Breaking the Cycle of Disaster Damage.
Transfer of Development Rights as Fair Compensation to Homeowners in
New Orleans

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New Orleans is a city of 73 distinct neighborhoods. The neighborhood focused upon is the Lower 9th, one of the hardest hit by Katrina. Throughout history the Lower 9th has been in harm’s way. Due to its precarious positioning, and physical isolation caused by the Industrial Canal, the Lower 9th was one of the last of the cities neighborhoods to be developed. Originally a cypress swamp, its isolation from the rest of the city and its lack of adequate drainage systems contributed to its slow growth. By 1945 city services finally reached the Lower 9th, and in 1950 only half of the ward had been developed. Not long after the majority of the development in the Lower 9th was complete, in September of 1965 Hurricane Betsy destroyed 80% of the neighborhood.

Post-Katrina numerous articles have been written that debate the rebuilding of the Lower 9th. Yet, in order to realistically slate an area for repositioning and determination of what areas should or should not be rebuilt, the flood depths and extent of damage need to be taken into account. Even with documentation to backup a new land use plan; the proper development tool must be in place. The tool must satisfy the current homeowners, the potential developers and the local jurisdiction. Transfer of Development Rights
(TDRs); meet the needs of all parties. In order for TDRs to work there must be a well-defined sending and receiving area. The sending area established is North of N. Claiborne Ave., West of Tupelo St. and North N. Tonti Avenue.

With the sending area established, the Pre-Katrina census tracts within the TDR area along with the number of Pre-Katrina Housing units could be defined. An adjusted number estimating the percentage of returning housing units, or households, was used to provide an estimated number of households available for Transfer of Development Rights. Out of the Pre-Katrina 4,624 housing units, 1,039 or 23% of the Pre-Katrina Housing Units are available for TDRs.

The Central City neighborhood was analyzed and selected as a potential receiving area. The estimated number of available parcels or housing units with an increase in density was 1,184.

Funding of the TDR Bank would be from the sale of the adjudicated properties by the Parish. In both the sending and receiving areas the properties will be sold to the developer’s at an assessed value, which will be 35% less than the pre-Katrina market value. Being sold at the assessed value, along with the allowance of increased density with the purchase of the TDRs in the receiving area, makes the TDRs affordable and profitable to the developer.

The TDRs will make the development process prosperous for the developer and also provide a tool for the homeowners to receive fair market value for their properties, therefore encouraging them to move back to the city.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>iii</td>
</tr>
<tr>
<td>PROLOGUE</td>
<td>v</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td>3</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>I.  HISTORY AND CULTURE OF NOLA:</td>
<td></td>
</tr>
<tr>
<td>Forces that originally shaped the city</td>
<td>6</td>
</tr>
<tr>
<td>II. THE BEGINNINGS OF THE LOWER NINTH ARD</td>
<td>12</td>
</tr>
<tr>
<td>Demographics of the Lower 9th Neighborhood</td>
<td>15</td>
</tr>
<tr>
<td>III. KATRINA FACTS – A LOOK ONE YEAR LATER</td>
<td>16</td>
</tr>
<tr>
<td>Mitigation</td>
<td>24</td>
</tr>
<tr>
<td>IV. LOWER 9TH TRANSFER OF DEVELOPMENT DISCUSSION</td>
<td>26</td>
</tr>
<tr>
<td>Method of Analysis: Sending Area</td>
<td>30</td>
</tr>
<tr>
<td>V. FUNDING OF THE TDRs &amp; DISCUSSION OF THE送出 AND RECEIVING AREAS</td>
<td>35</td>
</tr>
<tr>
<td>Why Central City as the Receiving Area?</td>
<td>37</td>
</tr>
<tr>
<td>Method of Analysis: Receiving Area</td>
<td>40</td>
</tr>
<tr>
<td>CONCLUSION</td>
<td>42</td>
</tr>
<tr>
<td>ENDNOTES AND REFERENCES</td>
<td>45</td>
</tr>
<tr>
<td>APPENDIXES</td>
<td></td>
</tr>
<tr>
<td>Appendix A: Lower Ninth Planning District 8</td>
<td>46</td>
</tr>
<tr>
<td>Table 1: Estimated Number of Housing Units Available for Transfer of Development Rights: Lower Ninth Ward</td>
<td></td>
</tr>
<tr>
<td>Map 1: Census Tracts and Transfer of development Rights Sending Areas</td>
<td></td>
</tr>
<tr>
<td>Map 2: Maps Compiled for Comparison</td>
<td></td>
</tr>
<tr>
<td>Map 3: Pre-Katrina and Post-Katrina Building Footprints</td>
<td></td>
</tr>
<tr>
<td>Map 4: Lower Ninth Ward and Holy Cross Adjudicated Properties</td>
<td></td>
</tr>
</tbody>
</table>
Map 5:  Recommended Plan: September, 2006
Map 6:  Flood Depths
Map 7:  Flood Inundation Caused by Hurricane Betsy
Appendix B:  Central City Planning District 2 .........................................................55
Table 2:  Estimated Number of Units/Land Area Available for TDRs:
         Central City
Map 8:  Census Tracts and Transfer of development Rights
         Receiving Areas
Map 9:  Central City Adjudicated Properties and Flood Depths
Map 10: Central City Zoning and Damage Percentage
Appendix C:  Land Use Plans District 2 & 8 ..........................................................60
         Map 11:  Planning District 2 Present Land Use
         Map 12:  Planning District 8 Present Land Use
         Map 13:  Planning District 2 Recommended Land Use
         Map 14:  Planning District 8 Recommended Land Use
         Map 15:  New Orleans Elevation by Neighborhood with Major
                   Roads
Appendix D:  Maps and Photos .............................................................................66
         Map 16:  Comparison of 1878 Map to Katrina Flood Depths
         Map 17:  Levee Breaches
         Map 18:  New Orleans Planning Districts
         Map 19:  May 1, 2006 Photos
Prologue

My first visit to New Orleans was in May of 2005, post Katrina. Oddly enough I can count this as my third visit to a disaster site not long after the disaster, if such a thing should be counted. As I stood on Canal Street at a concert welcoming back and praising the audience of Katrina survivors, I realized that a few years ago I had been at the same type of concert for 911 survivors. The other two disaster aftermaths I experienced was Ground Zero on Nov. 1, 2001 with a Sergeant in the NYPD, the Bosnian War with a tour guide who lives to tell the story, and now Katrina with a tour of destruction by a Commander in the US Coast Guard.

Upon arriving in New Orleans I knew things were not right. The airport was deserted, the air was musty, and many areas were barricaded and in disrepair. As I drove into town the damaged Superdome roof dominated the skyline, and once at the hotel the majority of the guests were not tourists but EPA contractors. When driving the neighborhoods and analyzing the damage in early 2006, I kept coming back to the Lower 9th Ward. The precarious and isolated location on the east side of the Industrial Canal was extraordinarily intriguing.

Why were so many articles written about the neighborhood encouraging it not to rebuild? “The Flooded sections should not be put back on the real estate market. I realize it will be an insult to former residents, but it would be a far bigger insult to put them back in harm’s way.” said Craig E. Colten, a geography professor at Louisiana State University. The title of the article in the Washington Post was 9th Ward: History, Yes, but a future? The question was should the Lower 9th Ward, which was devastated 40 years ago by Hurricane Betsy, be resuscitated again.
During our “Tour of Destruction”, which mainly took us through the Lower 9th Ward, the debris looked as if it had not been touched in the last eight months since Katrina. The destruction, the emptiness, the trailers, the garbage, the breached levees, it all seemed to go on forever.

My question became, “How can we stop the people from moving back in harm’s way, and specifically can an area or footprint of harm’s way be defined?” In order to make the determination the history of the city and the original formation of the Lower 9th neighborhood need to be studied. In brief, the neighborhood was not inhabited until the 1950s since basic services did not reach this area until 1945. Additionally, the area North of Claiborne and east of Caffin Street was not completely developed until 1965. To the south of the St. Claude Ave., which is also the southern border of the Lower 9th is the Holy Cross neighborhood. This area was developed in the early 1900s behind the natural levee on higher ground and had limited flooding during Katrina.

After driving the neighborhood extensively, and analyzing maps from various sources including a map of the flood depths and the post-Katrina building footprints, a logical area for targeted redevelopment, or area where there should not be development, seemed evident. There was probability that Mr. Colten’s question “should the Lower 9th be resuscitated again” could be answered simply with a ‘NO’, not as it was.
Introduction

The level of Nature, the level of Man and the level of City; these are the three fundamental levels of human existence which have always been very alive in New Orleans and must again be properly reintroduced in order for New Orleans to thrive.

