

Holy Cross and Lower Ninth Ward Sustainable Restoration Plan at Five

Final Version

Fulfillment of Required Capstone Project

MBA Sustainability Degree

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Executive Summary

Large scale disasters are becoming prevalent in the world. In the last twenty years, devastating hurricanes, earthquakes, tsunami, and flooding have occurred. After the initial emergency response, the next step is to rebuild the community. For most communities, that means rebuilding to get things back to normal. What if the community wants to take this opportunity to build back stronger? This report focuses on of New Orleans, where a manmade disaster occurred in 2005. In the aftermath of Hurricane Katrina, the levee protection system failed due to faulty engineering and construction by the United States Army Corp of Engineers. The results of that failure was devastating flooding in many neighborhoods in New Orleans. This report is about a community in New Orleans that when faced with the daunting task of rebuilding their entire neighborhood, chose to improve their quality of life by developing a sustainability plan. The Lower Ninth Ward consists of two neighborhoods in New Orleans, Holy Cross and the Lower Nine. The neighborhoods joined together in 2006 to create a sustainable restoration plan to guide the rebuilding of their community. This report will assess the impact of the Holy Cross and Lower Ninth Ward Sustainable Restoration Plan (the Plan) after five years. The sustainability report will use secondary and primary research to determine whether the community is achieving the sustainable recovery desired. Due to the fact that the subject plan evolved out of a disaster recovery event, recent large scale disasters will be evaluated for emphasis on sustainability. The report includes a SWOTT analysis of the plan to evaluate the strengths and weaknesses, opportunities and threats that confront the community in their recovery. A business model canvas is provided to give a visualization of the key partners, key activities, key resources, value propositions, channels, cost structures, and revenue streams. In

addition to current literature: planning documents, government reports, personal interviews with community leaders and academics involved in the recovery, and community reports were consulted in preparing this report. The author has kept the focus of the report on these research questions: *Is the recovery in the Holy Cross and the Lower Ninth Ward, a sustainable recovery? Are there steps beyond the Plan that Holy Cross and the Lower Ninth Ward could take to increase their sustainability?*

Acknowledgements

I would like to thank my mentor, Darryl Malek-Wiley for his assistance with this project. I would also like to thank Tracy Nelson and David Eber of the Lower Ninth Ward Center for Sustainable Engagement and Development (CSED) for their candid thoughts and guidance. Warrenetta Banks, John Taylor and Kathy Muse, also with the CSED, many thanks for the warm welcome and support whether it has been a few months or a few years. The Holy Cross Neighborhood Association has always been my inspiration and I hope to belong to the Association someday. No paper about sustainability in the Lower Ninth Ward can be written without mentioning the strong force that was Pam Dashiell. I came to Holy Cross a stranger and Pam welcomed me into the family. Without her example, this paper might not have happened.

I would like to thank Sandy Rosenthal and the group at Levees.org for their persistence in trying to get the United States Army Corp of Engineers to accept culpability for the levees breaking in New Orleans. Without Levees.org, the Sierra Club, the Lake Pontchartrain Basin Foundation, the Gulf Restoration Network and other groups working in Louisiana to provide protection with the multiple lines of defense, no neighborhood in New Orleans will be truly sustainable.

I would also like to thank the instructors in the Marylhurst Sustainable MBA program for their support and encouragement. My husband Warren, Ruby, Jockomo and my family dogs are appreciated for their patience.

Introduction

In the past twenty years, communities have experienced disasters of all kinds ranging from floods, hurricanes, tsunamis, tornados and earthquakes. In each area of the world that this occurs, there is a desire to rebuild and restore. A concept that has become clearer is that communities should strive for a sustainable recovery. A sustainable recovery is defined as surpassing the status quo by building back stronger than the previous state (Berke, 1993). In the case of this community; recovery and sustainable recovery do not mean the same. If you evaluate the measurable recovery numbers for New Orleans in comparison with other disasters, the city lags behind. Another factor to consider in comparing this recovery to other countries is that the US Government will only provide funds to bring buildings back to their pre-disaster level (Brown, Saito, Spence & Chenvidyakarn, 2008). Instead of examining the socio-political factors that have prevented recovery in New Orleans, this project will focus on a community plan that is based on sustainability principles. The Holy Cross and Lower Ninth Ward Sustainable Restoration Plan is a blueprint to improve the quality of life for the Lower Ninth Ward neighborhoods. The client for this capstone project is the Lower Ninth Ward Center for Sustainable Engagement and Development and the Sierra Club Environmental Justice Office in New Orleans.

The subject plan is the result of community planning with residents and sustainability experts that took place in April of 2006, seven months after the levees in New Orleans were breached in the aftermath of Hurricane Katrina. The Plan laid out the community goals with steps for implementation that included the overarching goal of being carbon neutral by 2020. Although five years has passed since the publication of this plan, determining when any recovery

will be over is a difficult question to answer (Jordan, Javerick-Will & Amadei, 2011). This project will on behalf of the client, evaluate the influence and application of the plan in order to gauge whether the community is developing a sustainable recovery and to offer next steps to keep the principles of sustainability guiding the recovery in the Lower Ninth Ward. In evaluating the Plan, there are discoveries of the innovative ideas offered in the plan and a happenstance that the strongest result of the planning process has been a reconnection to nature for the Lower Ninth Ward.

Background

Defining Sustainable Recovery

Sustainability as defined by the UN Commission (Bruntland, 1987) states “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” In 2005, the UN World Summit (UN, 2005) further expands this message to include specifically the “development of sustainable economic, social and environmental aspects” (UN, 2005, p. 2). Sustainability assumes “that people and their communities are made up of social, economic, and environmental systems that are in constant interaction and that must be kept in harmony or balance if the community is to continue to function to the benefit of its inhabitants” (Monday, 2002 p.1).

Disaster recovery is the stage after an emergency where a community rebuilds with the “goal of returning to normalcy” (Jordan, Javernick-Will & Amedei, 2011). It is possible that a community in its haste to rebuild can make itself vulnerable to future disasters (Monday, 2002). However as Monday (2002), also points out the disaster recovery period is an opportunity to look at things in a different light. After all, the “community must take action to recover, so

incorporating principles of sustainability into that process often does not involve much additional effort” (Monday, 2002 p 3.). The Plan is the result of a community considering that it had opportunities for improvement while rebuilding.

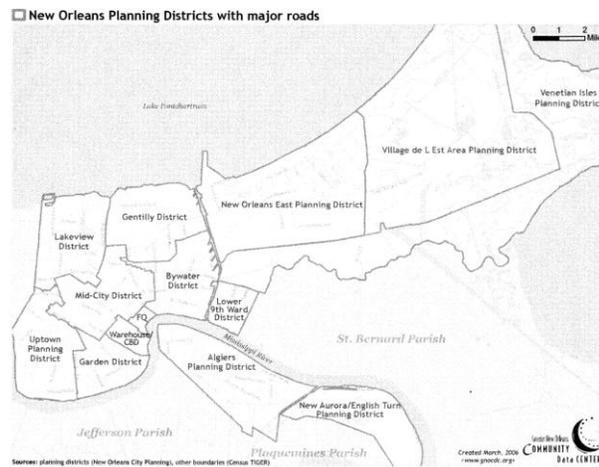
Historical Background

The Lower Ninth Ward was one of the last parts of New Orleans to be developed. It was originally the swampy lower end of plantations (GNOCDC, 2011). The area was more like living in the country than in a city according to the Greater New Orleans Community Data Center (2011). The area is separated from New Orleans by the Industrial Canal, a waterway extending from the Mississippi River that was completed in 1923. The ward had several business districts and industrial sites along the Industrial Canal provided employment for the predominantly African American population (GNOCDC, 2011). “Due to the Ninth Ward's geographic separation and working-class inhabitants, residents have developed a history of activism encouraged by seeming neglect by city officials” (GNOCDC, 2011). The Lower Ninth Ward has a history of activism. Civil rights activists within the community were responsible for integrating the all white New Orleans public schools in 1960 (GNOCDC, 2011). The ward is known for its musical legends like Fats Domino, who has been a lifelong resident of the Lower Nine. Living in this neighborhood for your whole life is not rare in a community where 74% of the residents lived in the same house from 1995-2000 (GNOCDC, 2011). The Lower Ninth Ward had the highest percentage of homeownership in New Orleans (GNOCDC, 2011). Warrenetta Banks, volunteer coordinator for the Lower Ninth Ward Center for Sustainable and Environmental Development, related to the author: “Everyone just wanted to live in the neighborhood, near your mama and your church” (personal communication, September 27,

2011). She says with full conviction that there wasn't any reason to live somewhere else. This is a sentiment repeated to the author by other residents.

