$75,600	$203,400	+169.05%
Bachelor's degree	17.8%	36%	+102.25%

Source: (Greater New Orleans Community Data Center 2012).

Before the next section, I want to urge the reader to keep Hurricane Katrina in mind. Some of the literature on gentrification makes reference to property values, such as the relationship between owner occupied and renter occupied or the difference between occupied units versus vacant units as well as analysis on rent (Smith and LeFaivre 1984). For example, some scholars note, generally speaking, that there is a positive correlation between gentrification and an increase in owner occupancy and a decrease in vacant properties. However, in the case of New Orleans, Katrina becomes an added third factor. In the Marigny, vacancy rates have increased +22.3% while in the Bywater, the vacancy rate has jumped up 72.94%. Displacement of residents is a key focal point to understand here. As described in the literature review section in Chapter 3, there exists an entire narrative of residents displaced by Katrina who are unable to move back for various reasons. Common restrictions include a lack of job opportunities, no money to rebuild their damaged property, or the uncertainty of living in a post-Katrina world. This lack of return by residents explains the higher numbers in vacancy rates. The literature on gentrification has failed to capture this nuance, not because of the lack of insight by the scholars, but because of the unprecedented nature of Hurricane Katrina and the human diaspora it created. Median gross rent has escalated by +68.99% in the Marigny and has skyrocketed +102.28% in the Bywater. Median home value surged nearly 100% in the Marigny and a huge climb in the Bywater at 169%. The real estate within these two neighborhoods is anything but slow, and for better or worse, it is pushing the older, mostly low-income blacks out of the neighborhood. As more poor African Americans move out, highly educated, more-often-than-not newcomers to New Orleans repopulate these two neighborhoods.

These two neighborhoods, while gentrifying, have also experienced displacement due to Katrina. As a result, the story becomes two sides of a coin. On the one hand, there are clear

signs of displacement due to gentrification. One the flip side, vacancy rates reveal the underlying phenomenon (and not much talked about within these two geographically bounded spaces) of Katrina displacement. The majority of stories focus on the Lower 9th Ward, neglecting other neighborhoods. Nonetheless, gentrification and displacement are two parts of the whole story. While numbers can only reveal so much, it is up to me, the researcher to qualify the data.

A three part series was published in *The Times Picayune* in January of 2013 that tries to grasp the changes that are characterizing these two historic, downtown neighborhoods. The titles are as follows: "The Changing Face of St.Claude Avenue and Environs are a Neighborhood in Flux", "Gentrification of Bywater and St.Claude Avenue was Sped up by Flood and 2008 Economic Slump", and "St.Claude Avenue Neighborhoods Changed by Katrina, the Creative Class and Gentrification". As an important note, the Marigny and Bywater are in-between two major pathways: The Mississippi River to the south and St.Claude Avenue to the north.

These three articles are evidence to the changing face of the Marigny and Bywater and the ways in which gentrification have captured their post-Katrina narrative. As I have previously stressed, MacCash states how "long before Katrina, however, artists, young professionals, and others had sought out the city's downriver neighborhoods for their reasonable rents, vintage architecture, and their alluringly gritty atmosphere, as well as the entertainment options along Frenchmen Street" (MacCash 2013a, 1). Comparing these two neighborhoods to others in the metro area, MacCash states how "the magnitude and velocity of the changes in the Marigny may be an extreme in the metro area (MacCash, 2013a, p. 2). Part of these changes include a flourishing St.Claude Arts District, the community-based New Orleans Healing Center, and the bohemian repainting of houses while also maintaining the historic feel of the streetscape.

Hurricane Katrina exacerbated these transformations and "the area's heady post-disaster mix of blight and architectural richness, poverty and promise, creativity and crime—has proven irresistible to many young home seekers" (MacCash 2013a, 3). Residents are literally at the crosshairs of socio-spatial changes. In interviewing one resident, MacCash discovered that the developments are noticeable and "there's been just a visible acceleration of the nature of gentrification here…such that you have increasing numbers of young, creative-class artists, bohemians, and entrepreneurs settling here" (MacCash, 2013a, p. 3). So, the question is—what does this all mean? Residents are conflicted when it comes to the already loaded word "gentrification". Many are attracted to the historic feel, culture, arts, and its preferred proximity to urban amenities. On the flip side, some residents feel it is unfair when older, established residents are uprooted because of the rise in rents. Some residents, as one noted, "said that the shifts probably have less to do with race per se and more to do with income and education levels" (MacCash 2013b, 2). As we can see, the term is not easy to define. To some, it attaches racial signification; to others it means income; and still to others it refers to education levels.

The nuanced nature of gentrification does not go unnoticed, but residents feel torn as to what they could do—if anything at all. As MacCash summarizes, these urban transitions are intricate and compounded by competing factors such as "where newcomers live side-by-side with long-time residents and where some plead for renewal and some wish for everlasting sameness" (MacCash 2013c, 2).

In this section, I have laid out the labyrinth of the inner-workings of the pre- and post-Katrina Marigny and Bywater neighborhoods. Through an historical account of their histories, an investigation into the Census demographic fluctuations, and a qualitative illustration of gentrification and displacement issues, the reader will better understand the analysis of my

interviews. Context helps frame the narrative of my research. The data and frameworks are in conversation with one another and lead to a more holistic interpretation of my findings. Now that we have a clearer description of the social and economic characteristics of my study area, I will delve into the statistics to answer my first research question—what are the physical and social geographies of the Katrina "X"s?

5.2. Analysis of Statistics

This section provides statistical analysis to determine correlation between pre-existing 2000 U.S. Census social variables and the spatial location of Katrina "X"s. I first examined whether the "X"s are randomly distributed across the blocks and block groups of the study area. The actual distribution differs substantially from a Poisson-predicted distribution ($P < 0.05$), which confirms that the distribution of the "X"s is not spatially random. Thus, at the level of the blocks, there is a spatial pattern to the distribution of the "X"s through my two areas of study. A parallel analysis conducted for the larger block groups confirms that the distribution of "X"s is not spatially random ($P < 0.05$). It is important to note how small N (number of block groups) renders $P > 0.05$. Nonetheless, the r_s are of a fairly notable magnitude.

I will focus on my regression analyses to explain whether or not certain social variables from the 2000 U.S. Census were able to successfully explain the geography of the "X"s. Before I get into block groups, I will explain the "X"s as they spatially relate to blocks. The only block-level census 2000 variable useful for statistical analysis is percent black. The Census does not publicly release detailed social or economic information for blocks because of the need to protect confidentiality. The correlation between the number of Katrina "X"s and percent black is very weak ($r=.09$) and is statistically insignificant at standard levels. Due to limitations provided by the U.S. Census, I was unable to measure correlations of the "X"s in relation to other social

variables. I will now explore the "X" geography at the block group level of the Marigny and Bywater neighborhoods.