Some cities have natural barriers that have been destroyed by humans because of development, our mistake. NOLA (New Orleans, Louisiana) has manmade barriers destroyed by nature, again our mistake. If NOLA were an abstract planning problem detached from people, politics and history, the city would retreat to higher ground.1 This would be done by redlining or writing off the most severely flooded areas; New Orleans East, the Lower Ninth Ward and parts of Lakeview. The property owners in these neighborhoods would be compensated to relocate, and the majority of the abandoned areas would be returned to cypress swamps and playing fields.

But it is not an abstract planning exercise, and the areas that were severely damaged are neighborhoods, places with a soul. As stated in Tom Piazza’s book Why New Orleans Matters, “New Orleans has a mythology, a personality, a soul that is large and has touched people around the world. It has its own music, its own cuisine, its own way of talking, its own architecture, its own smell, its own look and feel.” Therefore it is politically, socially and morally impossible to write off any of the neighborhoods.

What should be considered are smart growth principles and a smaller footprint. Since many of the areas have essentially a ‘clean slate’ to start with, they can be made better, smarter. After cities such as London and San Francisco were devastated in the past, the cause of the incident was analyzed and they came back better and very different than they were before. NOLA can do the same. Compensating the owners in devastated
areas only to return the land back to nature and to the public may not be such a far reach as long as it is done correctly. What is correct is subjective; the determination of correct will be backed up with facts, figures and various opinions.

The thesis looks at the forces that once and again shape NOLA, and how they can be integrated into the new urban fabric, and thus the new abridged footprint of New Orleans; specifically the Lower 9th Ward. Taken into account will be the original footprint of NOLA in 1878, along with the footprint in the 1950s that was fifty percent of what it was in pre-Katrina 2005 with the same population. Smart growth principles and higher densities to accommodate the relocation of people will be discussed, along with effect the levees and floodwalls have on the city. Transfer of Development Rights is the financial tool suggested to successfully accomplish the taking of the land in such areas where the residents may or should not return. Existing TDR programs will be reviewed, and the elements and requirements for a successful TDR enabling statue as it relates to the Sending Area of the Lower 9th (District 8) and the potential of the Central City Neighborhood as the Receiving Area (District 2) will be defined. Refer to Map 18: New Orleans Planning Districts.


**Literature Review**

Since Katrina, when New Orleans is mentioned most peoples first response is “They should not rebuild, it is below sea level.” We all know not rebuilding is not an option, although it may be in certain areas with proper planning that provides strategic growth and redevelopment.

New Orleans is a city of elegance, beauty, refinement and grace. It is also a city of violence, poor education and extreme poverty of a type that you can’t imagine if you haven’t actually seen it. It is a place of great contrast from its wealthiest citizens and its poorest citizens.²

There are many forces which shape cities; water, climate, topography and history to name a few. Where the City of New Orleans differs from most is that the cities abundant force of water, and the need for access to the water, overpowered all other forces and shaped the city.

The topography of the city was essentially ignored, rivers rerouted and wetlands destroyed. Since the 1800s there were two basic approaches that engineers historically embraced to protect the Mississippi River valley from floods: levees or outlets. Levees confined the river; outlets released it. Levees represented man’s power over nature; outlets represented man’s accommodation to nature.³ We believed man could overcome and control the water with levees, which seemed to have been accomplished with the redesign of the Levee system after the Great Mississippi Flood of 1927, until the arrival of Hurricane Katrina on the morning of August 29, 2005. In 1927 it was said that the flood brought with it also a human storm. Honor and money collided. White and black collided. Regional and national power structures collided. The collisions shook America.
In 2005 the flood also brought a human storm, exactly as it had seventy-eight (78) years ago. It is sad enough to say that the engineering of the levees, floodwalls and floodgates did not suffice in 2005, but completely unacceptable for us to say our social and political system did not suffice in 2005 and had not moved beyond that in 1927.

The city now must move forward and rebuild, but I believe it cannot do so successfully until all the forces; both natural and manmade, are recognized. As it has been said; “It is what it Is.” The city is now and forever will be below sea level. We cannot change that fact, but it can be controlled and mitigated. Controlled with ecology, mitigation and smart growth and development principles in mind. The city cannot be piecemealed together, with only sporadic areas of rebirth and redevelopment. The footprint of the city will need to be studied and most likely reduced and adjusted around nature. On November 5th 2005 the Times-Picayune reported that almost every place that was uninhabited in 1878 flooded in 2005 after Katrina; our ancestors were right to build on higher ground. Nature comes first and will always win in the end.

The problems in New Orleans have not gone away with the people, and if anything, without proper planning will be back even stronger. On the surface what looks to be as social or racial problem, stems from “a tangled web of other problems.”¹

Many of the people of New Orleans did not or could not leave on their own. Many did not have the means to do so, and most had never been out of their neighborhoods let alone the state of Louisiana. If they did not have the means to leave how will they find a way to return? As time passes, it is less likely they will be back. Although if you ask the people themselves, as Mr. Piazza did, they will be back no matter how long it takes.

¹ Tom Piazza Why New Orleans Matters
With essentially a clear slate to start with, the ‘disnification’ of New Orleans is not the answer to the problem, as some may believe. The city did not thrive due to big business, but depended on mom-and-pop groceries and restaurants. Before Katrina, 21,000 of the approximately 22,000 businesses in NOLA had fewer than 99 employees. Bringing back the small businesses should be a priority, it is what the city knows and how the city survived.

Many of the people affected by Katrina outside of the Lakeside and New Orleans East neighborhood were the poorest of the poor, majority whom lived in the Lower 9th. If they do not return, will others take their place? Most likely so since there is a need for the working class people, they are the people who make up much of the small business work force. Regardless of their social status, they should come back. They have been in New Orleans for generations; they are an important part of what makes NOLA real.

The thesis will begin by taking a look at the History of NOLA, which in doing so further defines what attracts many to New Orleans; the imagination of the city, the interesting corners, the culture, the soul. This being said, New Orleans must be thoughtfully and strategically redeveloped giving the people a sense of ownership in the rebuilding of their own lives.
Chapter 1

History and Culture of NOLA: Forces that originally shaped the city.

In the late 1600s, many of the Native American settlements were devastated once the French and Spanish settlements were established. The Chitimacha, Houma, Tunia-Biloxi, Coushatta and Chocton settlements managed to stay alive and contribute to the city of New Orleans distinct style.

The French explorer Rene-Robert Cavelier, Sieur de la Salle was the first to establish a permanent stronghold in 1682. Louisiana’s period of French rule was barely more than three generations. The territory was ceded in 1762 to the Spanish, before they occupied it again prior to the Louisiana Purchase, with the first permanent French settlement in Louisiana in 1714 in the town of Natchitoches about 300 miles northwest of New Orleans.

By 1710 France had already failed to invest in the new settlement and the monarchy transferred control of Louisiana to Antoine Crozat, a French financier. Crozat did not fair well either, and in 5 years Louisiana was controlled by Compagnied Occident, and Scotsman named John Law. To protect control of the area a fort was built in 1718 along the lower Mississippi, the settlement was called La Nouvelle-Orleans after Philippe, Duc d’Orleans. In 1722 France named New Orleans the territorial capital of Louisiana.

The site on Nouvelle Orleans was at a sharp bend of the Mississippi River more than 5’ below sea level. Since it was swampland, the residents shored up the site with landfill and dams. The site was chosen in part because a bayou connected the Mississippi
River to Lake Pontchartrain, the lake then emptying into the gulf. This bayou is known today as Bayou St. John.

For the first several decades today’s French Quarter (Vieux Carre or Old Square) encompassed all of New Orleans, the anchor of the quarter being Jackson Square.

In 1731 the French monarchy resumed control from John Law. One of the ‘legacies’ that Law left behind was that he was the first responsible for importing West African slaves to Louisiana. His Compagnie d’Occident also owned the French Compagne du Senegal. He imported approximately 3,000 mostly Senegalese slaves over a ten-year period.

During France’s control from 1731-62, they failed to turn Louisiana into a profitable venture and in 1762 France secretly handed over the territory to Spain in the Treaty of Fontaine Bleau. As part of the peace treaty between the joint powers of Spain and France, Great Britain was awarded all of Louisiana east of the Mississippi and Spain kept all of Louisiana west of the river that included the city of New Orleans.

The residents of New Orleans had no idea that they had become subjects of Spain until 1766 when March-Antonio de Ulloa, the first Spanish Governor arrived. By 1768 locals drove Antonio and his people out of town.

Control was regained by Spain in 1769 until 1803 when the US orchestrated the Louisiana Purchase.

From a cultural standpoint LA remained French since the French colonists outnumbered all others. It is interesting to note the reason the French Quarter resembles Spanish Colonial Architecture. During the Spanish occupation two fires burned much of the city, and the Spanish authorities constructed the new buildings.
The first fire was in 1788, burning 85 buildings and an additional 200 burning in a smaller fire in 1794. Spanish influence resulted in the wrought iron balconies, shaded courtyards and other features typical of French Quarter architecture.