In 1965, Hurricane Betsy flooded the Lower Ninth Ward. It is public opinion in the Lower Ninth Ward that the city leaders ignored the neighborhood and withheld funds for rebuilding, the result being that industrial jobs began leaving the neighborhood in 1965 (GNOCDC, 2011). The neighborhood was briefly revived because they received model cities money from the federal government from 1966-1975 (GNOCDC, 2011). After the funding ended, the jobs continued to decrease. In the forty year interval between Betsy and Katrina, the white population in New Orleans fled to the suburbs. The City of New Orleans became 73% non white and "by the 1970's, 28% of the Lower Ninth Ward lived below the poverty level (Landphair, 2007, p. 837). At the time of Katrina, 40% of the Lower Ninth Ward population over the age of 18, didn't graduate from high school or have a GED (GNOCDC, 2011). Unemployment rates were 3% over the national average based on the 2000 census (GNOCDC, 2011). 14% of the housing stock in the Lower Ninth Ward was abandoned or vacant. The crime rate was described as "it's the murder capital of the murder capital," says criminologist Peter Scharf, co-director of the University of New Orleans' Center for Society, Law and Justice in an interview with Frank Etheridge, (2005). In the same article, which was published post-Katrina, State Representative Charmaine Marchand was quoted "People in this area have long been sacrificed. Poverty. Crime. Betsy. Katrina. Are they about to be sacrificed again during the rebuilding, in terms of jobs and money? I'm worried about that" (Etheridge, 2005). Her statement was echoed by the state of this neighborhood in 2005. It was the last neighborhood in New Orleans to receive city services so people could move back.

Figure 1: New Orleans Planning District map shows neighborhood locations.



Adapted from New Orleans Community Data Center. Retrieved from

<http://www.gnocdc.org/prekatrinasite.html>

The Holy Cross and Lower Ninth Ward Sustainable Restoration Plan is the title of the subject report because there are two neighborhoods within the Lower Ninth Ward. Both are distinctive neighborhoods yet the general geographic area is called the Lower Ninth Ward (see Figure 1). This can be confusing to the reader. In this report, Holy Cross will be identified as Holy Cross and the remainder of the ward will be referred to as the Lower Nine when there is a need to talk about the two distinct groups.

Holy Cross is clustered along the Mississippi Levee. The neighborhood is a recognized historical district personified by the Pilot Houses, twin Victorian houses that are a New Orleans Landmark. The community was named after the Holy Cross School, a Catholic school founded in 1849. Pre-Katrina, there were 5,507 people living in the neighborhood (GNOCDC, 2011). Holy Cross has an active neighborhood group, the Holy Cross Neighborhood Association

(HCNA) that was founded in 1981 and continues to the present. The neighborhood houses were flooded but they didn't receive the extent of damage suffered in the Lower Nine.

Figure 2: Typical Holy Cross Architecture



Photo by Author. 2008

Figure 3: Pilot House



Photo by Author. 3/2006

The Lower Nine had a population of 14,408 (GNOCDC, 2011) pre-Katrina. It is a larger part of the Lower Ninth Ward as indicated in the map below. The neighborhood has community organizations that participated in the sustainable planning process including the Lower 9th Homeowner's Association. The destruction in this part of the community from the breached levees caused homes to float off their foundations moving across streets. All public services were completely destroyed. The media questioned whether they should even try to rebuild. However as previously noted, the residents were very attached to this place and wanted to come back.

This neighborhood was the last one to start rebuilding after Katrina. The Bring New Orleans Back Planning Commission published a map that with green dots (Figure 5) covering parts of the Lower Ninth Ward indicating the planning unit as being an area that needed to prove its capability to be rebuilt. The green dots were also interpreted as being for future green spaces. The displaced residents were angry, the map fueled their commitment to coming back but they realized that they would have to do it themselves (Tonnelat, 2010).

The Holy Cross Neighborhood Association wasn't daunted by the challenges of their neighborhood. This is an active group that includes architects, ministers, social workers, real estate investors, artists and working people. Before Katrina, they had convinced the Preservation Resource Center to restore houses, had a community garden and had well attended regular meetings. After Katrina, the leadership stepped up their efforts and began meeting at least two times a week. No one who attended their meetings went away without hope that this neighborhood was going to recover (H. Wang, personal communication, September 23, 2011). It was this strength that led Tulane and Xavier Universities, in cooperation with the Louisiana

Department of Natural Resources to convene a team of disaster experts to meet with the community on a formal basis to draw up a preliminary recovery plan. It was determined that the key to successful recovery was to rebuild the community using sustainable principles. All of the residents in Holy Cross and the Lower Nine had representation at these planning meetings in contrast with the Mayor's Bring New Orleans Back Commission that was appointed by Mayor Nagin's office. The collaboration resulted in a 48 page document known as the Holy Cross Lower Ninth Ward Sustainable Recovery Plan.

Figure 4: Lower Nine Empty Lot with Boat



Photo by Author, 2/2007

Figure 5: Bring Back New Orleans Commission Green Dot Map.

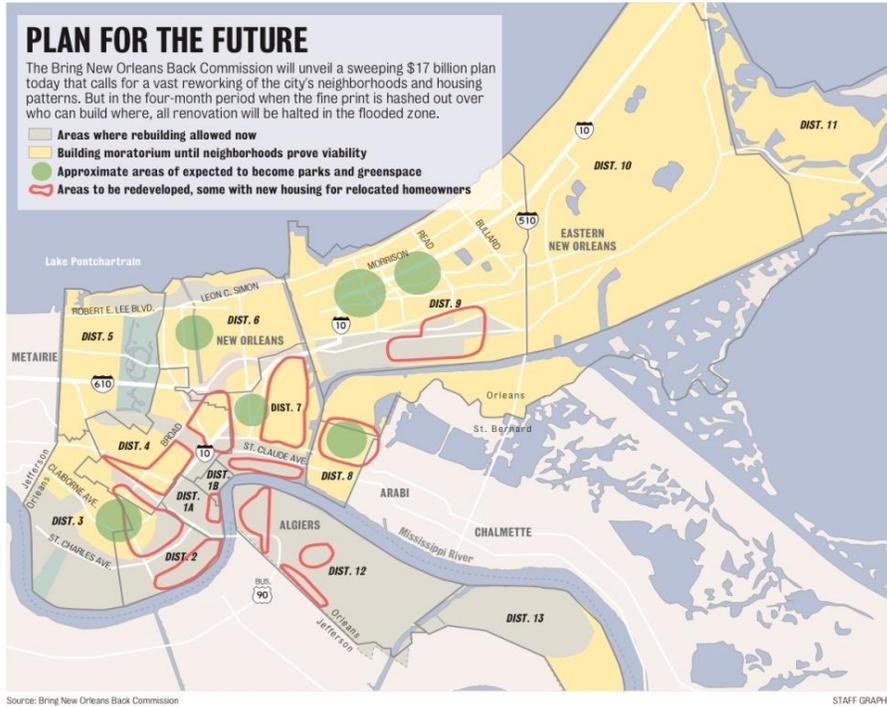


Figure 5. Bring Back New Orleans Commission Green Dot Map. Lower Ninth Ward is designated as Section 8 with a green dot covering the majority of the area. Adapted from Bring Back New Orleans Commission; Retrieved from <http://www.regional-modernism.com/2008/05/green-dot.html>

Rationale

The author chose this project because she has been involved with this neighborhood since 2004. Her chosen career path is to help non profits and communities to become sustainable. The author worked with homeowners in this community and throughout the city to promote green building and sustainability from 2005-2008. This sustainability report will be an opportunity to help the community to re-open the dialog about sustainability and to begin the planning process for the next five to ten years.

Literature Review

This paper requires a review of the existing literature in several fields in order to cover all of the aspects of the report. It is necessary to consider the question of how to use existing methodology to measure sustainable disaster recovery. Then the reviewer needs to look at definitions of sustainability in order to examine the role that sustainability has played in recent disaster recovery efforts in addition to the recovery efforts of the Lower Ninth Ward community in New Orleans. In order to put the subject plan into context, the literature review needs to compare the historical environment that the plan was conceived in contrasted to the current environment. To draw conclusions and analysis, the research needs to be able to document the influence or lack of influence of the sustainability plan in the recovery before establishing any next steps.

Disaster Recovery Methodology

While reviewing historical literature, it becomes apparent that information about disaster recovery is available in two different forms; statistical data and that in the form of social science interviews, surveys and case studies (Chang, 2010). There is a case made for a combination of the two; developing a structure to use both quantitative and qualitative to measure at the neighborhood level (Chang, 2010). Chang describes a method of being able to compare disasters by using similar indicators. In this article the statement is made; “perhaps the most important criterion is that the indicator be meaningful from the point of view of policy and decision making in the affected community” (Chang, 2010 p. 308). Chang’s point of view is that indicators that are measured should be relevant to the community’s decision making process rather than just be an academic exercise. This research project will strive to measure meaningful indicators. While

the measurement system in Chang’s paper is being used for a case study for the 1995 Kobe earthquake, it could be adapted for use to compare most disasters. The example below from Chang’s paper is a calculation used to quantify returning to pre-disaster levels.

