

**Can We Rebuild Less Vulnerable Communities After a Disaster? The Case of Holy
Cross, New Orleans**

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Abstract

Resiliency is the capacity to adjust to threats and mitigate or avoid harm; it can be found in hazard-resistant buildings or adaptive social systems (Pelling, 2003). Hence, it can also be understood as the ability to rebuild a neighbourhood with stronger and more viable components. Almost four years after Hurricane Katrina, New Orleans is seen as an open laboratory in which the level of resiliency of its communities can be examined. The rebuilding status of its neighbourhoods widely differs from one to another. The historic district of Holy Cross is one of the oldest neighbourhoods in the city; this vulnerable community is known for its cultural heritage, apparent not only in its unique architecture but also its social relations. This research investigates the current process of rebuilding a more sustainable and resilient Holy Cross by assessing the efficiency of stakeholders involved in the reconstruction of affordable opportunities that work to encourage former residents to return. It also demonstrates the current efforts to build new sustainable projects while keeping the patrimonial style of the neighbourhood.

Keywords: natural hazards, sustainability, vulnerability, resilience, recovery, reconstruction, community, heritage, green technologies.

Résumé

La résilience est la capacité à s'adapter aux menaces et à atténuer ou éviter un risque, elle peut être trouvée dans des bâtiments résistant aux dangers ou dans des systèmes sociaux adaptables (Pelling, 2003). Par conséquent, ce concept peut aussi être compris comme la capacité de reconstruire un quartier avec des composants plus solides et plus viables. Presque quatre ans après l'ouragan Katrina, la Nouvelle-Orléans est considérée comme un laboratoire à ciel ouvert. Le niveau de résilience de ses communautés peut y être examiné. L'état actuel de la reconstitution de ses quartiers diffère largement des uns aux autres. L'arrondissement historique de Holy Cross est l'un des plus vieux quartiers de la ville, cette communauté vulnérable est connue pour son patrimoine culturel, apparent non seulement dans son architecture unique, mais aussi ses relations sociales. Un des principaux défis de la reconstruction du quartier de Holy Cross est de trouver une façon de concilier la préservation du patrimoine bâti et de son tissu urbain ancien avec de nouveaux plans de développement, afin de créer une communauté durable. Cette étude examine les rôles des acteurs impliqués dans le processus de reconstruction et leur efficacité sur la création d'un Holy Cross plus durable, résistant et abordable, afin d'encourager le retour de ses résidents. Elle présente également les efforts actuels pour proposer des projets de reconstruction durables tout en préservant le caractère patrimonial du quartier.

Mots-clés : catastrophes naturelles, durabilité, vulnérabilité, résilience, rétablissement, reconstruction, communautés, héritage, technologies vertes.

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Introduction

The Industrial Era brought many advantages for humanity but also marked an important breakage of the symbiotic relationship between man and nature. While our ancestors had to adapt to nature, the modern man obtained enough power to mould nature to meet his needs. From that time on, important technological advancements were introduced to the world virtually every day. The new technologies came to stay, moulding territories and making distances closer, curing diseases, facilitating and extending the life of the human being. But all this comfort came at a high cost; the more the technology advanced, the more the planet suffered the consequences. Pollution, devastation of forests, extinction of several species and, more recently, climate change, are just a few of the countless impacts of the Industrial Revolution. Since then, what we have been producing to exist is also what has been consuming us. Fortunately, mankind is finally becoming aware of how its own evolution has affected the planet and consequently its life, and has been trying to take actions in order to reverse the damage and build a proper environment for future generations. Progress now means getting back in touch with nature by developing technologies that respect and preserve natural resources and protect cultural heritage.

Later studies demonstrate a well-established connection between the recent changes in the world's climate and the increasing occurrences of natural disasters. The effects of climate change affect not only the physical but also the social and cultural aspects of society. Therefore, providing today's society as well as the future generations with safe

and durable urban infrastructure has never been more important. The concept of adaptation ¹ to climate change must be incorporated into our cities, preventing the emission of greenhouse gases through new planning strategies and architectural technologies.