Table 5.3 details the correlation of specific social variables in relation to the "X"s at the block-group level. In addition, I provide a series of maps that visually represent the spatiality of the "X"s. Figure 5.1 Shows the "X"s at the block level. I reiterate the fact that the "X"s are not spatially random. The most statistically significant social variable that maps out at the block-level is race. Figures 5.2 and 5.3 are drawn from Table 5.3 because they are the two variables that are statistically significant. Figure 5.2 shows race correlated to the "X"s and Figure 5.3 highlights median housing value correlated to the Katrina "X"s. Of these two variables, median housing value is the most statistically significant and correlates the most closely.

Table 5.3. Block-Group Level Correlation Coefficients and R^2.

Variable	r	Significance Level
Percent Black	0.6218	*
Percent Vacant	0.1969	
Median HH Income	-0.5044	
Median Housing Value	-0.6981	**
Percent Renter	-0.2366	
Percent HS Educated	-0.4588	
Median Gross Rent	-0.4586	

Source: (American Fact Finder 2012).
Note: One asterisk (*)= $P < 0.05$; (**)= $P < 0.01$

My findings reveal that there is a pattern to the spatial arrangement of the "X"s. They are not random at both the block and the block-group level. The magnitude of the r-values for percent black and median housing value is very similar, which demonstrates that the two factors are roughly equal in their correlation to the "X"s. The two variables with the lowest r is percent vacant and percent renter, which, interestingly, goes against my hypothesis of the "X"s correlating to renter areas and vacant areas. In addition, many variables in the middle are highly correlated with each other and this emergent pattern captures several of these variables.

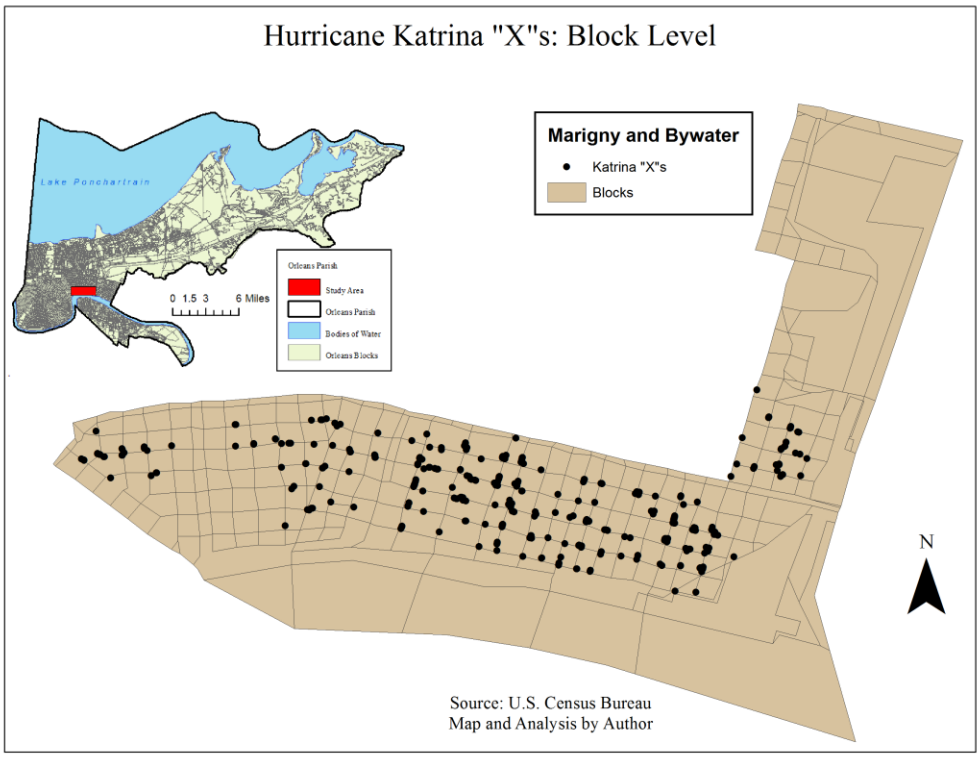

Figure 5.1. Katrina "X"s at the Block Group.
Source: (Author 2013).

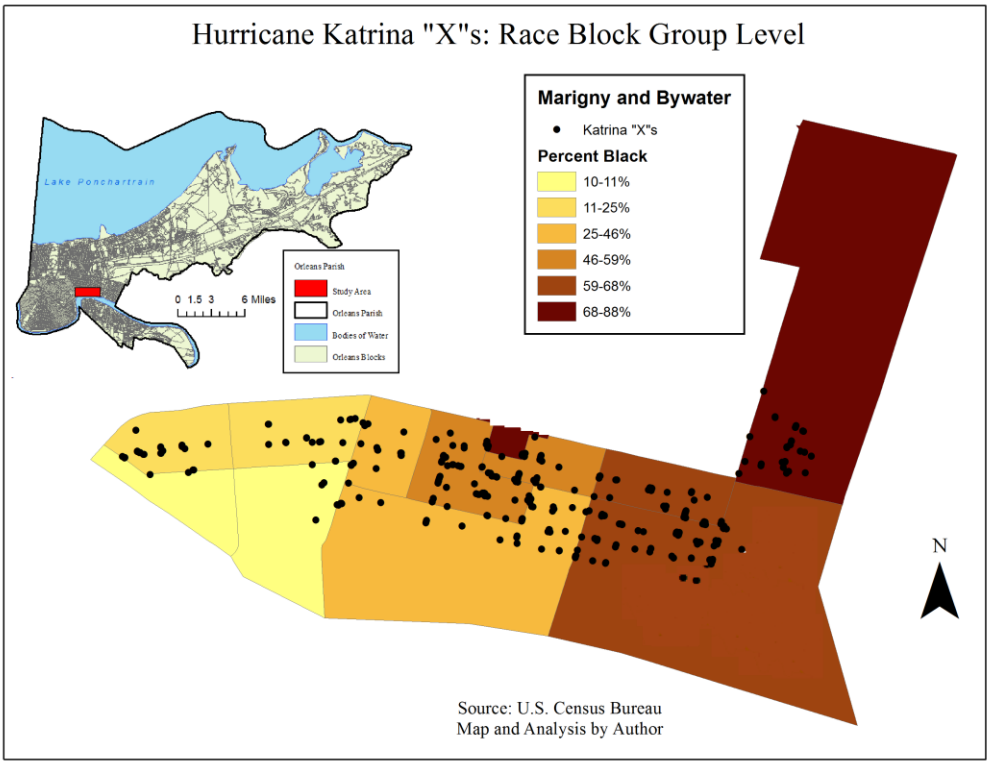

Figure 5.2. Katrina "X"s and Race at the Block-Group.
Source: (Author 2013).