Figure 6: Chang's Disaster Indicator Equation

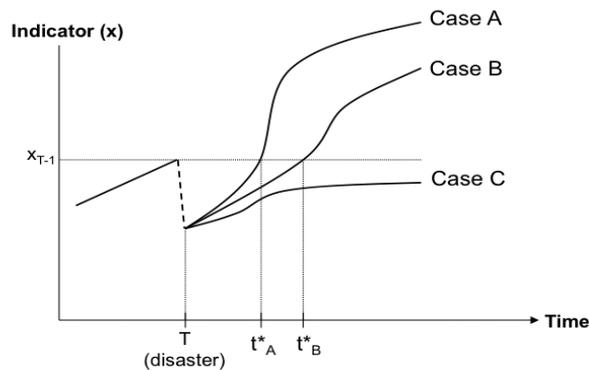
For a given indicator x (say, population) where the last pre-disaster value is x_{T-1} , which will equal the recovery time path

Case A indicates that pre-disaster levels are regained at time t^*A .

In this case, the community exceeds the pre-disaster time path in the course of recovery.

Case B returns to the pre-disaster time path and regains pre-disaster levels of

X at time t^*B . Case C never regains pre-disaster levels of X , even though a new normality is established.



Adapted from Chang, S. (2010). Urban disaster recovery: a measurement framework and its application to the 1995 Kobe earthquake. *Disasters*, 34 (2), , 303-327.

Chang’s three part recovery graph takes into consideration that recovery may not result in the status quo (2010). The same people may not return, new businesses might open and although

the footprint remains the same the mix of the neighborhood might change (Chang, 2010). The indicators that can be tracked using this methodology could include supply indicators that draw from pre-disaster data. Population characteristics, unemployment rates, housing statistics and education levels could be used. Demand indicators can be tracked like construction permit applications, tourism, and hotel reservations that occur after the disaster. Toyoda (2008) argues that there are “direct and indirect costs” (p. 41) to be considered when evaluating economic recovery after a disaster. Direct costs that occur could include destroyed homes and vehicles, which are more obvious than the indirect costs like lack of day care facilities or medical care that can affect a returning workforce. De Sauzmarez (2007) argues that both types of indicators should be monitored to avoid disruption to tourism after a disaster or crisis. Since employment and business in New Orleans rely heavily on tourism, determining preparedness of the local hotel industry to crisis is another factor in creating a sustainable recovery. Lam, Pace, Campanella, LeSage and Arenas (2010) evaluated why businesses in New Orleans reopened after the hurricane by analyzing data from telephone surveys. The surveys were done over a period of time to be able to measure growth and in addition to business questions; they asked why people didn’t re-open. This data will be useful in evaluating the changes in the character and mix of the community.

Disaster Comparison

Literature has been reviewed that compares data about previous disasters that will be used for analysis. The disasters that will be considered include the Greensburg Tornado, the Kobe 1995 Earthquake and the 2004 Indonesian Tsunami. Baade (2007) and Gaddis (2007) provide a comprehensive comparison of economic data related to disaster recovery. Brown &

Saito (2008) consider the social vulnerabilities of recovery. Chang (2010) and Toyoda (2008) have methodology and data finds regarding prior disasters that will be contrasted with the subject community.

Although the argument may not be accepted by all parties, Holy Cross and the Lower Ninth Ward in New Orleans are separated from the city by the Industrial Canal and, as an isolated area, share many of the elements of a small town. For that reason, Bob Berkebile and Stephen Hardy's article in National Civic Review (2010) about the possibilities of rebuilding in Greensburg, KS after a devastating tornado in 2007 becomes relevant to this analysis. The Greensburg Sustainable Comprehensive Plan is based fundamentally on the same principles of the Plan because Bob Berkebile was also a consultant at the Holy Cross meetings. Berkebile (2010) stresses the fact that disaster recovery planning needs to include sustainability to make sense in today's world.

Sustainability

The initial definition of sustainability comes from the Bruntland Report that was delivered to the UN in 1987. Basically it promised the world "social and economic advance to assure human beings a healthy and productive life, but one that did not compromise the ability of future generations to meet their own needs" (World Commission on Development and the Environment, 1987). Sustainability itself represents an obstacle in doing metric based research because "in itself is not a thing and therefore not an absolute quantity to be measured. It changes as an idea based on the perceptions of onlookers" (Mitra, 2003, p. 3). Mitra (2003) reinforces that fact that communities need to define their own definitions of sustainability although there should be recognition of basic principles. This concept is important in this research because the

sustainability goals in the plan for the Lower Ninth Ward may be unique to this community and not be repeated in other disaster areas.

There is a large amount of literature about sustainability including indexes that can be used for measurement. According to Sustainable Measures, a consulting firm that works with state and local government, measureable indicators have to have four components: “relevance, easy to understand, reliable and easy accessibility” (Sustainable Measures, 2011). One of the relevant sources for this paper is by Vehbi and Hoskara (2009) because the subject is the sustainable redevelopment of historic urban areas. The Plan speaks to the subject of preserving the architectural heritage of the community and wants to preserve the character while developing sustainably (HCNA, 2006) Another report uses an indicator based approach with a structure to measure Sustainable Urban Regeneration Performance (Hemphill, Berry, & McGreal , 2004). Although the Hemphill et al. (2004) article is primarily concerning urban renewal, the proposed calculations could easily be adapted to disaster recovery in this case because it breaks the data down into neighborhoods.

There are limitations to the recovery data available for the neighborhood level in New Orleans. The 2010 census numbers at that level will not be available until December 2011. There are discrepancies between the Postal survey, which measures the number of households receiving mail, the American Community Study of 2009 and the preliminary US Census numbers (Lafayette College, 2011). Although the exact numbers may differ, the preliminary 2010 numbers were used in this report. The report will be updated for the CSED when the new numbers are released.

Sustainable Recovery in New Orleans

The Plan is a result of the community planning process after Hurricane Katrina. The author has firsthand knowledge of this process, having actively participated in many sessions. In addition to the Plan developed by community leaders with outside experts, The Unified New Orleans Plan details plans for the Holy Cross and Lower Ninth Ward neighborhood (UNOP, 2006). Robert Olshansky's (2008) history of the process and its failures brings context to the existence of all related planning that can assist the author's comparison and analysis as the subject of sustainability in New Orleans is explored.

Pyles and Cross (2008) explore the social capital involved in the recovery planning in New Orleans. African American residents were surveyed about civic engagement and other issues. Holy Cross is 87.5% African American and the Lower Nine is 98% according to the census data of 2000 (GNOCDC, 2011). The studies referenced by Pyles and Cross (2008) indicate a higher level of engagement than national samples when compared to the Harvard national aggregate survey (Putnam, 2000). The Charter on Community Engagement adopted after the Christ Church earthquake in New Zealand says that "if people perceive that they do not have any influence over outcomes and decisions they will rarely engage and the decisions will not be sustainable". These sources strengthen the evidence that the Lower Ninth Ward residents are directing their own recovery.

HCNA, USCOE et al. (2006), Wang (2008) and Kleinschmidt (2010) are representative of the extensive materials available regarding the restoration of the natural environment within the Lower Ninth Ward spurred by the sustainable planning. The literature supports the concept of sustainability as it describes the reconnection between the community and nature. This

concept was identified in the Plan as a goal and now has been realized by the Bayou Bienvenue project.

The community lacks a formal process to measure indicators that could be used to identify sustainability. They have been unable to get the local energy company to assist with assembling data (D. Malek-Wiley, Personal communication, October 5, 2011). This presents a constraint on this report although it provides opportunities for developing a history of indicators in the future.

Lafayette College in Easton Pennsylvania has been working with the community since 2007. As part of their Economic Empowerment and Global Learning Project, they are developing a model to measure the carbon footprint of the Lower Ninth Ward (Lafayette College, 2011). This is one of the few examples of secondary research for this neighborhood. It is still in draft format but will be considered in the next steps for the Community.

Bringing the plan up to date

Recovery data from New Orleans is available through the Greater New Orleans Community Data Center (Plyer and Ortiz, 2011). It is a central source for demographic and economic information about the city pre and post Katrina. It is a good source for benchmark data to evaluate whether sustainable planning has changed the post Katrina, Holy Cross and Lower Ninth Ward.

Technical reports are available from the city of New Orleans (2008), Sierra Club (2009) and Green Risk Associates (2010) that focus on sustainability, the neighborhood's recovery and comparative recovery data. These reports would not be critical to the research if there were peer

reviewed articles available. There can be a comfort level with the data since the reports were all compiled under academic supervision.

It needs to be recognized that the effects of the sustainable plan are ongoing. Peer reviewed secondary research on the effects of sustainable recovery in the Lower Ninth Ward is not readily available. In order to perform credible primary research, academic sources including Polonsky & Waller (2011) and Stubbs (1978) were consulted to identify acceptable methods of reporting qualitative data.