During the Spanish period the majority of the immigrants were French speaking refugees. The largest group was the Acadians who had been expelled from the Maritime Provinces of Canada following the British victory. Spain welcomed the refugees to boost the population first in 1765 and again in 1784.

The name Arcadia changed into Cajan with LaFayette being the hub of Cajan settlement. The second group of refugees from 1791-1803 were white French settlers and some people of color from the French colony of Saint Domingue or today known as Haiti. They fled the island during the violent Black Revolution of the 1790s.

In 1880 under another secret treaty, Spain transferred all of the Louisiana territory back to France. The United States then bought the entire territory from France for 15 million. The nine Louisiana Parishes remained in Spanish hands until 1810 when what was West Florida declared their independence and asked to be annexed by the United States. In 1812 Louisiana became the 18th state of the union.

In addition to the Cajans, the Creoles were the other prominent group in New Orleans. Creole was first applied to upper crust French settlers born in Louisiana who descended from wealthy European families. The word is derived from the Spanish word criollo, a term that describes persons born in the colonies. Although, it is the early Creole immigrants from St. Domingue who were largely responsible for the intricate Creole cottages.
It is also interesting to note that for many decades the Creoles did not welcome American settlers in the French Quarter, with canal street as the dividing line between the French and American quarters. During this time the Median down the center of the street was considered neutral ground, still called ‘neutral ground’ today by many in NOLA.

Another history making story that contributes to the flavor of New Orleans, is that of the pirate Jean Lafitte. Jean established a colony for pirate ships on Barataria Bay, forty miles south of New Orleans, with much of the pirated goods sold in New Orleans. Eventually Governor Claiborne decided Jean’s disregard for the law became too flagrant and he ordered his arrest. Yet in 1814 after declining a captainship in the British Army, Lafitte aligned with the US and volunteered his fleet. In 1815 his fleet greatly assisted the American forces in turning back the British attack against Andrew Jackson and New Orleans.

During the Civil War New Orleans was a member of the *Confederate States of America*. This only lasted a year since in 1862 the city was captured by the Union Army.

Population growth during the late 1800s came from southern Europe, with large numbers of Italians, especially Sicilians, settling in New Orleans, the only city in the South to receive substantial new immigration. Additional population also came from the new free men since in 1868 the federally controlled state government drafted a new constitution that granted blacks full civil rights. However, since much of the city was still an un-drained backwater swamp, the development pressure caused by population growth was great on the few available areas of higher ground such as Algiers Point or farther along the bayou ridges and natural levees on the East Bank. Where drainage was
adequate, developers could maximize the number of units constructed by building what
 came to be known as a shotgun house.

In 1899 the city authorized drainage of backwater swamps using a heavy duty
“Wood Pump,” named after its inventor, the engineer Baldwin Wood. By 1920 much of
the swamp area had been drained. The majority of new residential development in the
city between 1927 and 1949 occurred in Lakeview and Gentilly.

The city also grew into Lake Pontchartrain. In 1927 the Levee Board completed a
seawall that extended 3,000 feet into the lake and added 2,000 acres of prime real estate
to the city. Half of the acreage was given to Louisiana State University (now University
of New Orleans) and the other half sold to private developers to pay off municipal bonds
sold to finance the reclamation. The resulting housing development, Lake Vista, is a
carefully planned neighborhood in the "city beautiful" tradition with rear-entry cul-de-
sacs and houses facing green commons.

In the post-WW II years the majority of the changes to the city were related to the
automobile and to desegregation activities in the 1960s. With new road construction and
the promise of suburban security, extensive subdivisions were built in New Orleans East
and on the West Bank in the part of Algiers known as Aurora. Development on the West
Bank was facilitated by the construction of the Mississippi River Bridge in the late 1950s.
This expansion in New Orleans, however, was exceeded by subdivision development in
Jefferson Parish, so by the 1970s the city’s population trend reversed course. What had
been a long upward movement became a dramatic and long-term population decline, now
entering its fourth decade, from over 600,000 in 1960 to 474,000 in 1997. Commerce and
industry followed the population movement to the suburbs.
Also in the 60s, the construction of Interstate 10 destroyed the vibrant African American commercial district along North Claiborne Avenue, along with the ancient oaks that lined its neutral ground.

The 1990s brought renewed prosperity to many segments of the community thanks to a surge in tourism and conventions, healthy activity at the Port, and a stable oil market. With a boost from the World’s Fair in 1984, the Warehouse District has been revitalized from a skid-row territory of abandoned warehouses to a vibrant arts district and residential community. Unfortunately Katrina has stifled the prosperity of the city, and a new plan must be put in place.

On November 5th 2005 the Times-Picayune reported that almost every place uninhabited in 1878 flooded in 2005 after Katrina.

To verify this statement refer to the Appendix D: Map 16-Map of 1878 along with the Map of Katrina Flood Depths.
Chapter 2

The beginnings of the Lower 9th Ward

The population in New Orleans grew from 170,000 in 1860 to 290,000 in 1900. The city became very crowded and expensive, which caused a dilemma for the newly freed poor African Americans. They therefore migrated to a place that was undeveloped, less expensive and not far from jobs and industry, this place being the Lower 9th. Ward.

The least desirable areas are of course the most affordable, the Lower 9th always being such a place. Originally a cypress swamp, isolation from the rest of the city and lack of adequate drainage contributed to it not being desirable and to the slow growth of the area, along with the fact that basic city services did not reach the ward until 1945.

The Lower Ninth Ward consists of two neighborhoods, Holy Cross and the Lower 9th. The ward is bordered by the Industrial Canal to the West, Southern Railroad and Florida Avenue Canal to the North, the Parish line to the East and the Mississippi River to the south. The border between the Lower 9th and Holy Cross neighborhoods is St Claude Avenue, with Holy Cross to the south of St. Claude. Being on higher ground, Holy Cross was developed much earlier than the Lower 9th. Maps prepared in the mid-1800s show that the first development in the area now known as Holy Cross began in 1812 when the Jean Baptiste Castillon plantation was sold to John McDonough and Co.; subdivision of the property began the same year. In 1826, the Ursuline Nuns developed an 80-acre parcel for their convent, but when they were faced with displacement for the construction of a levee in 1912, they relocated to their present location on State Street. Today, all that remains in the neighborhood from the Ursuline Nuns is Sister Street, named in their honor.
In 1899 legislation was passed for drainage and pumping systems, but it was not until 1910-1920 that the city installed an adequate drainage system in preparation for the Industrial Canal. The Industrial Canal, also known as the Inner Harbor Navigational Canal (IHNC), was built to connect the Mississippi River to Lake Ponchartrain. The canal, which many categorize as being obsolete nearly from its opening, was completed in 1923 and further isolated the Lower 9th from the city. During Katrina the storm surge that pushed up the Industrial Canal and breached the levees and flood walls caused much of the flooding in the Lower 9th and Bernard Parish.

By 1950 only half of the ward was developed. This is reinforced by the census data from Census Summary File 3. According to the census data for the five census tracts that make up the Lower 9th, the median year structure built was 1957. In the late 50s the Claiborne Avenue Bridge was built between the city and the 9th. The bridge helped spur development, and by 1965 commercial activity and industrial development accelerated in the strip bordering the Industrial Canal between Claiborne and Florida Ave.

The inhabitants of the Lower 9th area always had a history of activism. In 1927, during the Great Mississippi River Flood, the levees were bombed to save the French Quarter and the Central Business District at the expense of the poor and working-class people of the city’s Ninth Ward, St. Bernard and the immediate areas. Hurricane Betsy in 1965 would breach the levees again and flood those same areas. One would be hard pressed to find any living resident of the Ninth Ward who does not believe the levees were again bombed to save the wealthy white parts of town. The separation of the ward
and what the residents believed was neglect of the area by city officials spurred the
activists, neglect of the people, neglect of the infrastructure.

The drainage in the Lower 9th Ward has never quiet been adequate, being located
between two canals, railroad tracks and the Mississippi River begs us to ask if it can ever
be adequate. The initial decline of the area many believe was brought on in September of
1965 when hurricane Betsy struck and left 80% of the Lower 9th District under water.
After the hurricane residents believe they did not receive sufficient financial assistance
and support in order to revitalize the area. Residents moved-out as did commercial and
industrial businesses.

In general the Ward has experienced a variety of physical problems including
poor soils, infrastructure problems, poor quality development, and flooding problems. In
the late 1960s and mid-1970s, the Community Renewal Program provided resources for
some general improvements, selected clearance for public re-use, and the development of
private scattered site housing. In 1966 the Demonstration Cities and Metro Development
Act initiated an assistance program to rebuild facilities and in general assist to improve
the general welfare of residents. From this act the Lower Ninth Ward Housing
Development Corporation was founded. The development corporation is still together
today.
Demographics of the Lower 9th Neighborhood

The Lower 9th is made up of five census tracts and the Jackson Barracks, for a total of approximately 5,601 housing units in the neighborhood. The Census 2000 information on the demographics of the Lower 9th reinforce that only half of the ward was populated in the 1950s. The median year of structures built is 1955 in Tract 7.01 and 9.01, and 1957 in Tract 9.02-03. Prior to 1940 only 29% of the tracts were populated with the exception of Tract 7.01 that borders the industrial canal and was somewhat higher at 33.6%. The majority of the structures were constructed between 1950-1969, and since 1990 there has been only 5% new construction.