Adaptation has the potential to reduce adverse effects of climate change and can often produce immediate ancillary benefits, but will not prevent all damages... They further observe that ‘...well-founded actions to adapt to... climate change are more effective, and in some circumstances may be cheaper, if taken earlier rather than later (IPCC, 2001).

However, the increased number of recorded natural disasters cannot be blamed on climate change alone. In fact, the scientific community has come to the consensus that natural disasters are, in fact, not entirely “natural” events, but a result of the interaction between biophysical systems, human systems, and their produced environment (Peacock, Kunreuther, Hooke, Cutter, Chang, & Berke, 2008). New technologies and poor political decisions have also contributed to the development of disaster-prone sites. The rapid growth of major urban centres in coastal regions, the expansion of settlements into vulnerable areas, and the failure of authorities to police building regulations and standards are also to blame for the increasing incidences of natural disasters in recent decades. Hence, the way mankind correlates with the surrounding environment plays an important role in preventing or facilitating disasters.

¹ Adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities - Glossary of climate change acronyms (http://unfccc.int/essential_background/glossary/items/3666.php)

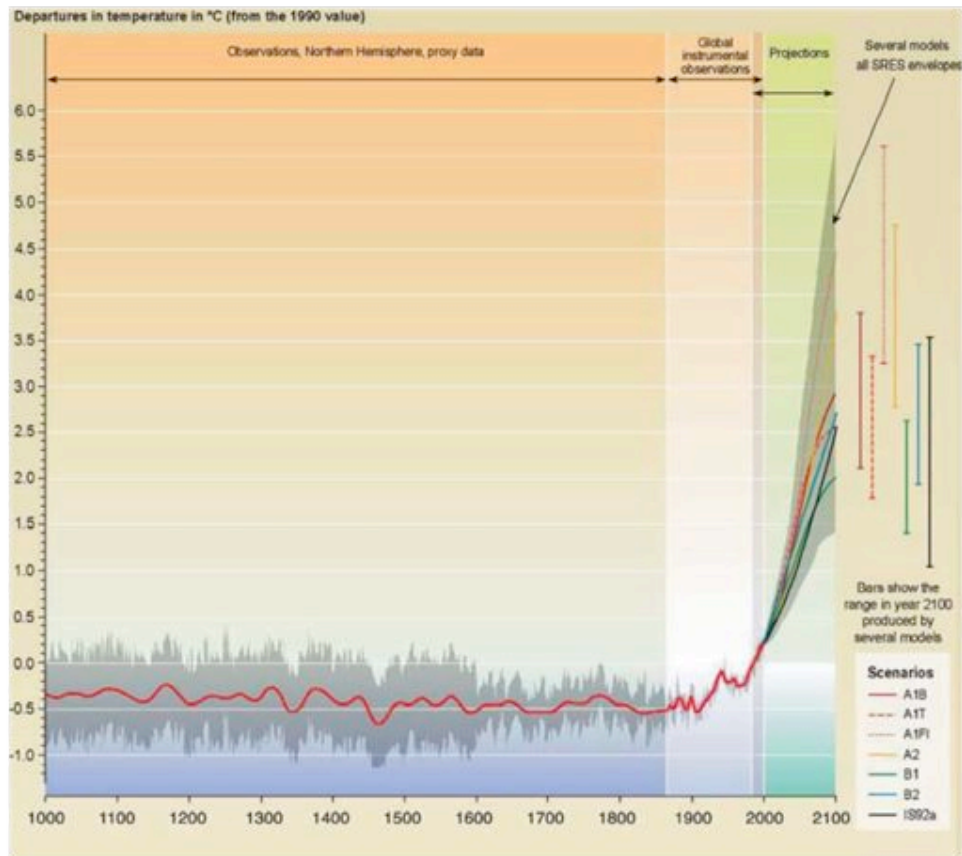


Figure 1: Variations of the Earth's surface temperature: years 1000 to 2100.