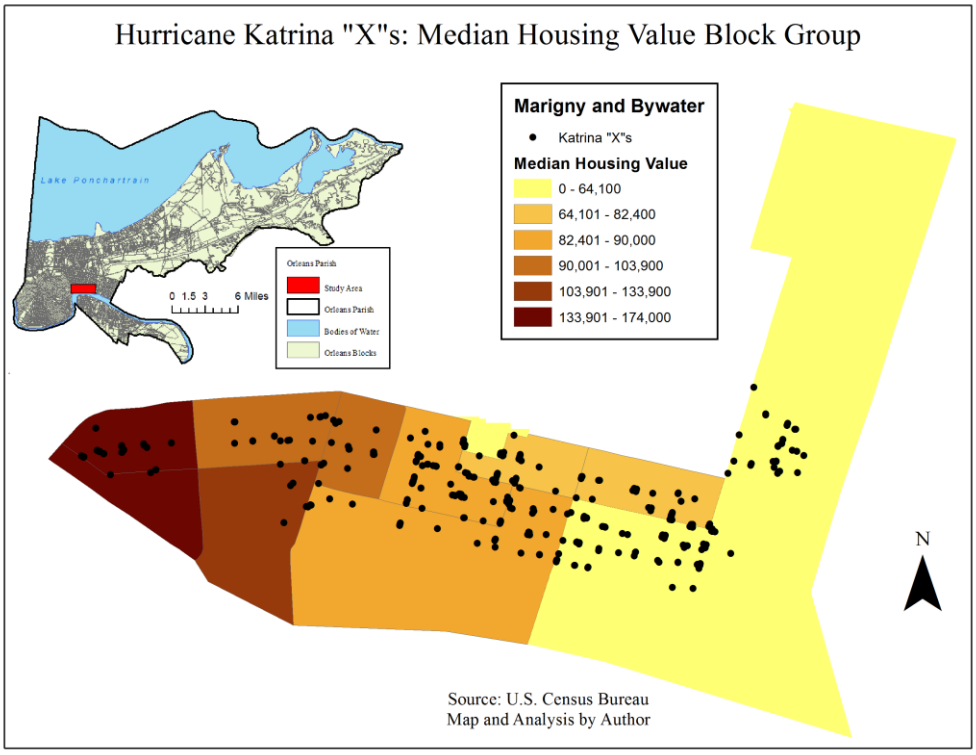

Figure 5.3. Katrina "X"s and Median Housing Value: Block Group. *Source:* (Author 2013).

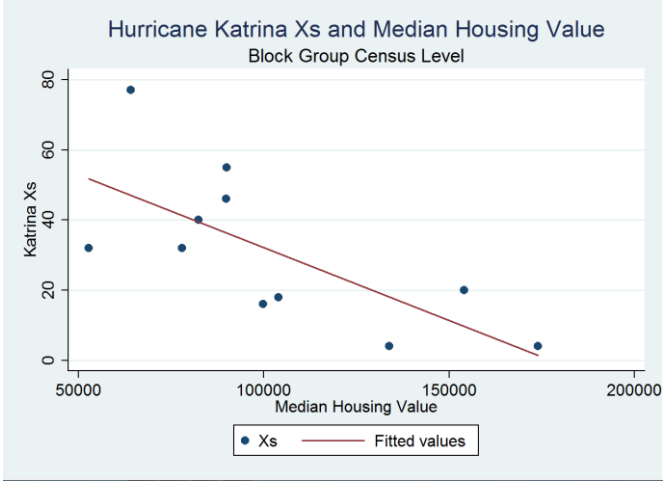

Figure 5.4. Katrina "X"s to Median Housing Value: Block Group. *Source:* (StataCorp 2007).

This scatter plot examines the relationship between median housing value at the block group level, and Katrina "X"s. It appears as if there is a strong correlation at the block group

level. Pearson's r correlation coefficient is -0.6981. This number represents a moderately strong relationship. As block groups increase in median housing value, there is decrease in "X"s.

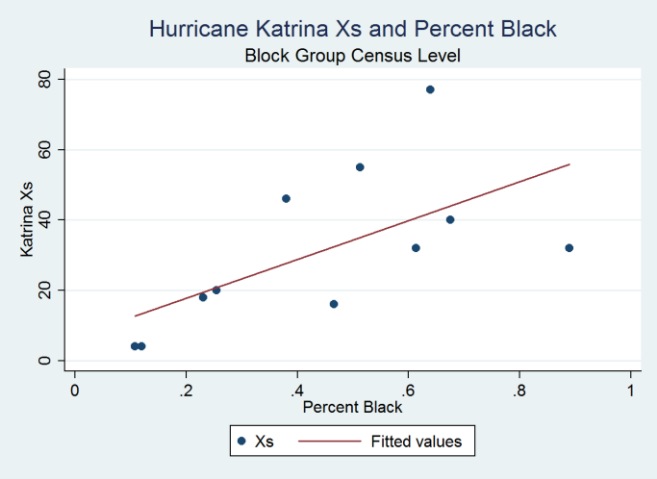

Figure 5.5. Katrina "X"s to Percent Black: Block Group.
Source: (StataCorp 2007).

This scatter plot examines the relationship between percent black at the block group level, and Katrina "X"s. . Pearson's r correlation coefficient is 0.6218. This number represents a moderate relationship. This correlation, although small, is in the positive direction when going from left to right. Thus, as a block groups increases towards 100% black, there is an increase in Katrina "X"s. The variables are more responsive at the block group level than at the block level.

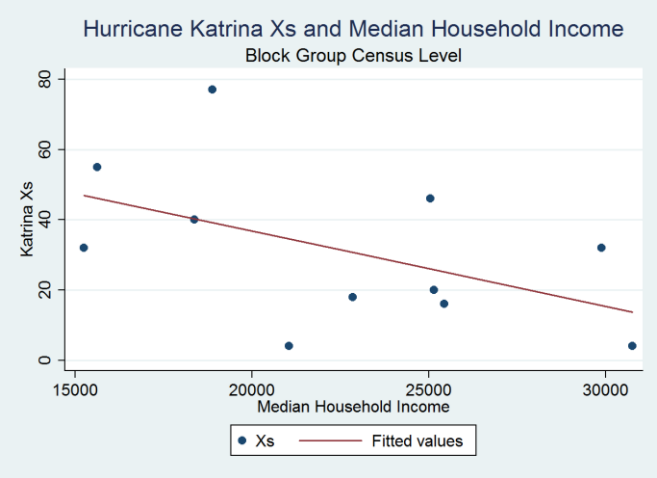

Figure 5.6. Katrina "X"s to Median Household Income: Block Group.
Source: (StataCorp 2007).

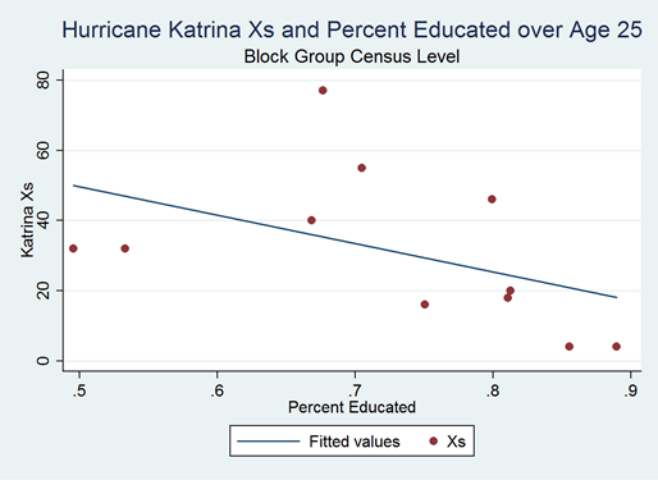

Figure 5.7. Katrina "X"s to Percent Educated over Age 25: Block Group. *Source:* (StataCorp 2007).