Per H38: Occupied Housing Units, the Owner occupied units in the neighborhood is approximately 59%. Out of a total of 4,820 units, 2,838 are owner occupied which leaves 41% rental. The 781 unit difference from the 5,601 total housing units is that the lesser count is occupied housing units and does not include vacant units. Track 7.01 that borders the Industrial Canal has a slightly higher owner occupancy percentage at 61%.

Post-Katrina approximately 3,850 of the 5,601 housing units sustained damage, and as of December of 2006 less than 10% of the units were occupied.
Chapter 3

Katrina Facts – A look one year later

Katrina has been said to cause fifty years of damage in one day, approximately 90,000 square miles were affected by the storm. The hurricane took away many ecological features including the wetlands south of the city that were to act as a storm buffer. While hurricanes throughout the years have done great damage to the ecological system, the majority of the damage is by humans. The silt from the Mississippi is vital to the forming of the marshlands and slowing the city from sinking, which it is said to sink one foot every thirty years while the ocean is said to be rising. With the river rerouted in the early to mid 20th century by the Army Corps of Engineers to limit the natural reoccurring floods, the natural transport of fresh sediments was prevented into the geologically subsiding areas, therefore tremendously reducing the forming of natural silt. When the neighborhoods were still flooded just days after the hurricane, the original cypress swamp ecosystem seemed to have returned, crabs and ants were everywhere. Nature has it way when it comes to going back to its origins, many believe reconstructing the marshlands may be a large part of the solution to protecting the city from future devastation.

Forty-one miles of the 350 miles of levees and floodwalls were severely damaged during Katrina. The levees were not only built to keep back the flood waters, but also to keep back the 100,000 gallons per minute of water pressure pushing against the city by Lake Pontchartrain.
There has been discussion about building the levees and floodwalls to a Category Five level.\(^2\) Building to Category 5 may not be the solution, and financially it may not be feasible. The cost to construct category 5 levees is estimated between 40 –100 billion; obviously the cost is basically unknown.

As a clarification, the term levee is used when referring to levees and to floodwalls. The difference is that levees are earthen structures, made of clay and in cross section form a truncated triangle. The base of a levee is commonly ten times as wide as the height. Floodwalls are concrete and steel walls built atop a levee, or in place of a levee, are often used where space is insufficient for a levee's broad base.

There are 148 pumps and one portable pump in the city. The pumps are designed to remove rainwater, although only a few worked post-Katrina since the power grid must be working in order for the pumps to clear the water. Through a combination of permanent and temporary measures, the Corps restored the level of hurricane protection that existed prior to Katrina to Orleans, Plaquemines, and St. Bernard parishes by June 1, 2006. To restore pre-Katrina levels of protection in a period of nine months, the Corps worked quickly and in some instances, engineered temporary solutions since all repairs could not be completed in time. Since Katrina and by approximately June 1\(^{st}\), the floodgates have been designed and put into place. The floodgates, located at each of the three drainage canals; 17\(^{th}\) Street, Orleans Ave. and London Ave., will be lowered prior to a storm in order to stop the storm surge from entering the drainage canal and breaching the floodwalls as was the case during Katrina. The pumps would then pump the storm water back into Lake Ponchartrain while the floodgates (surge protection gates) hold back

\(^2\) Developed in 1969, the Saffir-Simpson Hurricane scale is a 1 to 5 rating based on a hurricane’s maximum sustained winds. A Category 5 hurricane has wind speeds greater than 155 miles per hour.
the storm surge. The purpose of the drainage canals in general is to pump the rainwater out of the city. At the one-year anniversary the floodgates (surge gates) were complete, but the pumps will not be ready until the 2007 hurricane season. As of September of 2006, $70 million has been allocated for pump repairs.

The Inner Harbor Navigational Canal, or Industrial Canal, will not have floodgates. This is due to the fact that it is a working canal and must keep access clear for ships to enter. For storm surge protection, an inlet barrier is in the planning stages for the IHNC, but no definite decision has been made on the implementation of the barrier. If the barrier is not provided, then the floodwalls will need to be strengthened and raised. Most likely the absence of a surge gate will leave the areas near the Industrial Canal vulnerable, specifically the Lower 9th.

The floodwall heights will be raised in the next 3-5 years, but not to the Category 5 status, according to the Army Corps of Engineers. Reason being the Corps did not feel it is necessary, since flooding was in general not by overtopping of the floodwalls, but by breaches due to the storm surge. As mentioned above, surge protection gates are in place at the drainage canals. Originally the Corps found the butterfly gates (Floodgates) to fully satisfy the project purpose of hurricane storm surge protection at one-fifth the cost of parallel protection. (Higher and stronger levees) Rather than having the Corps proceed with construction of the floodgates, the Orleans Levee District decided to construct on its own most elements of the parallel protection on the Orleans and London Avenue Canals. The Corps’ Chief of Engineers then approved the change from the Barrier Plan to the High-Level Plan in February 1985.
The breaches occurred when the dirt was scoured and eroded at the base of the floodwalls and the surge pushed the walls out and over. In areas where repairs to the floodwalls are to occur, the floodwalls are to be protected by sheet piling covered with a concrete cap.

Another Post-Katrina revision affecting the Levees is the number of Levee Boards. The Orleans Levee Board is the body in charge of supervising the levee and floodwall system in Orleans Parish, Louisiana which is intended to protect New Orleans from flooding. Over the years the Board has also taken on various activities relating to land use on and around the levees.

The Orleans Levee District was created by the Louisiana legislature in 1890 for the purpose of protecting the City of New Orleans from floods. At the time, communities along the Mississippi River were largely in charge of creating their own levees to protect themselves, as no unified levee system existed. Most neighboring Parishes had (and some still have) similar Parish levee boards. Then in the aftermath of the Great Mississippi Flood of 1927, the United State Congress gave the United States Army Corps of Engineers supervision and control of design and construction of flood control throughout the Mississippi Valley. Local levee boards remained, however, in charge of day to day inspection and maintenance of the levee systems in their areas. Prior to Katrina there were 21 Levee Boards in New Orleans. Post-Katrina the number has been reduced to two (2) Levee Boards with the hope that the system becomes more efficient.

Katrina killed approximately 1,836 people, with 1,577 of the fatalities in New Orleans. In New Orleans 50,000 homes were destroyed, 160,000 deemed uninhabitable and 300,000 people displaced out of a total of 480,000. The estimate in July was that
approximately 8.5 million cubic yards of debris had been removed from the city, the total estimate is 50 million or another 41.5 million still needs to be removed. In comparison Ground Zero removed approximately 1.5 million cubic yards of debris.

For years there has been talk of a hurricane making a direct hit on New Orleans. The weather channel even had a show about it prior to Katrina; *It can happen tomorrow*, and it did. Why was there such a total lack of planning and coordination among local, state and federal authorities? Where was FEMA, the government entity that should have been able to alleviate the crisis in the storm’s wake? In 2002 FEMA became a part of the Department of Homeland Security. Homeland’s securities main focus is antiterrorism programs. Was and is there not enough emphasis on disaster mitigation programs?

In 2003 Congress approved a White House proposal to slash in half FEMA’s Hazard Mitigation Program. According to FEMA every dollar spent on mitigation saves roughly two dollars in disaster recovery costs. If a program were in place, would NOLA a year after Katrina be further down the road to recovery? If the estimates in disaster recovery costs were accurate, they would be at least a few months ahead of where they are now.

The thirty-five foot storm surge came from the east over the wetlands and down the existing channels. Without floodgates in place, the surge hit the Lower 9th causing the three breaches in the floodwall along the Industrial Canal. Thus making the Lower 9th and Bernard Parish to be some of the worst hit areas. Eight percent of the homes were submerged under 15-20’ of water. Again possibly questioning the proper function of the Industrial Canal. The where also two breaches on the London Canal, and one on the 17th
Street Canal in the Lakeview area which was also severely damaged and under water for weeks. Refer to Map 17: Levee Breaches.

A majority of the residents of the Lower 9th were evacuated to the Superdome or the Convention Center. Keeping the people at the Superdome, within a flooded area of the city and in harms way did not make sense, there obviously was not an evacuation plan in place. The Superdome eventually filled to approximately 30,000 people. Not enough food or water, restrooms overflowing, aid could not get to them due to the flooding. People were not allowed out of the building for many known and unknown reasons. If they did get out and try to return to their homes, which probably no longer existed, they would have to wade through a mixture of oil, sewage, chemicals, extremely contaminated substance. Refugees were eventually loaded onto buses and shipped away without being told to where or for how long. Immediate families split apart. Knowing this many decided to stay even in the most awful of conditions. But possibly not any worse than where they were being shipped to.