Comparison, Analysis and Conclusion

The review of the current literature on disaster recovery indicates that is hard to quantify because it is ongoing and because there are concepts involved that aren't easily converted to empirical data. Sustainability is also an elusive subject for empirical data. Measurable indicators can be selected to measure a sustainable recovery as long as they fit the four principles previously named but as previously stated; sustainability is more than metrics, it includes the feeling of well being or quality of life that is experienced at the individual level.

Methodology

The statistical analysis for this project will be based on quantified and qualitative data. Developing a transparent model that the reader can follow and validate will be the first priority. The research is broken into three subject areas.

Disaster Recovery Data

A metric-based comparison will be made between the recovery of the Lower Ninth Ward and Greensburg, KS. The town of Greensburg, KS was totally devastated by a tornado in 2007. The town was chosen to compare with the Lower Ninth Ward because it has also committed to a

sustainable recovery. Greensburg has a significantly lower population than the Lower Ninth Ward but it shared some of the pre-disaster woes that were present in Holy Cross and the Lower Ninth including declining population, income and local business (Greensburg, KS., 2008). The elements that separate the communities are political (in different states), race (each with a significant majority) and culture (rural versus urban). In Greensburg, the sustainability plan is a public planning process supported and adopted by local government. In the Lower Ninth Ward, the Plan does not have any official status yet it serves as a community vehicle to influence local government.

The following tables show indicators that can be used to measure recovery. Based on these indicators, neither community is reaching the status quo of their pre-disaster metrics. In figure 7, Chang's (2010) formula for measuring indicators is sampled using population as an indicator. The diagram could present an argument that the Lower Ninth Ward will be at Case C or a new normality rather than regaining its previous population (Chang, 2010). When the stakeholders were interviewed and asked how many more people were coming back, they were not sure. The undivided consensus was that the population would increase but not necessarily with former residents (personal communications, September 22-30, 2011). It is arguably too early to estimate the population return to Greensburg, KS.

Table 1: Disaster Recovery Indicators Lower Ninth Ward

Indicators	Pre-Disaster (2000)	Post Disaster (2010)	% Difference
Population*	19,515	5,556	-72%
African American	98%	¹	
Holy Cross	5,507	2,714	-51%
Lower Nine	14,008	2,842	-80%
Average Income ²	\$19,938	19,938 ³	0
Housing Units ⁴	7941	3806	-52%
Occupied ⁵	6802	2101	-69%
Occupancy rate ⁶	86%	55%	-31%
Vacant/Blighted ⁷	1139	1705	+33%

Adapted from GNOCDC analysis of U.S. Census Bureau data from Census 2000 SF3 and American Community Survey 2010.*combined Holy Cross and Lower Nine.

¹ 2010 Neighborhood Census material is not available although the city indicates that overall the African American population share of the city has fallen from 65% to 60% since 2005.

² Combined Holy Cross and Lower Nine

³ 2010 Census material at the neighborhood level won't be released until 12/2011. The city income levels and poverty rate fluctuated after Katrina but are now thought to be at the 2000 level adjusted 1% for inflation.

⁴ Combined Holy Cross and Lower Nine

⁵ Combined Holy Cross and Lower Nine

⁶ Combined Holy Cross and Lower Nine

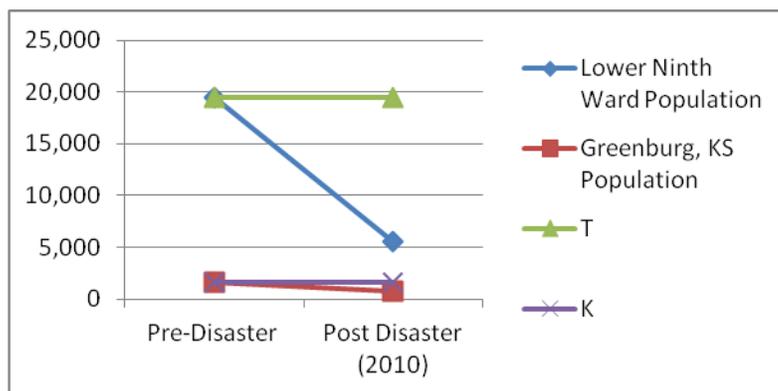
⁷ Combined Holy Cross and Lower Nine

Table 2: Greensburg, KS Disaster Recovery Indicators

Indicators	Pre-Disaster (2007)	Post Disaster (2010)	% Difference
Population	1574	777	-49%
Caucasian	96.5%	91.6%	-4.90%
Average Income	\$28,438	\$36,630	+29%
Housing	887	596	-33%
Occupied	730	409	-44%
Occupancy rate	82%	69%	-13%
Vacant	157	187	+19%

Adapted from the USA. (2011). 2010 US Census Interactive Population Map. Retrieved August 27, 2011, from US Census 2010: <http://2010.census.gov/2010census/popmap/>

Figure 7: Chang's Measurement of Indicators



Adapted from Chang, S. (2010). Urban disaster recovery: a measurement framework and its application to the 1995 Kobe earthquake. *Disasters*, 34 (2), , 303-327.

Sustainability Recovery Indicators

This is the first research project to specifically examine the Plan so it is necessary to gather data from the community in addition to current literature and reports. A Delphi-like approach was used to conduct in depth interviews with community leaders. Open ended questions were developed with feedback from the client. The collective responses to the questions were used as “feedback” to allow the subjects to further explain their views during the interview and subsequent follow-up conversations (Skulmonsky, 2007).

The interviews were conducted in person and by telephone from September 22 to October 7, 2011. Eleven subjects representing the stakeholders were interviewed (See Appendix A for detailed list of interviewees). The subjects were chosen based on their relationship with the implementation of the Plan. Each person was asked the same five questions and allowed to expand as they wished (See Appendix B for summary of responses). Feedback from the responses of the other interviewees was discussed. The interviews were recorded by the author and will be transcribed in the future. The group is by default closely involved in the Plan and committed to the community goals. Attempts were made to interview additional Lower Nine community leaders and political leaders without success.

The indicators that the interviewees saw as being the strongest examples of a sustainable recovery were the number of houses that were made energy efficient and the new houses built by Make it Right and Global Green. The surprise element of the sustainable recovery is the reconnection to nature through the Bayou Bienvenue project. Each subject had their own version of this moment that occurred during the planning process. There was a discussion of creating neighborhood parks; Steve Ringo, a local resident reminded people that there already was a

location for recreation in the Lower Ninth Ward (personal communications, September 23-October 3, 2011). He told the gathering about Bayou Bienvenue, a cypress bayou on the other side of the levee, where as a boy, he used to fish and swim in the 1950's. The response from other residents was What Bayou? (personal communications, September 23-October 3, 2011).

Bayou Bienvenue is today a brackish body of water with dead Cypress trunks. Before the Mississippi River Gulf Outlet was built, the Bayou was an active wetland. Members of the community came away from the planning meeting and wanted to see the Bayou. They had to climb over a metal levee to see the water from the Lower Ninth Ward. Volunteers cleaned brush away from the wall. The community started going to the Bayou. In 2007, Herb Wang and his students from the University of Wisconsin decided to make restoration of the bayou their summer practicum. They came back again in 2008, 2009 and 2010. The University of Colorado at Denver architectural students came down in 2006 to do some planning workshops and returned a year later with designs and lumber. They built a platform and stairs to make access to the Bayou easier. The community holds regular crab boils on the platform. The large tour buses that come to look at the Lower Ninth Ward always stop at the platform. A local resident, John Taylor keeps the grass mowed and watches over the Bayou.

From this connection to nature has come healing according to John Taylor (personal communication, September 27, 2011). It has also brought plans for a Wetland Research Center and tourist activities. The University of Wisconsin students performed a survey with people visiting the platform over a course of 15 days. 191 people visited the site during that time and 67 were willing to respond to the survey. The results of the survey serve to quantify the qualitative thought about whether or not access to the Bayou has improved the quality of life. As you can

see in Figure 8 below, a majority of the visitors were visiting the Bayou for the first time. Figure 9 shows the number of uses per month for various activities. It indicates an increase in use. The purpose of the survey was to determine the cost effectiveness of the platform and projecting for costs associated with maintaining the platform, adding bathrooms and picnic table. The conclusion of the study was that use would increase if amenities were added to the location (Schulz, Hu, Zepeda, Ross & Sieffert, 2010).