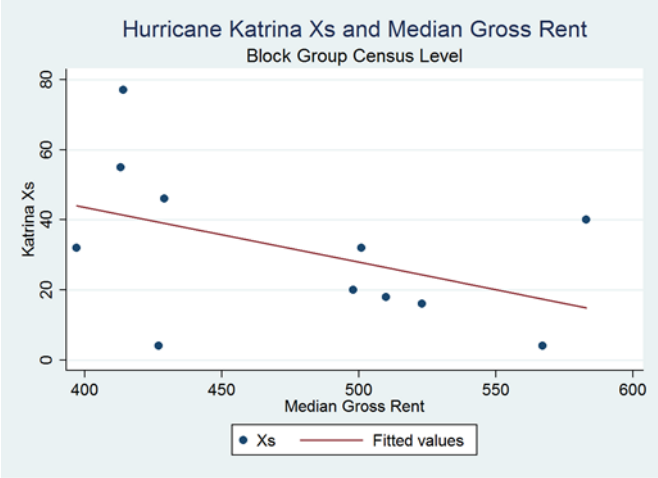

Figure 5.8. Katrina "X"s to Median Gross Rent: Block Group. *Source:* (StataCorp 2007).

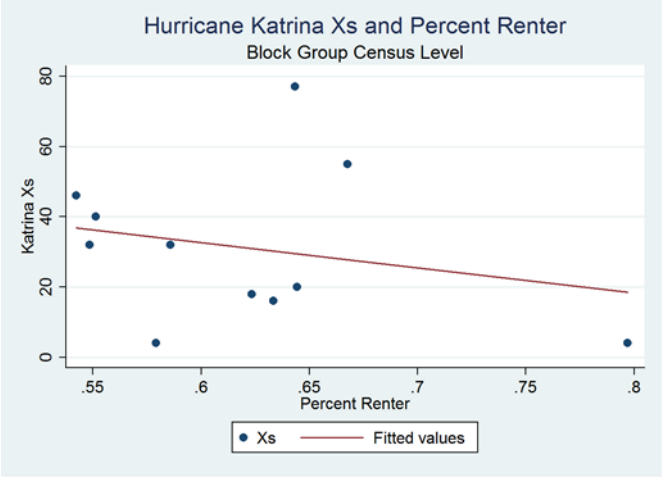

Figure 5.9. Katrina "X"s to Percent Renter: Block Group. *Source:* (StataCorp 2007).

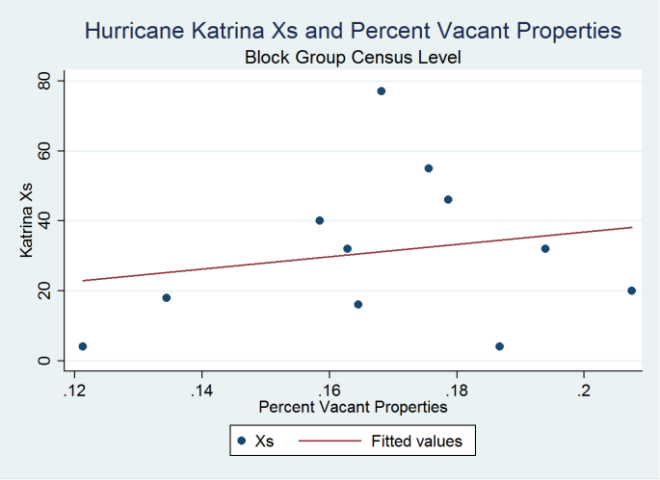

Figure 5.10. Katrina "X"s to Percent Vacant: Block Group. *Source:* (StataCorp 2007).

What I have done is this section is compute statistical correlations to determine what social factors from the 2000 U.S. Census are statistically significant in prediction the spatial geography of the Katrina "X"s. I hypothesized that the "X"s would cluster in parts of the Marigny and Bywater to higher proportions of racial minorities, lower-income residents, renters, and lower housing value. What I discovered is that of these factors, median housing value correlated the strongest followed by percent black. The remaining factors are not statistically significant. These facts tell a story behind the numbers. I argue that the social make-up of these two neighborhoods played an important role in the present-day geography of the "X"s. They are spatially patterned in such a way that they are not random. They concentrate in the parts of my study area that were the most black and with the lowest housing values before Katrina. These facts are important because African Americans were the most severely affected by the storm and because poorer housing stock suffered the most damage. Thus, it comes as no surprise that there is not more "X"s in the whiter, pricier parts of the neighborhood. My findings are also important because they are part of the larger story of the neighborhood transformations currently underway within the Marigny and Bywater. The areas that have the majority of the "X"s are changing

racially, economically, and socially. My fieldwork of walking down the streets revealed a multifaceted view of this area—rebuilding is heavy, and the influx of white, affluent, and educated newcomers is not unnoticed, neither by my time spent here nor by those locals that I interviewed. Now that we have a stronger sense of where the "X"s are located, I must answer the second, closely related question—what motivates locals to either keep or maintain the "X"s. In the next section, I will explore, both through archival analysis as well as my own interviews, the urban memories of these residents.

5.3 Analysis of Interviews

The first two of the six interview questions I posed to residents was why they chose to live in the Marigny and Bywater, and how long they had lived here. This question was designed to see what attracts residents to this area as opposed to any other neighborhood in New Orleans. I narrowed the responses down to four main reasons: gentrification, urban proximity, homeliness, and other (non-flooding, safety). Of these four classes, the number one reason to live in these neighborhoods was for gentrification reasons. For example, one resident stated how she loves the historical integrity of the neighborhood. Others love living in an historic district, surrounded by late 1700/1800 architecture. Common words used to characterize the two neighborhoods were "hip", "bohemian", "cool", "younger", "historical", "odd", "artistic", "unique" and "gritty". Due to the increasing educational attainment of the newer residents moving into the area, many residents are trained in the technical language of what they are witnessing and directly experiencing through their day-to-day living. It was not uncommon to hear residents describe the changes as "gentrification". In fact, one interviewee affirmed, "It's urban renewal, to quote a 1970s term." They were prolific in the vocabulary associated with this phenomenon and most were unapologetically in favor of the changes.