The FEMA trailers are a common site in NOLA and will be free for 18 months. After that time people will be required to pay rent for the trailers. Yet for obvious reasons, FEMA will only place trailers in areas where there is potable water and power available. North Derbigny Street to Florida Ave. between the Industrial Canal and St. Bernard Parish did not have potable water well into August of 2006. Therefore there are not many trailers in the Lower 9th.

One year after approximately 181,000 of the 480,000 residents are back in town, and electricity reaches only 60% of the pre-Katrina customer base. The Army Corps of Engineers is in the process of working with the state and area parishes on a Master Plan
for hurricane protection levees, floodgates and pumps top prevent storm surges from filling Lake Pontchartrain and in turn threatening the city. This will take billions and years to build, but the scope should be completed by September of 2007.

The cities infrastructure, utilities and schools are still in a state of flux one year after the storm, along with a good comprehensive plan for recovery. Before many of the residents can return, these items need to be in place.

The effects on the infrastructure are yet to be determined. Sewer lines, water lines, drainage lines and streets deteriorated while standing in salt water for three or so weeks. The city of New Orleans is working on a comprehensive study. On the utility side, Entergy New Orleans is in bankruptcy. As stated in the Gambit Weekly on 8.22.06; “Either the feds need to bail the company out as they did with Con Edison after 9.11, or they should force Entergy Corporation to merge its NOLA subsidiary operations so rates can be equalized regionally.”

One year after approximately 21% of the schools are open in Orleans Parish, most as Charter Schools. A goal by the city is to have certified teachers in all public schools, and safe clean buildings for the children to attend.

The damage and debris that remained one year later did not differ from what existed four months earlier. A drive from Delgado College through the city park would reinforce the fact that the park had not been maintained since the hurricane, there are not the workers to do so. One year later many more of the roads were clear, but there was still a tremendous amount of debris and overgrowth. Exiting the park and on the other side it was obvious that the people had not been back since Katrina, streets were completely deserted besides a few construction trucks. Very few of the homes had signs
of gutting and selective demolition, and most of the debris had not been removed from the properties. An average one or two of the homes on each block had a FEMA trailer outside, and possibly 40-50% had For Sale signs, the middle to upper-income neighborhood was Lakeside. A concierge in one of the French Quarter hotels tells the story of how he avoided a huge fine by paying a landscaper $200.00 to cut his small lawn. No house, no insurance and not much money, but the fee was paid.

In contrast, the drive across the Claiborne Avenue Bridge to the Lower 9th must be extremely cautious, since the street were still littered with debris. One should also be cautious when getting out of their car in this area, not because of danger from people; there were not any people, but due to the threat of getting bit by one of the many dogs roaming the streets.

The main difference between the two neighborhoods was not the amount or severity of destruction, but the fact that there was no For Sale signs on any of the homes in the Lower 9th. Probably because owners of the homes do not have the means to return and assess the property, the property is not as valuable and will not sell, the landlords have their own issues and homes to attend to… etc. This brings us to the main point; what should be done with the property on the Lower 9th? Especially since a large majority of the homes are adjudicated.

Taking it a bit further and into December of 2006, on the onset it did not look much different than four months earlier. But it was. Homes were demolished, debris removed and large parcels of land are clear and potentially ready for development. For the first time visitor it looked like a third world country in the midst of a disaster. For locals and returning visitors, it looked somewhat orderly. One must take into
consideration the magnitude. Not to belittle Ground Zero whatsoever, but to put things into perspective NYC removed approximately 1.5 million cubic yards of debris. At the end of August approximately 30 million cubic yards of debris was removed from the City of New Orleans and an estimate 20 million is remaining.

**Mitigation**

As defined by FEMA’s Mitigation division: Mitigation focuses on breaking the cycle of disaster damage, reconstruction, and repeated damage. Mitigation efforts provide value to the American people by creating safer communities and reducing loss of life and property. Another definition for mitigation is; The ongoing effort to lessen the impact disasters have on people and property. Mitigation involves keeping homes away from floodplains, engineering bridges to withstand earthquakes, creating and enforcing effective building codes to protect property from hurricanes -- and more. Mitigation is defined as "sustained action that reduces or eliminates long-term risk to people and property from natural hazards and their effects." It describes the ongoing effort at the Federal, State, local, and individual levels to lessen the impact of disasters upon our families, homes, communities and economy.

Mitigation should be incorporated into the rebuilding effort as an effort to lessen the repetitive loss structures. Repetitive loss structures being structures that have suffered flood damage two or more times over a 10-year period and the cost to repair the structure equals or exceeds 25% of its market value. Post Katrina Popular Mechanics reported that just 1-2% of claims were from repetitive loss. Although, many of the structures in Lakeside and the Lower 9th Ward may be repetitive loss structures, but since they did not have insurance in the first place were not documented as such; all the more reason for mitigation.
Examples of mitigation from FEMA Mitigation Division:

- Complying with or exceeding NFIP floodplain management regulations.
- Enforcing stringent building codes, flood-proofing requirements, seismic design standards and wind-bracing requirements for new construction or repairing existing buildings.
- Adopting zoning ordinances that steer development away from areas subject to flooding, storm surge or coastal erosion.
- Retrofitting public buildings to withstand hurricane-strength winds or ground shaking.
- Acquiring damaged homes or businesses in flood-prone areas, relocating the structures, and returning the property to open space, wetlands or recreational uses.
- Building community shelters and tornado safe rooms to help protect people in their homes, public buildings and schools in hurricane- and tornado-prone areas.
Chapter 4: 
Lower 9th Transfer of Development Discussion 

The Lower 9th Ward and St. Bernard Parish are protected by a single continuous “ring” of levees and floodwalls that together constitute one of the three main protected basins flooded by Hurricane Katrina. Whether the barge that entered through the south breach at the east end of the Industrial Canal in the west end of the Lower 9th was the cause of the breach is yet, if ever, to be determined. The breach in this case was through the concrete floodwall. Regardless, the breach on August 30th 2005, a day after Katrina made landfall, caused total destruction of the area.

There were three major breaches at the Industrial Canal, two occurred between Florida and Claiborne Avenue. In the Lower 9th Ward, Claiborne Ave is a physical dividing line in terms of destruction. The south side of the street and the area near the southern levee breach did not have power or utilities as of Aug 30, 2006; one year after the hurricane, while the north side of Claiborne is on slightly higher ground, and I believe most of the area has power and utilities, and did not endure as much devastation. Devastation and destruction being extremely loose terms since the entire ward was uninhabitable one year after the hurricane.

The proposal is to apply mandatory Transfer of Development Rights (TDRs) in the area recognized as the “Natural Hazard Area” north of North Claiborne Ave. Boundaries and reasons for selecting this area is further defined under Method of Analysis. As stated by Casey Adams, Head of Musicians Village, in the September 06 ULI publication; “No one is going to give up their property for open space.” This is why TDRs can work. TDR programs use the market to implement and pay for development
density. The programs allow landowners to disband development rights from properties in designated areas and sell them to purchasers who want to increase the density of development in areas selected as higher density areas. TDRs use deed restrictions and conservation easements to disband and extinguish development rights, therefore permanently protecting open spaces or reduced densities. In contrast, zoning rules can change over time and with new administrations.

TDR programs are said to be most effective in communities facing strong development pressure, where officials believe it would be difficult to successfully implement traditional zoning restrictions to achieve goals or where financial resources are not available for municipalities to buy land or development rights on their own. NOLA encompasses all of the above characteristics.

The recognition and proper handling of the politics in the Lower 9th is crucial, and TDRs are described as many planners as a way to take the politics out of zoning. With TDR programs compensation is given to property owners whose development rights have been limited in order to preserve some societal good, such as the open space in a natural hazard area. In addition, local officials feel less pressure if landowners are compensated for their ‘lost’ development rights. The inherent goal of the TDRs is to fairly compensate landowners, potentially eliminating controversy that usually arises when land restrictions are implemented by a governing body.

To transfer the development rights is to shift the future development potential from one piece of property to another. TDRs are used by local and regional to preserve historic structures, to protect agricultural land and open space, and in NOLA’s case to transfer rights from a natural hazard area to a less hazardous area. Per FEMA’s
mitigation examples; what needs to be accomplished is the acquisition of damaged homes or businesses in flood-prone areas, relocating the structures, and returning the property to open space, wetlands, or recreational uses. This may be difficult or not possible in the entire sending area, so decreased densities and increased parcel sizes may be more practical. Transfer of development rights is the development tool that can satisfy the owners of the properties in the sending district while strengthening the tax base and furthering development in the receiving district.