Figure 8: First Visit to Bayou

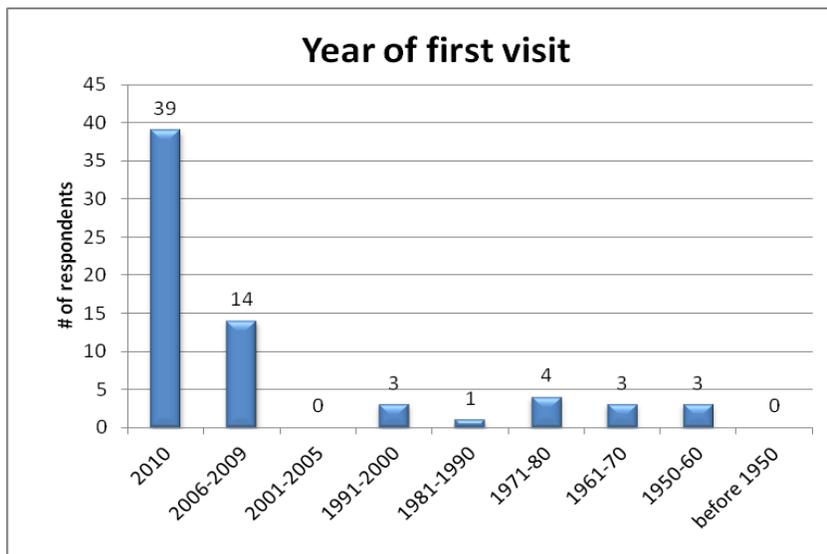


Figure 9: Use of Bayou Study

Uses	Current (monthly)	Future (monthly)	Fold Increase
Picnicking	1.083	111.96	103.38
Boating	0.00	95.50	undefined
Fishing, crabbing & shrimping	24.50	112.16	4.58

Hunting	1.00	2.17	2.17
Walking & hiking	33.08	230.73	6.97
Birding	14.50	83.33	5.75
Recreating & relaxing	36.25	246.19	6.79
Enjoying the view	55.54	295.62	5.32
Other	7.00	12.42	1.77

Figure 8 and 9 adapted from Schulz, K. H. (2010). Use of the Bayou Bienvenue Wetland Triangle in New Orleans, LA, Intercept Survey Report. Madison, WN: University of Wisconsin

Figure 10: Bayou Bienvenue by ladder



Photo by Author, 2007

Figure 11: Platform at Bayou Bienvenue



Photo by Darryl Malek-Wiley, 2009

The before and after photos, of the access over the levee, stem to illustrate that small steps can lead to increasing the sustainability of the neighborhood. The platform increased the accessibility to the bayou for residents of all ages. The survey supports the perception that there will be a greater connection to nature in the neighborhood because of the ease in accessing the bayou using the platform.

SWOTT Analysis

Figure 12 is a list of the strengths, weaknesses, opportunities, threats and trends (SWOTT) that need to be considered in evaluating the Plan. The SWOTT is a common tool used to evaluate businesses that can be easily adapted for use by non profits.

Figure 12: SWOTT Analysis of the Holy Cross and Lower Ninth Ward Sustainable

Recovery Plan

Strengths	Weaknesses
Pam Dashiell’s legacy Strong community support CSED Radiant Barrier Project Bayou Bienvenue	Vacuum left by Pam Dashiell’s death Repopulation of neighborhood is slow Vital services still lacking Proposed industrial development Reliable funding sources
Opportunities	Threats
New Mayor Charles Allen (former HCNA president) Appointed to Mayor’s office Focus on sustainability, energy use, and reducing waste New leadership with green building skills Redevelopment of the Holy Cross School site Urban Farm Tourist Activities Disaster Planning	Hurricane season Economy FEMA running out of money Blight Other disasters Opposition to Wetland Education Center
Trends	
Food security and childhood obesity funding available Workforce development Tourist activities	

Continuing stream of outside volunteers

Strengths

Despite the death of CSED founder, Pam Dashiell, the sustainable recovery in the Lower Ninth Ward continues forward. Pam's legacy of national contacts in the nonprofit world is still helping the recovery. The community meets regularly and to quote Herb Wang, Professor at University of Wisconsin, displays true democracy as they make decisions for their neighborhood. The community continually expresses strong support for the sustainability initiatives of the CSED. The CSED in turn is well managed with a capable experienced staff. The Radiant Barrier project continues during cool weather, employing at risk youth to install the heat barrier in the attics of the Lower Ninth Ward. The Bayou Bienvenue project is reconnecting the neighborhoods to the swamps on their door step has become a tourist attraction and symbol of the Lower Ninth Ward Recovery (Kleinschmidt, 2010).

Weaknesses

Repopulation of New Orleans is slow, at this point 63% of the total population has returned. The inconsistent return of African Americans is most apparent in the Lower Ninth Ward. Fussell, Nasty and Vanlandingham (2010) used the 2006 Displaced New Orleans Residents Pilot Study to estimate the rate of return of residents based on race, education, income and homeownership. The results of this study reveal that African Americans are slower to return, but not as a race; the distinction is whether they were homeowners in heavily flooded areas (Fussell, Nasty & Vanlandingham, 2010). The most heavily flooded areas had African American majorities. Lower Ninth Ward homeowners are still waiting for money from FEMA, the Road Home and insurance proceeds (K. Muse, personal communication, September 27,

2011). The question that was put to community leaders after the standard questions, was how many people do you think will come back now? The answers were about fifty percent, “I don’t know” and fifty percent answered that “no one else is coming back” (personal communication, September 25 to October 7, 2011). Not knowing who is really coming back can put land use planning on hold as the city and the neighborhood grapple with the issue of what to do with blighted properties (T. Nelson, personal communication, September 27, 2011).

Another weakness of the sustainable recovery is that vital services haven’t been restored to the Lower Ninth Ward. Residents responded quickly when asked what services were needed. A fire station, pharmacy or grocery store and restaurants were at the top of the list. Medical emergency response can be over 20 minutes even longer if the St. Claude Bridge is up (W. Banks, personal communication, September 27, 2011). Many of the businesses along the Industrial Canal never came back after Katrina. The community has been proposing a waterfront development with a cultural center, affordable housing and retail. One of the weaknesses is that the City doesn’t listen to the community and is proposing zoning changes that would make more of the Lower Ninth Ward waterfront industrial. The CSED along with other community partners is attending the zoning hearings as an active participant advocating to protect sustainability in the neighborhood.

Although the CSED has been successful in raising enough money to keep going, they don’t have a source of income other than grants and donations. The initial funds came from relief agencies like Mercy Corps. The present funding comes from national foundations that want to support the sustainable recovery. Residents and businesses are still depending on federal grants and tax credits. Since the Katrina disaster in 2005, there have been devastating tornados,

flooding in many parts of the United States and the BP oil spill in the Gulf of Mexico. Recently funding for federal transportation programs was cut to boost disaster recovery grants (Tumulty, 2011). The community will need to consider multiple sources of funding as they plan for the future.

Opportunities

The sustainable recovery has an opportunity to move farther ahead under the new mayor, Mitch Landrieu. He appointed the former president of the Holy Cross Neighborhood Association as his czar of coastal and environmental issues. The city has a new focus on sustainability, energy use, and reducing waste. The CSED hired an executive director with a background in sustainability and green building. Her background and experience will be a benefit to the community.

Local developers are proposing to build a grocery store, affordable housing and a community center on the site of the old Holy Cross School. The CSED has proposed an urban farm be part of the development. This is an opportunity to build LEED qualified commercial buildings in a neighborhood that is without services and jobs.

The CSED has entered into a coalition with environmental and civic groups to promote the Multiple Lines of Defense (MLOD). The coalition is promoting restoring the natural hurricane barriers including the barrier islands, cypress swamps and wetlands (Lopez, 2011). One of the goals of the CSED is to get the community in touch with the water surrounding their neighborhood. Pre-Katrina, many residents were unaware that the bayou was so close because their neighborhood was enclosed by levees (John Taylor, personal communication, September 27, 2011).

The City of New Orleans is putting in bicycle paths which may lead to more tourist exposure to Bayou Bienvenue and the Chalmette Battlefield (Darryl Malek-Wiley, personal communication, September 26, 2011).

Threats

Hurricane season remains a number one threat. The CSED is working on neighborhood disaster plans. Their motto is that no one will be left behind this time (W. Banks, personal communication, September 27, 2011). As a precaution, the CSED participated in a disaster business recovery study. The national economic crisis hasn't affected New Orleans but there is always the threat if the national picture gets worse. Congressional fights over FEMA hasn't helped the cause either, there are still people in New Orleans waiting for federal money. Urban blight is a threat to neighborhood security. Although the census only shows a 19% increase in vacant houses, there are reportedly considerably more because the census counts a house if it isn't open to the elements so a boarded up house might be counted as occupied (Plyer, 2011).

The CSED is promoting a Wetlands Education Center to be built next to the Bayou on Florida and Caffin Streets. Members of the community have expressed concern about the project. They are concerned about the increased traffic, noise and activity that the center could bring. This will require further education from the CSED as the staff sees this center as an opportunity to control the tour buses that roll through without directly benefiting the community. Kathy Muse indicated that she will go door to door if need be to get approval from the immediate neighbors (personal communication, September 27, 2011).

The Green Risk Associates, a student group from The Disaster Resilience and Leadership Academy at the Payson Center for International Development at Tulane University recently performed a Business and Disaster Impact Assessment for the CSED. Based on interviews of staff and board members, they required that “CSED staff and board members rate perceived Probability of Loss, Political Sensitivity, Financial Costs and Degree of Impact to the CSED’s mission variables for each asset on a scale of 1 - 5 (1 = highest, 5 = lowest)” (Green Risk Associates, 2011). As indicated in Table 3, financial risk is recognized by the staff as the highest potential impact to the organization.