Urban proximity was a second, but arguably tangential, category of the main reasons so many newcomers decided to settle down in these two downtown neighborhoods. The Marigny and Bywater are within walking distance of the French Quarter and Central Business Districts, and the neighborhoods themselves are walkable. One can walk around and easily notice the "Local", "Organic", and "Natural" food restaurants, hip coffee shops, and even a "Free Little Library". Yet another example is the artsy feel of the neighborhood, with colorful houses dominating the streetscape and the increasing visibility of young couples pushing strollers. While gentrification appears to be the primary factor for residents to (re)locate into these two areas, it does not fit well with some residents. Many discussed with me their negative views of gentrification: the pushing out of older (mainly black) families, and the increase in rent, which has also pushed out many of the lower-income artists, musicians, and gays and lesbians who were living there well before Katrina. There are many conflicts that arise: older residents versus newcomers, long-preserved cultural traditions that are slowly fading away, and the decreasing class diversity. One dismayed resident picked up on these changes, stating, "I don't wanna go but it's being gentrified. It was so easy for my daughter who wanted to go to school here. It's small town America in the city, but it is gentrifying and it's sad that it's changing." Another resident, who has lived in the neighborhood well before Katrina, discussed how she missed the way it used to be: artists, musicians, working-class, and alternatives.

As one moves further down the Bywater, and closer to the Ninth Ward, the signs of gentrification are less stark, and the feelings surrounding it are less polarizing. In one interview, the thirty-something year old native, who grew up in the affluent Uptown neighborhood, stated, "Bywater seemed like the neighborhood to go to and a lot of interesting stuff is happening. Uptown is becoming too gentrified and too much like other suburbs. The Bywater is less

isolated and has cool people." What this discussion demonstrates is how views on gentrification are highly intricate and conflicting. Some like the up-and-coming feeling of the area, while others—mainly natives—do not like the "transplants—moving into "their" neighborhood.

Question 3 gets to the heart of my thesis and I explore how residents socially construct memories out of the "X"s. The five main categories are as follows:

- Did not want to be reminded/move on/not connected
- Represents tragedy
- Preservation of memory/historical
- Survivial/Resiliency/Honor relic
- Important for the city/unified/rebirth

I focus first on reasons to not keep the "X". These residents do not want to remember Katrina or the devastating months following the storm. To them, it symbolizes a tragic disaster that should be obliterated at all costs. They do not want any signifying reminder of the "X", because as one resident stated, it represents a "scar". They see no point in maintaining the "X", and it is time to move on. The incessant focus on Katrina is at a saturation point, and they reluctantly allow it to become a defining moment of their lives. They recognize the importance of what its original purpose served, but now that time has begun to heal wounds, its purpose is done. For these residents, the "X"s signaled rescue missions and that is all. These residents have decided to get rid of their "X"s either by painting them over or by letting weather naturally fade them away. In fact, one suggested it cost well over $5,000 to repaint their house, which many had done right before the storm, thus angering them that this "scar" was on their house.

Figure 5.11. Faded Hurricane Katrina Xs**.**
Source: (Photographs taken by author June 2012).

A third interesting element lies in the fact that many residents want the "X"—they just don't want to be the only ones who keep it. While most of the interviewees expressed their desire and rationalities behind getting rid of them, they voiced disapproval and sadness if the "X"s were to hypothetically disappear completely. An analogy of how to think of this phenomenon is the NIMBY acronym. Residents were part of this ideological camp when they discussed that they don't mind it per say—just not in their front yard. Here, I shall provide examples of various reasons behind why residents got rid of their "X"s.

- "I was over the X by day one. I don't think it was meant to have meaning."
- "It is time to move on and to treat your house like a house and not an artifact."
- "I don't want a stupid flood to be a defining moment of my life."
- "I really don't think people are keeping them as a memory or marker…they're just not ready to erase it."
- "Why would they not paint over it? What is endearing about it? Enough time has passed to where we should be laughing about it, not bemoaning about it."

The necessity to find a balance between remembering and forgetting becomes a critical theme when discussing the "X"s. The dichotomy plays out within the context of a spatial and temporal entity. As one resident put it, "I left it on for a while and let it fade. I painted it over when it came time to repaint the house. Eventually there needs to be a time to move on. And, for me, that will be 10 years. Enough is enough." Yet another resident raises the theme of balance,

noting how "To live in this city, you need to find that balance between romanticism and practicality…between remembering and moving forward." In one of the most interesting interviews, a well-established couple had their "X" painted on plywood rather than directly on their house. Seven years later, the plywood sits in their alleyway. He said he doesn't have to look at it because in doing so, it would bring bad memories. But when I probed him what would happen if he woke up the next day and it was gone, he replied that it would upset him. Intriguingly, he was unable to articulate *why* it would upset him.

Urban memory is multifaceted. People socially construct memories in different ways. It spatially and temporally manifests itself via the divergent ways residents talk about and treat their "X"s. One resident stated, I don't need that memory" while another expressed, "I get they wanna put it behind them—but that's running away from yourself." Remembering and forgetting work in tandem as one resident poignantly observed. She notes, "You need to strike a balance between remembering what happened and forgetting so that you can move on." Memory becomes a performance, and as the Marigny and Bywater continue to gentrify, some residents fear the "X"s will lose meaning. As one resident put it, "They are ironic for those who lived through it but as memories of Katrina fade, so will the visibility of the "X", and newcomers will get rid of them because of a lack of meaning for them."

The need to forget takes another form when residents erase it for its tragic symbolism. For these locals, Katrina and everything associated with it—including the "X"s—are negative, a wound, and a mark of catastrophe. The "X" is a "visible scar" as well as an "insignia" that "symbolizes how precarious the city is" and "how fragile the city is". One resident said that the "X" brings back horrible memories of the failure of the government response during Katrina. Another interview argued that the "X"s symbolized the deaths of each and every victim in the

flood. She succinctly retorted, "The federal government failed us, the corps of engineers built faulty levees, and while my house didn't flood, I couldn't come home to zip code 70117". Just as the need to forget is filled with conflicting views, the view of the "X" as a tragedy reflects differing memories from residents. No one resident held the same point of view as the other. For one resident, she dismayed that it would be a travesty to forget Katrina, and the "X" is vital in preserving the tragedy that, no matter how hard one tries, will remain an indelible marker for the storm. She expressed, "The Xs remind me of Beirut…of the bullet holes in the bars they kept the bullet holes and preserved them: as soon as you take the Xs out/the bullets out…you take away the thrill of it all…the thrill of it happening again."

Other locals that I interviewed preserved the "X" in order to memorialize what happened. They feel it is their duty not to do disservice to the victims of the storm and it is their responsibility to remind people what they—and what the city—went through. To forget would be a sign a disrespect and as some conveyed, it provides stability in an otherwise unstable post-Katrina atmosphere. One resident conveyed these feelings when he declared, "I would be reluctant to get rid of it because you have to scrape it off and I don't want to get rid of a piece of history. I want to preserve the memory of what happened." Residents feel the need to remind those who visit the city as well as newcomers that Katrina did happen and that it is not something that can easily be erased. As one interviewee described it, "Katrina is an integral part of the city's history. Real estate is exploding and, as one resident put it, "most desirable neighborhood in the city and all these newcomers need to be reminded of what happened." In a similar fashion, a few of those that I interviewed took remembering a step further in their belief that the "X" was, as one resident illustrated, "a badge of courage", or as another exclaimed, "a statement of survival". For these people, the "X" is a "relic" and "a symbol of survival" that shows the world

what they—and no one else—went through. Evoking a survivor mentality, these individuals preserve the "X" for its "sentimental value", its "cool factor" and its symbolic "resiliency". Geographically, the majority of these perspectives came from residents who lived in the more bohemian Bywater.