The fundamental legal issue with TDRs, is the claim that they constitute a taking without adequate compensation. Whenever use of a parcel is prohibited, the local government opens itself up to a claim that the land-owner suffered a regulatory taking. A regulatory taking exists when a government forbids or precludes any and all economically viable use of the property.\(^3\)

To avoid legal issues and to have a successful TDR program, there are several basic elements. Below are six of the key requirements of a successful TDR program, as defined by APA. Each item is applied to the NOLA TDR program.

1. A clear and valid purpose for applying a TDR Program.
   - In the case of NOLA and the Lower 9\(^{th}\) the purpose if very clear, removal of people and structures out of a natural hazard area.

2. Clear designation of the sending areas and the receiving areas.
   - Areas are to be designated on a zoning map. Sending area is the Lower Ninth Planning District 8, North of North Claiborne Avenue as mapped in

\(^3\) Transfer and Development Rights: Cases, Statutes, Examples, and a Model. John B. Bredin, ESQ 2000 APA National Planning Conference
Appendix ‘A’. Receiving Area to be North of LaSalle Street in the Central City Planning District 2 as mapped in Appendix ‘B’.

- Consistency between the location of sending and receiving areas and the policies of the local comprehensive plan, including the future land-use plan map. Refer to Recommended Land Use Maps in Appendix ‘C’.

- First a comprehensive plan must be completed. I view consistency as the need to provide similar housing types and affordability in the receiving district based on the census information of what existing in the sending district.

3. Recording of the development rights as a conservation easement that will inform future owners of the restrictions and make them enforceable by civil action.

- There is the need to eliminate the possibility that people will start building again in the area after a few years.

4. Uniform standards of what constitutes a development right, preferably based on quantifiable measures like density, area, floor area-ratio, and height, should be used to determine what development right is being transferred.

- This is where the FEMA Advisory Base Flood Elevation Maps need to be recognized and rebuilding standards implemented.

5. Sufficient pre-planning in the receiving area, including provisions for adequate public facilities.

- Most of the facilities in the area where not adequate prior to Katrina. They need to be reviewed based on the increased density of the area.
6. Sufficient allowable density in the receiving area to help ensure development is economically viable. If the receiving area is zoned to allow development at market capacity without TDRs, there will be little demand for the TDRs and their market value will be diminished.

- Increased density should be allowed only with TDRs, keeping Smart Growth and Sustainable principles in mind.

As stated above, the market value and demand of the TDRs is crucial to the programs success. Some communities eliminate alternative ways of achieving high densities, such as variances, which then makes the purchase of development rights a necessity. Incentives and demand generators to developers are also a way to keep the TDR market value. Examples of such generators are maximum density bonuses and exemption from certain standards such as setbacks, open space and parking requirements. Lack of receiving area demand may cause the sending areas to hold rights longer than anticipated, slowing the development process and prolonging the lack of shelter in NOLA.

**Method of Analysis: Sending Area**

The sending area recommended for the TDRs’ is the Lower 9th Ward North of N. Claiborne Ave., West of Tupelo Street and North of N. Tonti Street. The area encompasses all of Census Tract 9.03, 9.02, twenty-five percent (25%) of Tract 9.01 and approximately seventy-five percent (75%) of Tract 7.01. (Appendix A-Map1) This area received the most damage due to the storm surge and levee breaches, and did not have potable water well into August of 2006. A review of the mapping in Appendix A
reinforces the decision. The mapping was done by a team of consultants as part of the “Neighborhoods Rebuilding Plan” in conjunction with New Orleans City Council. 5

The four maps in Appendix A: Map 2 Compiled Maps, along with a windshield survey, were compared and contrasted to determine the TDR sending area. The Post-Katrina Building footprints were analyzed in relationship to the concentration of adjudicated properties. The Flood Depths were then compared to the two prior maps and during each map analysis the September 2006 Recommended Plan and land use was taken into account.

Based on a windshield survey conducted by the design team; Map ‘A’ compares the Pre-Katrina building footprint with the Post-Katrina footprint. North of N. Claiborne and West of Tupelo the street grid and blocks barely exist. I also surveyed the area and would agree with their finding. (Appendix A: Map 3)

In contrast the same area in Map 4, Post-Katrina Adjudicated Properties, is denser than the areas to the south. (Appendix A: Map 4) This may help the development process, or it should be said make easier the possibility of the Parish needing the land for a public purpose. From the look of the map and location of adjudicated properties, TDR properties may be limited in this area. Although, what needs to be considered is the fact that some of the homes that were completely wiped out and do not show up on the maps may not have been adjudicated and TDRs can be used.

As a clarification, an adjudicated property is one that the property taxes were not paid and which was not bought by an individual at the subsequent tax sale. Once adjudicated to the Parish it can only be sold by the Parish through the abandoned adjudicated process or declared needed by the Parish for a public purpose. As a
constitutional right the tax debtor can purchase the property for three years after it has been adjudicated. The advantage of this process is that it provides a procedure to sell abandoned adjudicated properties where often the owners cannot be located and/or the amount of taxes, liens, judgments and mortgages exceeds the value of the property.

In the case of the Lower 9th, even when the property owner wants to sell, obtaining clear title is very difficult since many of the homes were passed down through generations.

Table 1 establishes an estimated number of Housing Units in the ward that will be eligible and available for Transfer of Development Rights. With the sending area requirements established, an appropriate receiving area can be determined. The data was based on the U.S. Census Bureau Census 2000 Summary Tape File 3: H6 Occupancy Status. The first column ‘A’ is the Pre-Katrina Housing Units. Based on the recommended TDR area, Column ‘B’ is the percentage of the Census Tract that lies within the area and Column ‘C’ is the subtotal of Pre-Katrina Housing Units. Column ‘D’ is the number of vacant or adjudicated housing units from Census Table H6. This number was compared to the Pre-Katrina adjudicated properties map and a final estimate was established. The adjudicated units are removed from the equation in Column ‘E’, and the final number for the Pre-Katrina Housing Units within the TDR area is established.

Column ‘F’ applies a percentage of Households to return to the Pre-Katrina Housing Unit number. The percentage may require adjustment as time passes. I do not believe anyone can accurately estimate how many households will return. When talking with various public and private groups and individuals in the Lower 9th, and Bywater
District, their estimate is 50% will return. Being more than a year after the hurricane and less than 10% have returned, this figure is probably correct. During this time people have settled in other areas and may not have the means or desire to return. On the other hand, once there are housing units available to return to, a percentage may be back. The percentage used in column ‘F’ is 55%, being somewhat more optimistic since the TDRs may encourage homeowners to take advantage of this development tool.

Column ‘G’ is the Post-Katrina number of Households estimated to return. A percentage of these HH is than taken in Column ‘H’. This percentage reflects an estimate of the number of homes that will take advantage of the Transfer of Development Rights. In order to do so these people will need to work directly with a developer to obtain the rights and establish a new residence in the receiving area. It is recommended that the developer approach the homeowners. The city will need to be involved in helping locate the owners who are not currently residing in New Orleans. During various planning sessions, the meetings were televised in areas were many of the NOLA residences now reside, so connection and communication to these people is available. One of the benefits to the developer is that they have will have a substantial residence base to be located in the receiving area where they currently own property. And with higher densities allowed in the receiving area, their rate of return on the developments will increase.

Lastly, Column ‘I’ is the estimated number of units that potentially can take advantage of the TDRs. In Census Tract 7.01, it has been established that 100% of the available units can use the TDRs. Reason being this area was completely wiped out by the storm surge and levees breaches during Katrina. The Master Plan recommends new street patterns and larger parcels. It also defines possible Land Use changes. I
recommend the second being the Land Use change, therefore making 100% of the units available for TDRs. (Appendix A: Map 5) The proper use of this Tract would be a light industrial base that would bring jobs to the neighborhood. In the three other tracts an estimated 50% of the Post-Katrina HH will be available for the TDRs. Increased parcel sizes are recommended in this area that will eliminate a percentage of the units. Additional retail is also recommended in these areas, therefore changing the ratio of residential to commercial to a larger commercial base requiring larger parcels. It is also recommended that greenspace be implemented into the plan, particularly at the north end of the ward where the greatest flooding occurred. (Appendix A: Map 6)

Hurricane Katrina is not the only hurricane that was considered when defining the TDR area. As previously mentioned, Hurricane Betsy in 1965 caused flooding in 80% of the Lower 9th. Betsy caused both internal levee failures and overtopping along the Inner Harbor Navigational Canal, also known as the Industrial Canal. The triangles noted on Map 7 give depths of water above ground surface. Three are noted in the Lower 9th to the north of St. Claude Ave. Additionally, Hurricane Rita’s storm surge re-flooded the Lower 9th when it made land fall on September 24 of 2005.