Table 3: CSED Self Defined Threat Index

Asset Type	Probability of Loss	Political Sensitivity	Financial Costs	Degree of Impact
Project Assets	2.93	3.29	2.75	2.88
Office Assets	2.9	2.9	2.55	2.4
Financial Assets	2.25	1.75	1.75	2.0
Knowledge-Based Assets	3.0	3.5	4.0	2.25

1 = highest ; 5 = lowest
 Table adapted from Green Risk Associates. (2011). Business and Disaster Impact Study. New Orleans, LA: Payson Center, Tulane University.

Trends

The CSED is planning for the future. They have recognized that there is funding available to work on food security and childhood obesity that is in character with working to get

a grocery store and an urban farm. Workforce development is part of the sustainable package that the Plan promises. Economic development is being promoted to increase future tourist activities at Bayou Bienvenue through the Wetland Education Center. The CSED continues to keep the community engaged and involved to continue developing sustainability in the neighborhood. They are also reaching out to help other city neighborhoods become more sustainable (Tracy Nelson, personal communication, September 27, 2011). In the meantime, they are taking advantage of the stream of volunteers that continue to come to help homeowners rebuild.

Stakeholder Analysis

The information provided in the Stakeholder list is the result of personal interviews held with representatives of the stakeholders from September 23 to October 7, 2011. Information that wasn't obtained in an interview, was obtained from the organization's websites.

With the Plan in hand, the community has been able to get assistance from a variety of sources that were attracted by a neighborhood that faced high crime rates and urban blight before it was destroyed, yet wanted to rebuild it stronger and more sustainably (T. Nelson, personal communication, September 27, 2011). The pledge to sustainability and a carbon free future attracted International aid agencies Mercy Corps, Global Green and actor Brad Pitt to the Lower Ninth Ward (T. Nelson, Personal communication, September 27, 2011). During the planning process, environmental experts, planners and architects worked alongside with community members as engaged peers which indicates the level of commitment to sustainability from all of

the community from the start (HCNA, 2006). The figure below describes a sample of the stakeholder groups and their connection to the Plan⁸.

Figure 13: Stakeholders in Holy Cross and Lower Nine Sustainability Plan

Stakeholders	Impact	Plan’s Impact	Priorities
Lower Nine Community Residents	Participated in planning process. Made commitment to build sustainably.	Providing opportunities that might not have occurred.	Rebuilding homes, pharmacy, grocery store, better transportation, neighborhood schools
Holy Cross Neighborhood Association Help holycross.com Lower Ninth Ward Center for Sustainable Engagement and Development (CSED)	Spearheaded the creation of the sustainability plan and founded the CSED.	Community support, International attention, neighborhood advocacy, volunteers, education, community gardens	Community Rebuilding Public Safety Schools Grocery Store Bayou Bienvenue
Preservation Resource Center Prco.com	Dedicated to preserving the historical housing stock in New Orleans	The Plan advocates protecting the historical housing stock in the Lower Ninth Ward.	Selling houses that have been rebuilt to residents. Preserving the community

⁸ A complete list of the original participants in the Plan is located on pages 2-3 in the Holy Cross and Lower Ninth Ward Sustainable Restoration Plan located at <http://davidrmacaulay.typepad.com/SustainableRestorationPlan.pdf>.

Stakeholders	Impact	Plan's Impact	Priorities
Mercy Corps Mercycorps.org	Provided the seed money to start the CSED.	The Plan gave outside agencies incentives to help the community.	First responder, is no longer active in the community
Sierra Club Sierraclub.org	Providing a full time Environment Justice Organizer.	The Plan gave an opportunity to help.	Sustainable rebuilding Community organization
Global Green Globalgreen.org	Held international design contest for sustainable model home to be built in Holy Cross. Building five energy efficient homes and a Community Center/Climate Action Center.	Global Green was attracted by the plan. They opened an office in New Orleans. They continue to do work with the community, doing energy testing, workforce training and promoting sustainable rebuilding.	Education Energy efficiency Policy advocates
Make It Right Makeitright.com	Brad Pitt's commitment to build energy efficient raised houses in the Lower Nine. Fifty houses have been completed.	Brad was initially interested in the Plan. While working with Global Green, He decided to build his own neighborhood ⁹	Help people rebuild, safe and sustainable
Gulf Restoration Network Healthygulf.org	Partnered to close the MRGO. Supporting natural restoration of wetlands.	Brought national attention to the destruction of storm suppressing wetlands.	Rebuild wetlands to restore coast.

⁹ Brad Pitt founded his own foundation to help homeowners in the Lower Ninth Ward. He offers them houses built sustainably which includes hurricane and flooding safety as well as green building materials. This project serves former residents who want to come back to the Lower Ninth Ward. The homeowners have to qualify for the project and use their own resources as a down payment. This differs from the Global Green project that is a showcase for green building on a smaller scale. Global Green has built four green houses and is planning to build a neighborhood center. The houses serve as education tools and are for sale to the general market.

Stakeholders	Impact	Plan’s Impact	Priorities
The City of New Orleans Civic government.	The City created a Strategy for a Sustainable New Orleans in 2009 that reinforces principles in the Plan.	The example of the Plan and the results of the plan will be used to help other neighborhoods recover sustainably	Repopulating Economic Development Lower crime Healthy neighborhoods
Universities	Bayou Bienvenue Disaster Planning Assistance Historic Green Spring Break Carbon Footprint Study Race and Place Study	The Plan and its community attracts academic research	Using the Katrina laboratory for research
Foundations	Providing the cash flow to keep the doors open	Gives the Foundations goals that they can help achieve.	Meaningful Money well spent Changing lives
Volunteers	Providing the labor to keep projects going.	Attracts people who are dedicated to sustainability and want to help.	Meaningful projects that help people and improve the quality of life in the Lower Ninth Ward

The list of stakeholders further indicates how the Sustainability Plan has assisted the neighborhood’s recovery. The assistance is beyond the basics of governmental disaster aid. National NGOs, Universities and even Hollywood notables recognized that the neighborhood was willing to look further in the future, to use sustainability principles to recover stronger in order to preserve their neighborhood for the next generation.

Business Model Canvas

The business model canvas (Figure 13) as described by Osterwalder and Pigneur (2010) can be used as a tool to examine the way that businesses operate. The model is an opportunity to explore the status quo, the stories and the rules under which a business operates. In this case, the

business under consideration is a plan for a neighborhood recovery based on a sustainability plan¹⁰.

The business model canvas for the Plan contains nine building blocks. The blocks represent how a business makes money or in this case, the Plan creates value for its customers (Osterwalder & Pigneur, 2010). The Plan is concerned with four elements: Urban Design and the Built Environment, Economy, Environment and Quality of life.

Key Partners

The Plan was developed by a coalition of partners that include the community, local non profits, environmental advocacy groups, academics specializing in urban recovery, government leaders and industry representatives. The CSED was created to continue the interface between all of the key partners.

Key Activities

The key activities or what is needed to make the Plan work starts with the first need of the Plan which is to educate the community about sustainability. The next step is advocating for a recovery based on sustainable principles. The third step is to empower local residents to be committed to the sustainable recovery. The last is to facilitate volunteer labor and national attention on the recovery for the benefit of the community. The CSED acts as a clearinghouse of information and active advocacy with outside parties including coordinating national media

¹⁰ The Lower 9th Ward Center for Sustainable Engagement and Development (CSED) is a 501C3 nonprofit that was created after the plan. Although leaders from other groups attended the planning sessions that developed the plan, the CSED is recognized as the vehicle to carry out the Plan. An analysis of the implementation of the plan relies on the activities of the CSED.

and volunteers. Per Warrenetta Banks (personal communication, September 27, 2011) volunteer coordinator, there have been over 41,000 volunteer hours logged in the last five years.

Key Resources

The key resources that the Plan has are the brand of the CSED, Bayou Bienvenue, experienced staff and committed leadership, a central presence in the community and the Plan itself. The former executive director, Pam Dashiell established the brand of the CSED with her national and international travels after Katrina. Bayou Bienvenue is a restoration project that captures people's imagination and attention to the community including visits from foreign dignitaries. The current staff is experienced and focused on sustainability. The sustainability plan is a key resource and continues to guide the CSED.

Value Propositions

What does the plan give its customers? How does it create value? The answer to these questions are that they receive guidance for a sustainable recovery, a centralized office that provides volunteer help, tools and grants to help them rebuild with energy efficiency and through the Bayou Bienvenue project, a reconnection to nature. The value that the community receives is a common framework that is making their neighborhood a better place to live.

Customer Relationships

The CSED creates its customer relationships using hands on assistance, providing reliable information, encouraging community and helping their customers create their own value.