In one interview near the end of my study, I conversed with a resident who lived in a house previously occupied by an older lady, who moved out months prior to my meeting him. She decided to adorn her "X" with Tibetan prayer flags, as a way to evoke a peaceful meaning out of an otherwise negative symbol. At first, he was reluctant to keep it up, but decided against erasing it because of its aesthetic appeal and important meaning behind the previous tenant's original intentions. In the end, he decided to keep it up for its powerful message. In contrast, one resident kept it not as a sign of peace but as a symbol of defiance. He reflects the following: "…it shows a dark sense of healthy humor. It's making a joke out of something that was horrible and it's a triumph thing because they survived something horrible. It reminds me of the Katrina fridge." "Buy one maggot and get 20,000 free. It's a level of defiance." Below, I provide a picture of the Chinese prayer flag "X".

Figure 5.12. Tibetan Peace Flags.
Source: (Photograph taken by author June 2012).

This constant (re)negotiation of memory suggests the validity of the core argument that memory is socially constructed. As one resident suggested, "You can either cover it up or you can own it—I choose to own it. It symbolizes the rebirth of the city rather than a harbinger of shit. It is forward looking rather than past looking." In many cases, the "X"s provokes strong, visceral responses that polarize the most extreme views, within the majority falling somewhere in the middle. I end this portion of the analysis with a quote from a resident on her view of the "X". She states, "Katrina brought the city together in a way it hadn't before."

I follow up the Katrina "X" question with questions 4 and 5: *What is your most vivid memory of Hurricane Katrina?* and *How has your neighborhood changed over the past seven years?* Through these two subsequent questions, I was able to situate the "X"s within a present, past, and future framework. One cannot discuss the "X"s or Hurricane Katrina without delving explicitly into the actual memory of Katrina. I wanted to probe residents what was it they remembered most about the storm. This question was a challenge because exactly 25% of interviewees did not want to bring up haunting memories of the storm. It was either tough to talk about, or they felt disconnected seven years later. Of the reaming three-fourths, almost fifty percent had the flooding stand out to them, while the remainder remembered the ruin and destruction and the lack of rebuilding in the months after. Furthermore, what stands out most to me about this question is that the answers were substantially shorter than any other response during the interview, with most unwilling to elaborate on their memories of the storm. Other memories recounted floating bodies, aerial shits of the city submerged under water, victims and animals stranded on rooftops, and the ominous weather reports administered by meteorologists. One interviewee stated, "What I remember most is anonymous shots of floods with no context at all. What the hell is going on? It pissed me off. Vast, context-less images." Another resident's

memory of the storm focuses on a particular phrase that haunts him to this day: “And we have had reports that the levees have broken in two parts in New Orleans.”

The final question raises five prominent themes. They all relate in some fashion to the changing social and economic characteristics of the neighborhood. I split their responses as follows: nearly half fixated on the changing demographics of the neighborhood—new residents moving in at a fast rate. The remainder of the answered split fairly evenly among four primary aspects of the future: rebirth of the city, skyrocketing real estate, decrease in crime rates, and stagnant recovery. First, nearly half addressed the gentrification of the neighborhoods. If anything, many feel it will speed up even more. As one lady joked (but dismayed at the thought of it), she declared that gentrification will be complete when Starbucks arrives. A few referred to newcomers as “transients”, which seemed to reflect a more derogatory view of those people who brought with them a removal of authentic local culture, a steep increase in rent, and a simultaneous ejection of older, mainly lower-income African American resident, from the neighborhood. Others are more dismissive of the influx of newcomers, as long as it does not personally affect them. Still, they recognize the drastic changes that accompany their decision to move into the area, and as one resident stated, the Marigny “now rivals rich, white Uptown”.

Geographically, gentrification will even spread across St.Claude Avenue, a wide street with a neutral ground that historically served as a physical boundary between the more white areas of Marigny and Bywater and the more black neighborhoods of St.Roch. In fact, a few people brought up the phrase “The New Marigny”, which refers to the first few blocks that are in the most proximal vicinity of St.Claude Avenue. A few other examples are as follows:

- “The Marigny has been discovered and it annoys us who were the urban pioneers”
- “Younger, whiter, or more white, I guess and people with higher incomes moving in”
- “The demographics have changed from mixed class, black artists to yuppie in a very short span of time. I mean, look at this restaurant!”

- "We were the first white college students moving in. Now, a lot more young, educated people moving in as opposed to middle class or drug addicts."
- "Today, gentrification occurring rapidly and suddenly I'm not the only white person."
- "It's becoming the urban frontier."

Interestingly, time becomes a framework within which residents frame their either positive or negative views on neighborhood transitions. If one lived in the Marigny pre-Katrina, you were considered an "urban pioneer". If you moved into the neighborhood post-Katrina, you were a "newcomer" or a "transient". This dialogical thinking enables residents to justify their loyalty because they were here before the storm, they experienced Katrina, and they have the memory of the "X" to prove otherwise. However, some feel developers are pricing them out. As one resident articulated, "Now we have these New York City condo dwellers moving in and building condos. But I don't like that because it's usually people's second house." While many dismay the negative side effects of gentrification, they do recognize that it is a not a new phenomenon—it represented the acceleration of a trend that was already occurring prior to the hurricane. One resident said, "It has gotten worse" while yet another resident likes that the arrival of newcomers usually equals a decrease in crime and blight as well as an upsurge in historic preservation.

A smaller proportion maintains a pessimistic view that things will either stagnate or worsen. One resident despairingly noted, "I think it will continue to rebuild but I think in its rebuilding we have lost the culture of neighborhoods and cultures before the storm." Focusing specifically on the Marigny and Bywater, residents accept (some more begrudgingly than others) that gentrification will continue full speed ahead in the next five years. But, these changes will reach a tipping point, many residents agree. One interviewee said it perfectly when he stated, "It will essentially be the same, but nothing stays the same forever." I now will include pictures of "X" s that I photographed during my fieldwork.


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Figure 5.13. Hurricane Katrina "X"s.
Source: (Photographs taken by author June 2012).

I conclude this section by summarizing my findings and relating them back to my research questions. I went out into the field with the intention of answering two major research questions. First, I wanted to know where the "X"s were located at the address level within the Marigny and Bywater. Secondly, I interviewed residents to understand their memories of the storm and why some preserved the "X" while others erased them. For my first research question, I hypothesized that the "X's would concentrate in parts of the neighborhood that, as of 2000, had a higher proportion of African Americans, lower-income, lower housing values, higher percentage of renters, and high levels of flooding. I measured these factors at both the block and block group levels. My findings revealed that only two social factors at the block group level are statistically significant when correlated to the geographical location of the "X"s. Race and median housing value accounts for the block group level. Every other social factor at both levels of geography proved to be statistically insignificant, though this is probably due to small N. Furthermore, the location of the "X"s was not spatially random and they did have a pattern to where they were located. What these findings reveal is that my hypotheses were partially right and partially wrong. Some factors mattered while others did not. Additionally, and of

interesting note, I did not test flood levels because these two neighborhoods did not flood during Katrina. My methods of recording addresses, the analyses conducted via STATA, and mapping of results onto GIS are the results of my fieldwork that addressed my research questions. My research shows that the Katrina "X"s are most heavily located in the poorer, blacker parts of the neighborhoods, and I am not surprised by these findings, based upon my own initial hypotheses as well as my review of the preliminary analyses conducted by Moye. I am surprised, however, that more social variables did not matter, such as rent or vacancy. I surmised that these factors would play a key role, but my statistics prove otherwise. From here, I will go into the interview portion and summarize my findings.