Column J of Table 1 adds the Adjudicated Properties back into the equation. The sale of the properties by the Parish to the developer’s is a benefit to both parties as further described under Funding of the TDRs.
Chapter 5:  

**Funding of the TDRs and Discussion of the Sending and Receiving Areas**

As a funding source for TDRs, The American Planning Association (APA) suggests establishing a Transfer of Development Rights Bank. In this scenario the municipality would buy the credits for later sale, acting as the broker. Once established, the TDR bank can be run by either a local or regional planning agency. The purchase of the development rights could be per an appropriation from the local government’s general fund, or revenue may be earmarked from a particular tax or fee that would then fund the TDR Bank.

In this case a large portion of the revenue to fund the TDR Bank would be made from the sale of the adjudicated properties by the Parish. Post-Katrina the number of adjudicated properties certainly increased; therefore the amount shown in the tables is a conservative estimate. In both the sending and receiving areas the properties will be sold to the developer’s at an assessed value, which will be 35% less than the pre-Katrina market value. Being sold at the assessed value, along with the allowance of increased density with the purchase of the TDRs in the receiving area, makes the TDRs affordable and profitable to the developer. The benefit to the Parish is that they are selling the adjudicated properties at the assessed value, rather than for only the tax owed or for no revenue by keeping the properties for public use. The key to the TDRs being profitable to the Parish is the large amount of adjudicated properties.

As a general rule, the receiving areas should only allow increased density with the use of TDRs. If the TDR has not been purchased, then development in the receiving area should not be allowed. Additionally, the density must be increased sufficiently in the
receiving area to make the purchase of the sending zone property profitable to the developer.

In Post-Katrina New Orleans there are many strong advocacy groups working to facilitate housing and to bring the residents back. In addition to the various groups, Mayor Ray Nagin appointed Dr. Edward J. Blakely as the Recovery Chief for the City of New Orleans. Dr. Blakely, who has played roles of varying prominence in at least four other urban recovery projects, is one of the best urban planners in the world. After he was appointed by the mayor, Dr. Blakely, 68, stepped into a planning vacuum in New Orleans. He quickly surprised state officials with a demand for control of recovery dollars, proclaimed his own indispensability and publicly chided New Orleans for what he termed its “mendicants” mentality. ⁴

One such advocacy group who could potentially run the TDR Bank would be the New Orleans Neighborhood Development Corporation (NONDC), Executive Director Una Anderson. NONDC works to expand the production of quality, affordable housing and advocate for improved housing policies. NONDC has been building quality affordable homes in the Central City neighborhood; five have been completed as of December 10, 2006. One year after the storm Anderson feels there is much reason for hope because there is a new conversation in the community. “We are having a conversation about mixed income housing, and inclusionary zoning that mandates a mix of incomes that wouldn’t have happened pre-Katrina,” she says In the past, New Orleans made an attempt at mixed income housing, but did not do a good job for the previous public housing residents. NONDC intends to create a model based on successes around the country. Anderson believes that mixed income housing is most successful when done

⁴ New York Times, April 2007
with public subsidy, public land, and when there is public housing re-development. There are national developers who do it around the country, one-third public housing, one-third affordable housing and one-third market rates. NONDC is now having conversations around this issue at the city council level, the state legislative level, and the resident level. In addition, the NONDC Board has decided to expand their reach. Besides working in Central City with new construction of single family homes, they will now broker larger developments, and will work in other neighborhoods by invitation. Therefore, the combination of NONDC’s knowledge of Central City and desire to expand their reach, makes them the appropriate group to potentially run the TDR bank and work with relocating the Lower Ninth residents to the receiving area of Central City.

**Why Central City as the Receiving Area?**

Central City is a historic, unique neighborhood located in the heart of Uptown New Orleans. Central City, which includes the area north of St. Charles Avenue/Carondelet Street to South Claiborne Avenue, developed in response to immigration. Along with Irish immigrants, working class Germans moved to the area, attracted by plentiful rental housing. Immigrants constructed churches and synagogues, and commercial activity located on Dryades Street. This mixed land use pattern continued in the area until the mid-20th Century, and by this time the neighborhood had evolved into a primarily African American community.

The residents of Central City envision a community in which people of varied racial and economic backgrounds can coexist and thrive in an environment that is fair, equitable, and just. Post-Katrina NONDC has begun construction of modular homes and
is working with the neighborhood to provide fair and equitable housing with a mix of income levels as a goal.

The Central City Neighborhood occupies a triangular swath of Uptown New Orleans. Central City's boundaries are, roughly, St. Charles Avenue to S. Broad and Toledano Street to the Pontchartrain Expressway. The neighborhood also contains Zion City, a triangular shaped area north of S. Broad that ends at the vertex of Martin Luther King Jr. Boulevard and Washington Avenue. Along with the Milan Neighborhood, Central City is contained within Planning District Two.

Though economically challenged, Central City is ideally located adjacent to the Garden District and close to the Central Business District. The neighborhood is ringed by major thoroughfares and delimited by the Pontchartrain Expressway to the East. Primarily residential in character, Central City was once home to several thriving commercial corridors. Its strategic location near wealthy residential enclaves and booming port facilities made it a natural home for the working class of all races and a logical entrepreneurial location for newly arrived immigrants.

Although Central City is to the West of the Central Business District and the Lower 9th is to the East, (Refer to Map in Introduction: Central City Districts 2 & Lower Ninth District 8) Central City’s similarities in demographics and income of residents and close proximity to the CBD and therefore jobs affords great potential as a neighborhood to be considered as the receiving area for the Lower Ninth Transfer of Development Rights (TDRs). In comparison the average Median Housing Value per Census Data Table H85 in the Lower 9th is $52,420.00, while in Central City it is $61,933.00.
In addition to its proximity to the Central Business District, and the fact that
development has already begun in the area, there are a number of reasons why Central
City differs from the Lower Ninth and makes it a more desirable place to develop.

First of all, the flooding was not as deep. Areas of Central City did have up to
approximately 10’ of flooding, but none of the area experienced greater than 10’ or in the
range of 15’-20’ as they had in the Lower 9th. (Refer to Appendix B Map 9: Flood
Depths)

Central City was once swampland, similar to the Lower 9th. Additionally the
TDR receiving area is at the same elevation of the Lower 9th: that elevation being –1.25
+-, and was not populated until a drainage system was put in place in the late 1940s.
(Refer to Appendix C Map 15 New Orleans Elevation by Neighborhoods with major
roads) The area beyond the TDR receiving area, being at a higher elevation, was
populated before a drainage system was in place. One key difference is that drainage of
the area by pumps in Central City has been more manageable than in the Lower 9th.
Central City is somewhat inland, but not in the “middle of the Bowl”, and is also
removed from direct access to water or the potential of being completely devastated by a
storm surge as the Lower 9th is with the Industrial Canal. As previously mentioned, the
drainage in the Lower 9th Ward has never been adequate. Being located between two
canals, railroad tracks and the Mississippi River begs us to ask if it can ever be adequate.
Central city does not have this predicament and in general, Central City has not been
completely wiped-out during previous hurricanes such as Betsy, as the Lower 9th
repeatedly has.
In the Central City Receiving area as defined in Map 8, there were approximately 782 adjudicated homes. According to Appendix B Map9, many of the adjudicated homes lie within an area severely damaged by Katrina. Therefore, the density of the area can realistically be increased and provide the land for the TDRs.

**Method of Analysis: Receiving Area**

The receiving area recommended for the TDRs’ is Central City Neighborhood North of LaSalle Street and to the East of Washington Avenue and Toledano Street. The receiving area encompasses all of census tracts 93.01, 94 and 86 along with 45% of tract 88, 50% of tract 80 and 30% of tract 68. This area within the Central City neighborhood received the most damage during Katrina and includes a substantial number of adjudicated properties that therefore lends it to have the greatest potential for redevelopment.

Table 2 establishes an estimated number of Housing Units and/or Parcels available to receive Transfer of Development Rights. The number of adjudicated housing units is Pre-Katrina, and will most likely increase Post-Katrina. The conservative Pre-Katrina number from the census data tape files was used. Taking these units into account, the number of Pre-Katrina occupied units was established in column ‘E’.

During a tour of Central City, NONDC was very optimistic about the number of occupants returning to the neighborhood along with the number of new occupants who may be attracted to the area. Therefore an estimate of 65% was used in Column F: percentage of Households returning.

Based upon the Sending Area estimated requirements, the receiving area needs to provide at least 1,039 housing units or developable parcels. Subtracting the estimated
number of households returning from the Pre-Katrina Occupied Units, which does not include the adjudicated properties, the available number of units is 1,184. As indicated in the Appendix C: Planning District 2 Recommended Land Use, the density in tracts 86, 93.01 and 94 has been increased by 20%. These tracts had the most damage and therefore the most opportunity for redevelopment at a slightly higher density.