Customer Segments

There may be an assumption that the customer would be the community resident but in reality, the Plan benefits the whole city by being an example for other neighborhoods (C. Allen,

personal communication, September 28, 2011). City and local leadership collaborate with the CSED for mutual benefit. The success of the CSED and attention that it receives in national media is a plus for the city. The plan provides opportunities for non profits and foundations to do good work. Academics use the community and its plan as a testing laboratory. All of these segments keep the momentum of the Plan going forward which continues to benefit the residents.

Channels

The CSED is regularly represented at neighborhood meetings and sends out a newsletter weekly. If an issue warrants it, CSED staff will even go door to door to be sure that residents understand that they need to weigh in (K. Muse, personal communication, September 27, 2011). The CSED brings in outside experts to educate residents on sustainability issues. Most communication is done in person, face to face.

Cost Structure

The CSED is run on a very small budget with about six paid staff members. The website is maintained and funded by a volunteer in Kansas City, Mo. Companies including Sprint, Sharp Solar, and Home Depot have donated employee time and materials to help the CSED. Volunteers fill many crucial roles. The community participates in cooperative buying for energy efficient materials. The Bayou Bienvenue project has been submitted to the US Army Corps of Engineers as a possible federal project, it is estimated that it will cost 1.4 million to complete (H. Wang, personal communication, September 23, 2011). The project includes developing a Wetlands Education Center.

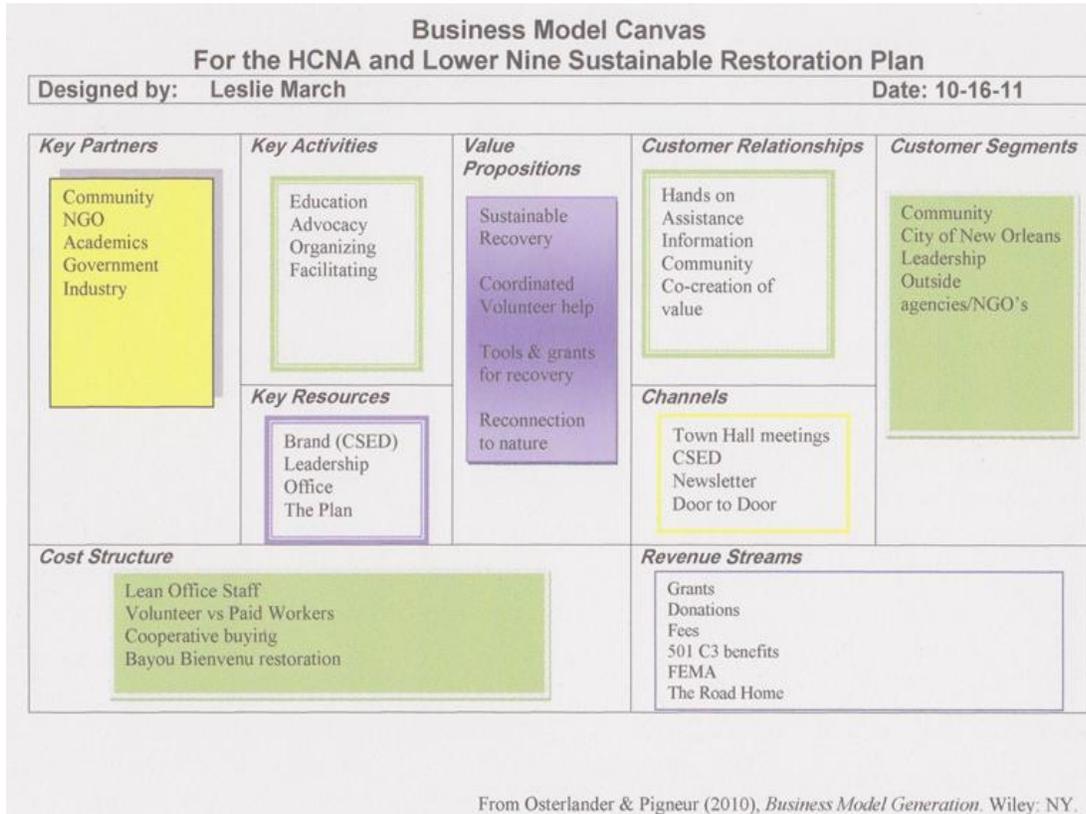
Revenue Streams

When the sustainability plan was developed, it contained ideas for improving local infrastructure and business but it didn't include a blue print for creating a revenue stream. The CSED receives its money from donations and grants. They recently became a 501c3. Previously the money had to be funneled through other organizations. The CSED will not have to pay administrative fees and will be controlling their own funds. Although the CSED is guided by all of the elements of the plan, it is not an economic development body. The CSED is dependent on outside agencies for revenue.

Analysis

The CSED is the implementation arm of the Plan. In reviewing this business model canvas, it becomes apparent that the CSED tries to represent the community for all aspects of sustainability. They have been most successful in the areas of neighborhood advocacy, rebuilding energy efficient and reconnecting the Bayou to the neighborhood. This is also the opinion of the new CSED executive director, who is trying to focus on a few things well done rather than trying to solve everything (T. Nelson, personal communication. September 27, 2011).

Figure 14: Business Model



Sustainability Report

Mission Statement

The mission of the CSED, the implementation agency of the Plan, is to stimulate civic engagement, repopulate, sustain natural systems, assist community leadership and preserve resources in the Lower 9th Ward neighborhoods (CSED, 2006).

Sustainability Vision Statement

The Lower Ninth Ward will rise up from disaster like a Phoenix but with a purpose to rebuild smarter and stronger. The Lower Ninth Ward Center for Sustainable and Environmental Development (CSED) will be empowered to lead the community into a new era where the residents of the Lower Ninth Ward are no longer forgotten. They will become the leaders in New Orleans' redevelopment. The goal of the CSED is the re-creation and repopulation of a strong community, mindful of its resources and vulnerabilities, with an engaged citizenry that is active, resilient, prosperous, energy independent and beautiful as possible (CSED, 2011).

The Plan

The Plan is not an organized plan in a recognized format. The 48 page document consists of lists of recommendations that the planners recognized would make their neighborhood recovery more sustainable. The highlights of each section are presented below with a synopsis of achievements made to date and proposed next steps.

Sustainability Goal 1. Urban Design and the Built Environment

The Plan outlines extensive recommendations that were representative of the time and place that it was created. The residents wanted to encourage people to rebuild in the higher parts

of the Lower Ninth Ward. They wanted to preserve the historical architecture and rebuild with compatible designs.

Achievements:

- Founded the Lower Ninth Ward Center for Sustainable Engagement and Development
- Created network to contact displaced residents
- Engaged members to represent the neighborhoods at government meetings
- Levee protection enhanced
- Major redesign of storm sewers
- Surge barrier at MRGO stronger than pre Katrina
- Successfully sued the US Army Corps of Engineers to require full Environmental Impact Statement for widening of the Industrial Canal
- Helped homeowners successfully apply for historical restoration grants
- Worked with Preservation Resource Center to protect historical homes
- Worked with the Green Project and Mercy Corps to deconstruct houses
- Helped establish two community gardens and a weekly farmer's market
- Educate residents about food security
- Collaborate with police to prevent drug trafficking and squatters
- Bike and pedestrian path on levee

Next Steps:

- Expand engagement for sustainability within the Lower Ninth Ward beyond the Holy Cross footprint.
- Watchdog Mayor's zoning process to provide for sustainable uses

- Develop neighborhood plan for new commercial areas
- Continue to advocate for better infrastructure including street lights
- Continue advocating for new construction compatible with historical housing built with energy efficiency and green building materials.
- Advocate for pre-Katrina residents to have first right of refusal for properties sold in the Lower Ninth Ward
- Develop a historical district between St. Claude and Claiborne streets
- Work with the city for neighborhood covenant against blight.
- Continue to hold the United States Army Corp of Engineers responsible for building effective levees.

Sustainability Goal 2. Economy

The Plan discussed a four point strategy acquired from a session with the Rocky Mountain Institute: plug the leaks in the economy, help existing businesses grow, find new local business opportunities and recruit outside firms (CSED, 2006, p. 20)

Achievements:

- Neighborhood Empowerment Network (NENA, one of the original partners in the plan) developed a small business support center
- Provided workforce training through the LA Greencorps Program
- Supports local rebuilding centers
- Developed a local farmers market
- Attracted more than 1,000 volunteers/tourists in the last five years

Next Steps:

- Continue to work to attract businesses that are needed in the community
- Grocery store, restaurants, pharmacy, banks are all needed
- Work with the City to encourage economic development
- Assist the community in vetting development proposals for the old Holy Cross School
- Develop an urban farm
- Work with the US Army Corps of Engineers to obtain funding for the Bayou Bienvenue restoration. Require that Lower Ninth Ward residents receive priority for hiring and contracts.
- Develop the Wetlands Resource Center
- Work to develop a trail from downtown New Orleans to the Chalmette Battlefield
- Get the properties adjoining Bayou Bienvenue added to the Jean Lafitte National Park

Sustainability Goal 3. Environment.