To answer my second research question, I conducted twenty interviews. I hypothesized that residents would have mixed sentiments and varying memories regarding Hurricane Katrina and the preservation of the "X"s. I went into the project thinking that most residents would fall under an either-or category of keeping the "X"s to remember it and its significance or erasing the "X" to forget the memory of the storm. What I discovered through my findings and analyses was a much more complicated and multidimensional interpretation of the "X"s. Rather than an "either-or" memory of the "X", I summarized resident's decisions to keep or erase the "X"s into five essential categories: they did not want to be reminded and wanted to move on; the "X"s represent tragedy and thus should not be kept; some felt it was a duty to preserve them as artifacts of memory/historical importance; some viewed them as a relic of survival and resiliency; and some through it was important to keep them as a sign of unification for the city. The reasons for keeping or erasing the "X"s go far beneath the surface. The memories of these residents play an important role in their decisions, especially how and in what ways the hurricane affected their lives personally, financially, emotionally, and physically. My findings reveal that

memory is important in the preservation of the "X"s. I refer here to the major themes of urban memory, all of which directly pertain to my study on the "X"s: it is socially constructed; it is grounded within a geographical space; it changes over time and by people; and it is important. The memory of the "X"s falls under the realm of geographical urban memory. These memories and symbolic interpretations are multifaceted and evolving as well as important and layered with history. However, and most importantly, I conclude that there is no conclusion. The answer to the urban memory is not forgetting *or* remembering or even forgetting *versus* remembering. I argue that these two processes of memorialization do not exist within a dichotomy of each other; rather, forgetting and remembering are mutually constitutive of each other. Urban memory is a complex phenomenon and there is no conclusive way to frame citizen's motivations to memorialize or not memorialize. What my research reveals is that citizen's frame their motivations one way and act in a different manner. Their underlying reasons for the ways they treat the "X"s are ultimately a multifaceted hybrid of forgetting *and* remembering, and these rationalizations occur and change across time and over space. My research concludes that these "X"s are an important part of the landscape that, for good or bad, will always be associated with the memory of Hurricane Katrina.

CHAPTER 6: CONCLUSION AND FUTURE RESEARCH

This research has explored the urban memory of New Orleans residents by conducting original geographic research on the Katrina "X"s. While I believe that media and artistic representative angles are important, and while they did serve purposeful nascent reflections and insight into the "X" phenomenon, I argue that an academic perspective was necessary to understand the underlying mechanisms at work. I hope I have successfully contributed to the extensive and highly engaging literature on the storm. Through an urban geographical framework, I have been able to contextualize and ground my research that will eventually lead the way for future studies. I will use this space to offer future speculation on the "X"s, what my research means, and how it contributes to the work and theorization of geographers who focus on urban memory.

My research, I hope, will highlight some major themes that arise in the burgeoning scholarship of disaster studies, urban areas and memorialization, and wounded cities. I wish to point out here that since Katrina there has already been a refashioning of thought within the policy realm of disasters and cities. Directly related to the research reported in this thesis is that urban search and rescue teams have permanently altered the way they conduct recovery efforts, specifically in response to the property damage created in Katrina's aftermath. According to the *National Disaster Recovery Framework*,

> More recently, in response to complaints of after-effect damage of spray-painted messages on the housing stock, search-and-rescue workers have developed a new tool for marking—a fluorescent sticker to be applied to a door or window, conveying the same information as the painted X-code. In future disasters, search and rescue personnel will abandon the painted graphics used after Katrina, and proceed stocked with stacks of low-

> residue stickers and felt-tipped markers, their progress through the streets marked by a trail of fluorescent rectangles applied to the least damageable surfaces they can find…(2011, p. 31)

The new sticker looks as follows:

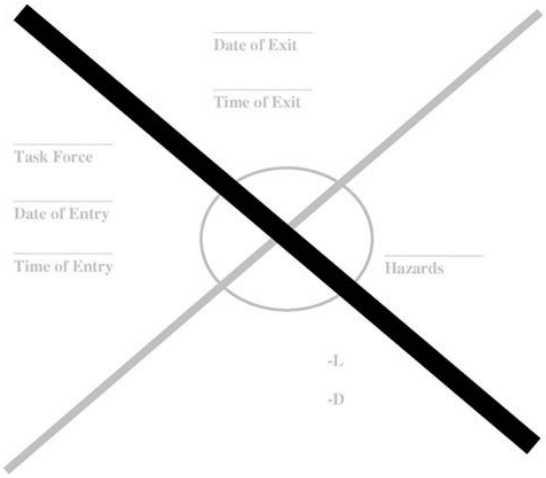

Figure 6.1. Future Hurricane Markings
Source: (FEMA 2011).

My study centered on two neighborhoods that did not flood, are gentrifying, and have witnessed a huge influx of whiter, more affluent, and more educated populace. The limitations of my study provide avenues for future endeavors. Possibilities include studying the silencing of residents—those individuals who are still displaced and still have an "X" on their house. Another direction would be to study the urban memory within a different geographical context—a neighborhood that did experience flooding; a neighborhood with a higher proportion of African Americans; or even a neighborhood that falls somewhere in the middle of the two extremes.

Secondly, my research stems from the original work conducted by Dorothy Moye. I argue that my work is different from hers because of the conclusions we reach. From my own analyses of her work, I surmise that Moye views the "X"s as a more positive memorialization of Katrina that artistically symbolizes a badge of survival. My own analyses and conclusions stray

away from her perspective because I argue a divergent angle. I neither see the "X"s as a positive nor negative marker of Katrina memorialization. The complexity behind the historic artifacts goes beyond just forgetting or remembering and it is my conjecture that Moye framed them in this very manner. While I do recognize that she and I had different end goals for our respective projects, I believe my work provides a more critical and in-depth analysis of the "X"s that reveals a non-conclusive and constantly evolving narrative of a post-Katrina phenomenon. I disagree with her reductionist portrayal of the "X"s and ultimately argue that forgetting and remembering are mutually constitutive of one another. In the end, the "X"s are ascribed entirely different meanings for different categories of people—black versus white, rich versus poor, flooded versus non-flooded, natives versus newcomers, and many more. Their meanings and interpretations will continue to change over time, across space, and by people.