Column J of Table 2 adds the Adjudicated Properties back into the equation. The sale of the properties by the Parish to the developer’s is a benefit to both parties as further described under Funding of the TDRs.
Conclusion

The Thesis investigates Transfer of Development Rights as fair compensation to landowners in New Orleans and more specifically a designated portion of the Lower 9th Ward, north of North Claiborne Ave. Implementing Transfer of Development Rights as a development tool in New Orleans can break the cycle of disaster, damage and reconstruction. In general the mitigation efforts need to focus on acquiring damaged homes or businesses in flood-prone areas, relocating these structures and returning the property to open space or a more appropriate use.

How TDRs disband and extinguish development rights is by the use of deed restrictions and conservation easements that permanently protect open spaces or densities. In contrast, zoning regulations can potentially change over time or with new administration allowing the land to go back to its former use. Furthermore, the program allows landowners to disband development rights in the sending area and sell them to purchasers who want to increase density of development in areas designated as high-density areas.

The TDR sending area in this Thesis is the Lower 9th Ward North of North Claiborne Ave. as shown in Appendix ‘A’ maps. There are a substantial amount of destroyed and/or adjudicated properties within the TDR sending area. Hurricane disaster in this area has been cyclical and a mitigation plan is crucial in order for the cycle to end. (Refer to the Recommended Land Use Plan in Appendix ‘C’.)

Funding for the TDRs would be through a TDR Bank. The need for housing in New Orleans is crucial, so in order to jump start the program it is recommended that the
municipality act as the broker and purchase the majority of the estimated 1039 TDR properties to hold in a TDR Bank for later sale as credits. (Refer to Appendix A: Table 1.) The Transfer of Development Rights would then be applied to Central City, the receiving area. Central City is an appropriate receiving area since it is near the Central Business district, damage from storms has not been cyclical, and increased densities close to the CBD makes sense and would be acceptable. In addition, the neighborhood has an estimated 1,184 properties or parcels available for TDRs. (Refer to Appendix B: Table 2)

The increased densities in the receiving area per the recommended land use plan are one of the incentives to the developers. Additional incentives, possibly a tax deduction, should also be given to developers who purchase TDRs from a person who intends on relocating to the Central City Neighborhood, apposed to those who are settled in other cities without intention to return.

Prior to Katrina in both the Lower 9th and Central City there was an abundance of vacant or adjudicated homes. Contiguous properties for land assembly and redevelopment is unfortunately even more feasible due to the destruction by Katrina and the fact that a certain percent of the previous residents will not return. This being said, for those who do return their neighborhood may look a little different than before. And in the Lower 9th the land use plan needs to change, they barely recovered from a storm over 40 years ago and in designated areas should not try again. “There are areas where it doesn’t make any sense to rebuild. In those places, nature is talking to us, and we ought to be listening.”

We are aware of the problems, we realize the solutions; the level of Nature, the level of Man and the Level of the city, the three fundamental levels of human existence

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5 Tom Murphy ULI Senior Resident Fellow, The Washington Post January 4, 2007
that have always been very alive in New Orleans. All levels must be properly introduced for New Orleans to once and again thrive.

While aware that talk of “shrinking the city’s footprint “ is controversial, the problem of providing public services, schools and quality-of-life amenities will be worse down the road if incomplete neighborhood planning allows for piecemeal development, Kalapos said.6

In consideration of the areas that should not rebuilt and the land owners of parcels and homes in these areas, Transfer of Development Rights should be considered as a development tool to fairly compensate the landowners while providing a strategic plan for development and a means to the end of the cycle of disaster damage in New Orleans.

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Endnotes

1 Jason Hanly-Forde, George Homsy, Katherine Lieberknecht, Remington Stone “Transfer of Development Rights Programs, Using the Market for Compensation and preservation.


4 Greater New Orleans Community Data Center

5 Lower Ninth Ward Neighborhood, Planning District Eight. New Orleans City Council

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“Topographical and Drainage Map of New Orleans and Surroundings.” (http://lsm.crt.state.la.us/lsmmaps/mappic.asp?name=09379a.002.jpg&title=Topographical+and+Drainage+map+of+New+Orleans+and+Surroundings)

Anderson, Una, “Bringing Hope Home-One House at a Time (http://www.ms.foundation.org/wmspage.cfm?parm1=371)

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http://en.wikipedia.org/wiki/Orleans_Levee_Board

United States Government Accountability Office “Strategic Planning Needed to Guide Future Enhancements Beyond Interim Levee Repairs”

New Orleans, Louisiana
APPENDIX

A

LOWER NINTH PLANNING DISTRICT 8
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*Column J adds the estimated adjusted properties to the total available for development.*

*Land use change (pertaining to the rezoning process): Impact of changes to the land use change plan.*

*Population change (pertaining to the rezoning process): Impact of changes to the population change plan.*

*Table 1: Estimated Number of Parcel/Housing Units (1991 Units) Available for Transfer of Development Rights*
MAP 1
LOWER 9TH WARD
CENSUS TRACTS
TRANSFER OF DEVELOPMENT RIGHTS SENDING AREA
Map 3
Lower 9th Ward
MAP 5
LOWER 9TH WARD
RECOMMENDED LAND USE PLAN
BY THE CITY OF NEW ORLEANS
MAP 6
LOWER NINTH WARD
FLOOD DEPTHS
MAP 7
LOWER NINTH WARD

FLOOD INUNDATION CAUSED BY HURRICANE BETSY

Note: Triangles are affected areas
APPENDIX

B

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To receive transfer of development rights:

Estimated number of available parcels/housing units (Hfg units) available.

Table 2
MAP 8
CENTRAL CITY
CENSUS TRACTS
TRANSFER OF DEVELOPMENT RIGHTS RECEIVING AREA
MAP 9
CENTRAL CITY – RECEIVING AREA

Adjudicated Properties

Legend
- Flooded District
- Neighborhood
- Adjudicated Properties
- Migrated Properties

Flood Depths

Legend
- No Flooding
- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7
- 7 - 8
- > 8

Central City
Migrated
MAP 10
CENTRAL CITY – RECEIVING AREA

Zoning Map

Damage Percentage
APPENDIX

C

LAND USE PLAN

DISTRICT 2 AND 8
MAP 11
CENTRAL CITY – RECEIVING AREA
PRESENT LAND USE

Planning District 2
New Orleans Neighborhoods
Rebuilding Plan
Present Land Use

Source: City of New Orleans –1999 Land Use Plan
MAP 12
LOWER 9TH – SENDING AREA
PRESENT LAND USE

Planning District 8
New Orleans Neighborhoods Rebuilding Plan
Present Land Use

Source: City of New Orleans – 1999 Land Use Plan
MAP 13
CENTRAL CITY – RECEIVING AREA
REVISED RECOMMENDED LAND USE

Planning District 2
New Orleans Neighborhoods Rebuilding Plan
REVISED
RECOMMENDED LAND USE

Source: City of New Orleans-1999 Land Use Plan
MAP 14
LOWER 9TH – SENDING AREA
REVISED RECOMMENDED LAND USE

Planning District 8
New Orleans Neighborhoods Rebuilding Plan
REVISED
RECOMMENDED LAND USE

Source: City of New Orleans –1999 Land Use Plan
MAP 15

New Orleans Elevation by neighborhood with major roads

Use the zoom tool in the PDF to see greater detail (neighborhood & street names)

Elevation in meters

-4.00 to -1.25
-1.25 to -0.50
-0.50 to 0
0 to 0.5
1 to 1
2 to 2
3 to 3
4 to 4
5 to 5

*When using this map, take into account that sea level rises during & after hurricanes

Area Map

City of New Orleans Ground Elevations

From Canal St. At Mississippi River to the Lakefront at U.N.O.

Lake Pontchartrain

New Orleans

Gentilly Ridge

Mississippi River

Canal St. at Allen

St. Louis Cathedral

Esplanade at St. Claude

Derby at I-10

Dillard Univ.

Canal St. at Allen

St. Anthony at Widder Dr.

Wainwright Dr.

UNO Side of Lake Pontchartrain Shoreline

Elevations in Feet NGVD

-20
-10
0
10
20
30

23 FT
18 FT Project Flowline
Avg Annual Highwater 14 FT
SPH Design Elevation 11.5 FT
Normal Lake 1.0 FT Level

Hurricane Protection Levee & Floodwall

A
B

17.5 FT

20
10
0

0
10
20
30
APPENDIX

D

MAPS AND PHOTOS
MAP 16
FLOOD DEPTHS IN COMPARISON TO MAP OF 1878

MAP OF 1878

KATRINA FLOOD DEPTHS

www.KatrinaDestruction.com
MAP 17
LEVEE BREACHES

Map of Location of Levee Breaches

Lower 9th Ward
MAP 18
NEW ORLEANS PLANNING DISTRICTS
MAP 19
MAY 1, 2006 PHOTOS

Photos by B. Kalapos