Energy efficiency and renewable energy were the top topics. In this section, the community pledged to reduce their carbon footprint in ten years. They wanted to preserve open space and plant shade trees. The Bayou Bienvenue project was born at one of the sessions when a resident started talking about fishing in the bayou and was greeted with disbelief from many residents who didn't even know there was a bayou beyond that levee (J. Taylor, personal communication, 2011).

Achievements:

- Weatherized 24 homes
- Installed radiant barrier in 100 homes
- Developed community cooperative to buy energy efficient materials

- Worked with Greenlight New Orleans to switch hundreds of light bulbs for compact fluorescents
- Collaborated with university and community partners to construct the platform on Bayou Bienvenue.
- Collaborated with Global Green to sponsor an international design contest for the first LEED residential house in the Lower Ninth Ward.
- Provided hours of education on green building for residents.
- Coordinated the installation of solar panels in 11 homes & NENA.
- Collaborated with the Green Zone Taskforce to get curbside recycling reinstated
- Partnering with local organizations on the MLODS.
- Green Historic Spring Break brought hundreds of volunteers in for the last four years
- Serves as a local, national and international model of bottom-up sustainable rebuilding post-disaster.

Next Steps:

- Tool rental and materials storage facility
- Continuing to educate and guide residents in green building
- Continue to advance with Bayou Bienvenue projects
- Realizing the vision of community sized power

Sustainability: Goal4: Quality of Life

The major concerns for this goal were public safety, closing the Mississippi River Gulf Outlet, recreation, improved transit options, improved public health and good schools. Many of

the goals listed in this section were covered in other sections. This list is only the items not previously covered.

Achievements:

- Neighborhood Watch
- Worked in coalition to close the Mississippi River Gulf Outlet (MRGO)
- Enhanced the top of the levee with benches and streetlights
- Supported neighborhood school reopening
- Free swimming lessons.

Next Steps:

- Neighborhood town hall and meeting center
- Medical facilities
- Fire House
- Better mobility for residents
- Make the St. Claude bridge safer for pedestrians and bicycles

Next Steps for the Plan

The Plan, a compendium of wish lists duly recorded in hotel rooms and churches does not resemble a polished sustainability plan put together by corporate marketing. Instead it lays out the hopes and dreams for a better neighborhood. The word sustainable was not in most resident's vocabulary when they started this process (W. Banks, personal communication, September 27, 2011). After five years of the CSED being active in the community, terms like sustainability, energy efficiency, walk-able streets, and bike safety are commonly discussed.

The mission of the CSED is succeeding as they move on to their sixth year of recovery. The current focus of the CSED has narrowed to green building and workforce development, the radiant barrier project and advocating for the MLODS project to help residents connect the Bayou to the neighborhoods. The original plan looked for more civic engagement in issues like economic development, education, public safety and public services. It appears that the support for these policy issues would be better served if diversified across the neighborhood groups.

The CSED is viewed by some residents as a project of the Holy Cross Neighborhood Association rather than of the entire Lower Ninth Ward. A future step in progress is to move the office to a central location. In the meantime, there is ongoing outreach to all of the residents of the Lower Ninth Ward (T. Nelson, personal communication, September 27, 2011).

The Plan has many working parts and ideas within it. In order to assist the CSED and the neighborhood associations in planning for the next five years, the suggestion would be to take the time to evaluate the original recommendations based on whether five years later they are still relevant. This evaluation should be done by representation from all of the Lower Ninth Ward. One of the elements that are most important in a sustainable recovery is citizen participation (Berkebile, 2008, Honjo, 2011, Mitra, 2003). The community might want to use a tool like the Business Model Canvas in this report to work out the goals for the next five years.

There may be a benefit to the community if it was to consider taking one of the recommendations that hasn't been fulfilled one step further as a priority for the immediate future. It was recommended by the community that the city needed to set up a neighborhood town hall. A model program is the Seattle Department of Neighborhoods. Each community or planning district would have its own office and an appointed representative, whose responsibility would

be to act as a liason between the neighborhood and the city (Seattle.Gov, 2011). If the city is unwilling to make this happen, the community could set up their own neighborhood council made up of local non profits, churches and business owners. The council could open their own office to help residents with public safety, economic development, education and infrastructure issues.

One of the limitations on this report is that there isn't a provision in the plan to measure the success or failure of the actions taken to fulfill the expectations of the Plan. The Lafayette College carbon foot print project is setting up measurable indicators to determine whether the community will meet its zero foot print goal (Lafayette College, 2011). In addition to greenhouse gas emissions, there is many other indicator of sustainability that can be measured. A recommendation would be to use a version of the Boston Indicators Project. The indicators selected for the project were intended to:

1. Provide information to assist with community planning and problem-solving.
2. Build relationships across traditional boundaries: sectors, races, neighborhoods, generations, levels of government, and between Boston and its metropolitan neighbors
3. Tell the story of Boston's successes and challenges in ways un-observed by conventional measures, so that problems can be assessed within the context of our social, economic and environmental assets.
4. Market Boston not only to newcomers but to Bostonians, who, with the help of the media, tend to see our glass as only half full when we compare ourselves with other cities and regions. (adapted from Parris, 2003, pp. 570-71)

The city of Boston has arguably more resources to collect information than the Lower Ninth Ward in New Orleans but the indicators the city chooses to measure are relevant to this community: Civic Vitality, Cultural Life and the Arts, Economy, Education, Environment & Energy, Health, Housing, Public Safety, Technology, and Transportation (Boston Indicators Project, 2011). As the community moves away from a recovery mode and into developing

sustainability, the ability to be able to show the historical progress through metrics will be a valuable tool to show that the principles developed in 2006 are working. It could also help create a compelling story that the community can use to support future requests for private and federal funding.

How can these indicators be measured? Many of them can come from US Census reports, the office of Health and Hospitals or New Orleans city services. Indicators like Civic Vitality, Cultural Life and the Arts Environment & Energy could become part of volunteer activities like Historic Green. Students or Seniors could collect information from residents like their pre and post weatherization utility bills and compile them. This might actually add another dimension to volunteering because people who aren't physically able to rebuild houses could still contribute.

Conclusion

The Holy Cross and Lower Ninth Ward Sustainable Restoration Plan was developed as an answer to planners that were willing to write the neighborhood off with green dots. In five years, the Plan and its implementation arm, the CSED are still determined to create a sustainable recovery in the Lower Ninth Ward of New Orleans. Population recovery has been slow but outside help keeps coming. The historical character of Holy Cross is living side by side with modern solar panels. The neighborhood suffered a loss when it lost Pam Dashiell but there are strong people continuing her vision. The Bayou Bienvenue platform creates a vision of what quality of life can be if you develop sustainably. The community is poised to work with the original plan to carry on the work past recovery. Next steps and suggestions for developing

measurable indicators are offered to continue the vibrant sustainable recovery happening in the Lower Ninth Ward.

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Appendix A: Interviewees

Name	Relationship	Expert
Darryl Malek-Wiley	Sierra Club Environmental Justice and Secretary of CSED Board	Environmental Justice Green Building
Charles Allen	Head of Mayors Coastal and Environmental Office Former Board member of HCNA and CSED	Former job at Tulane/Xavier Bioenvironmental Research Center
Herb Wang	Nelson Environmental Science Center. University of Wisconsin	Geophysicist
Lauren Craig	University of Nevada at Reno (former student of Herb Wang)	Worked on Bayou Bienvenue project in Graduate School
Tracy Nelson	Executive director of CSED	Masters in Sustainability
Warrenetta Banks	Volunteer coordinator for CSED	Former civil service Resident of Lower Nine
Kathy Muse	Energy efficiency coordinator for CSED	Former civil service Resident of Lower Nine
Casey DeMoss Roberts	Director of the Alliance for Affordable Energy	MS Public Health
Aaron Viles	Campaign Director, The Gulf Restoration Network	Coastal environmental issues organizer.

Laura Paul	Director for Lowernine.org	Works with volunteers and contractors rebuilding in Lower Nine
John Taylor	Caretaker for Bayou Bienvenue platform	Retired civil servant.

Appendix B: Interview Questions

Questions	Key responses
How has the sustainable restoration plan influenced the recovery in the Lower Ninth Ward?	Without the plan, there wouldn't have been the same level of outside response.
What examples can you give of recovery projects that wouldn't have happened without the plan?	Global Green's houses, the Make it Right houses, the Radiant Barrier project, Historic Green Spring Break, Bayou Bienvenue and the bike path.
Looking at the level of the recovery, has the sustainable plan increased the ability to recover or do you think the recovery would have proceeded at the same pace without the plan?	Definitely increased the ability to recover.
Do you think that the sustainability plan comes from outside sources or is the local community actively involved?	The local community is involved, they know what sustainable means and they like the fact that energy efficiency is saving them money.
Looking to the future, what so you think are the next steps?	More houses weatherized The Wetlands Education Center Bike Path from the City to the Chalmette Battlefield Grocery Store/Pharmacy Urban Farm Community sized power unit