I hope my research helps to generalize an interdisciplinary framework. Across social science fields, especially within sociology, geography, and urban studies, there is mounting research on cities and natural and human-made disasters; memorialization of grand events such as 9/11; and work on wounded cities within the context of rapid global climate change. Ever since Katrina, North American hurricane seasons have started earlier and ended later; the frequency of hurricane formation and United States landfall has increased, and storms have become more severe. My research, while not the first, serves as an important foundational text for future scholarly work on American cities and disaster memorialization. Moye reflects on Hurricane Katrina and the landscape of the "X"s. She writes,

> The X-code has become by default a visual icon of post-Katrina New Orleans. Loved or hated, threatening or comforting, a source of survival pride or a negative mark to be obliterated, easily interpreted or enigmatic, a striking graphic or disrespectful graffiti, a major issue or a minor annoyance—all of these reactions persist…(southerspaces.org, 2010)

I hope that my research serves important meaning and contribution beyond the confines of this thesis. First and foremost, the memory of Katrina, vis-à-vis the "X"s is important. My findings reveal that the "X"s, as a manifestation of urban memory, are socially produced by the people who decided to keep or erase them. This endeavor is most commonly played out within the Marigny and Bywater. Urban memory, as defined by geography, is important, socially constructed, grounded in space, and constantly in a state of change because people and place changes. The Katrina "X"s are no different and they will undergo the same processes as other markers of memory.

I pose the following question: what does my research mean and how does it contribute to the geographical literature on urban memory? After spending two years on this project, I believe that New Orleans and Katrina present some insight not yet examined by the most important scholars within this area of study. In many ways, New Orleans does not fit within the theorization put forth by Hoelscher, Alderman, and Till. My research reveals two aspects that urban memory theory has not yet explored. The first element I refer to is the ontology of memorialization. The second factor is the role multiple theories play in research, particularly mine. As an object of historical and memorializing artifact, I believe that the "X"s are fundamentally different from the more commonly studied memorials in geography such as statues, memorial walls, or streeet naming. Based upon my review of the literature, I conclude that urban memory work focuses on intentional and formally created monuments and memorial markers, be it material or ritual. One of the biggest differences between my project and the work of these geographers is the fact that the Katrina "X"s have been culturally appropriated to take on meaning. Up until this point, geographers have focused on memory as a deliberately fashioned object or practice that was created explicitly to memorialize an event. My research suggests that

this is not the case with the Katrina "X"s. The "X"s are neither centralized nor formalized. They are not deliberate and do not have an agreed upon meaning. What geographers such as Hoelscher and Alderman study are formalized memorials such as monuments, wall murals, death markers, plaques, burial sites, rituals, and street naming . All of these mediums of urban memory were created to explicitly memorialize something. Burial sites commemorate the dead. Naming streets after people started as a way to honor an individual, such as the widespread usage of naming a street Martin Luther King in the South. The "X"s do not fit under this model of theorization. Urban search and rescue teams did not spray "X"s on houses to memorialize Katrina. They painted them as part of a governmentally sanctioned rescue operation. The "X"s are memorials in so much as the way citizens ascribe meaning to them.

I believe my research contributes meaningfully to the work of Alderman, Till, Hoelscher, and other geographers because of the ways the "X"s fit—or do not fit—within the memory paradigm. The "X"s are important, socially constructed, rooted in space, and constantly being redefined. The theorists cited in the literature review would, I think, agree with all the above and their applications to post-Katrina New Orleans. What is new in my research, however, is the way we think about and designate what is and what is not a memorial. For some citizens of New Orleans, the "X" is a memorial that should forever be inscribed into the landscape. For others, the "X"s served their original intention of search and rescue and nothing more should be made of them. In these latter cases, the "X"s are not memorials. This fact demonstrates how my project adds a new dimension to the work of urban memory. Even more interestingly, I think it is important to note that the majority of my interviewees were very much a part of gentrification, another important aspect not explored in the urban memory literature. My project would have taken on an entirely different direction had my interviewees been older, African American,

poorer, and in a flooded neighborhood. This limitation of my study is a good starting point for future research. I argue that geographers have studied, up to this point, what they believe to be inherently memorializing structures. For example, I would argue that there is nearly unanimous agreement that a statue is intrinsically a memorial object. How people interpret that statue is a different story, much akin to my analysis that points to five thematic interpretations of the "X"s. On the other hand, the "X"s are not agreed upon as a memorial to begin with. This ontological way of thinking is important for future research in urban memory. This factor is what separates my research from the work already conducted by geographers. As such, it is my hope that my thesis offers new insight into how we go about studying urban memory. If memory is socially constructed, then I would argue that what is viewed as memory is also a social construction. In other words, before we try to make sense of the meaning behind a memorial, we should first examine what is a memorial. The "X"s offer such an example. I hope my work raises awareness to the fact that urban memory is a fluid and dynamic process that can be as small as an "X" on a house to as large as a Wall Mural memorializing a deadly event in history.

The repetition of the "X"s will be unforgettable and its impact will always remain powerful to those who experienced Katrina. I believe that my work shows that there is more to be done within the field of urban memory in geography. With the increase in natural and human-made disasters and the increasing interest and need for historically preserving sites and cultural practices, academics will need to gain a deeper and more thoughtful understanding of how we preserve the past and what memorialization means for the future. My work is meaningful because it reveals that we should tackle this theory from multiple angles. I went into my project thinking that I would only be looking at urban memory theory and historical urban theory of New Orleans. What I discovered along the way is that multiple theories are at work—even down

to the most ontological understanding of what memory is in the first place—and I propose that geographers take this insight and learn from it. By the end of my project, I engaged deeply with theories of memory, racial construction, gentrification, urban morphology, and uneven development. I leave my project with a more holistic understanding of how to approach a research topic. For future research, I hope to better engage with the ontology, social construction, and implications of urban memory. I think my project sheds insight into these various elements in a productive way, and I believe that the discipline of geography is strongly suited to tackle these issues. There is much left to be answered—the what, why, how, and what does this all mean? I leave my project on New Orleans and Katrina with one final thought. I think the "X"s "work" for New Orleans, a city full of history, stories, and preservation, and this is part of the reason they will stay, especially within these two neighborhoods. It does not matter whether it is one "X" or 300 "X"s; what does matter is that they will forever be associated with Hurricane Katrina. You cannot erase the fact that the "X"s were spray painted, but you can erase and add on meaning. These meanings will always changes as New Orleans changes.

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APPENDICES

Appendix A: List of Interview Questions

1. Where are you from and how long have you lived in this neighborhood?
    a. If you are new to the city, why did you move to New Orleans?

2. Why did you choose to live in this neighborhood over any other neighborhood in New Orleans?

3. Why did you decide to keep the "X" on your house? What does it mean to you?
    a. Why did you decide to get rid of the "X" on your house and what does it mean to you that others have kept it?

4. What are some of the most vivid memories you have of the Marigny (or Bywater) during, and immediately after Hurricane Katrina?

5. How has your neighborhood changed over the past seven years?

6. What is your projection of New Orleans five years from now?
    a. What is your projection of your particular neighborhood in relation to the city as a whole five years from now?