Source: IPCC, 2001

It is indisputable that climate change influences the basic elements of life, including access to water, food production, health and environment. But over the last two decades, another growing concern has emerged on the international agenda: the potential impacts of climate change and natural disasters on the world's cultural and natural heritage². According to the UNESCO World Heritage Centre (2007), the built cultural world heritage will suffer the consequences of climate change in at least two principal ways: (1) the direct physical effects of the harsh weather conditions on the buildings or structures, and (2) the consequences it will bring on social structures and habitats, potentially leading to changes or even the migration of the societies that are currently maintaining the sites. According to a survey applied by the World Heritage Centre at the *World Heritage Convention*³ in 2005, among all of the 83 state parties, 72% acknowledged that climate change had already impacted their cultural patrimony. The reason for such alarming results is that the stability of the cultural heritage is closely tied to its relationship with the ground and the atmosphere; the urban landscape and a place's constructed heritage are deeply rooted to their site and they have been designed with the local climate in mind. However, it is important to emphasize that the cultural heritage is not only perceived through the built environment, but also reflected in elements of human creativity such as literature, arts, music, traditional customs, rituals, and even the objects of everyday use. Therefore, any alterations in this complex chain of elements will result in physical, social and cultural impacts, since it is impossible to detach any of the

²The term 'heritage' covers all that we, as a society, value today and wish to pass on to future generations.

³ "The issue of the impacts of climate change on World Heritage natural and cultural properties was brought to the attention of the 29th session of the World Heritage Committee in 2005 by a group of concerned organizations and individuals. The World Heritage Committee requested the World Heritage Centre of UNESCO, in collaboration with the Advisory Bodies (IUCN, ICOMOS and ICCROM), interested States Parties and the petitioners who had drawn the attention of the Committee to this issue, to convene a broad working group of experts on the impacts of Climate Change on World Heritage" (Retrieved in May, 2009 from: <http://whc.unesco.org/en/climatechange>).

components of cultural heritage. In their 2009 climate change report, UNESCO recalls the challenges of managing World Heritage sites with the emergence of climate change: “For those sites (affected by climate change) management strategies will have to account for these additional sources of stress in the future”(UNESCO, 2009).

Within this context, this study will attempt to demonstrate the impacts of climate threats on vulnerable historic sites and the challenges of preserving the cultural heritage of a place while adapting it to new “ green” technologies. Therefore, the scenario chosen to exemplify such complex circumstances is one of the neighbourhoods of New Orleans - a city marked by both physical and social vulnerability. Based on an understanding that, even if climate change is a global challenge, there are many adaptive and preventive measures that can be taken at the local level, this paper will focus on the case of the Holy Cross historic district, and the lessons that can be taken from the neighbourhood’s recovery from the devastation caused by the 2005 Katrina–Rita storms (here, mostly referred to as Katrina), while trying to preserve its unique sense of place.

Section 1 - From Vulnerable to Sustainable: Preservation as a Tool to Improve Neighbourhood Resilience and Expedite Post-disaster Recovery

1.1. Hazard vulnerability – not just a matter of geography

The UN-HABITAT defines hazard as “a threatening event, or the probability of occurrence of a potentially damaging phenomenon within a given time period and area”⁴. Because disasters occur when a hazard coincides with a vulnerable human settlement, determining a population’s vulnerability to disaster is essential in order to manage and promote specific interventions in emergency relief, reduce risk, and improve resiliency. And while “hazard vulnerability” is usually related to the equation of hazard exposure and physical characteristics (Peacock, Kunreuther, Hooke, Cutter, Chang & Berke, 2008) and "vulnerability" is generally defined in terms of the damage to the built environment, the concept is changing. Lately there has been an emerging recognition that in order to assess a place’s level of vulnerability it is necessary to add its social dimension to the equation. Given that “social vulnerability” can be defined as the capacity of individuals and social systems to anticipate, cope, resist and recover from the impacts of a disaster (Blakie et al. 1994; Heinz Centre 2000 at RAVON), the UN-HABITAT states that poverty and lack of resources increase vulnerability, weakening coping strategies and delaying the recovery process⁵. Socially vulnerable communities are likely to be disproportionately impacted in disasters, and have more difficulty and problems in recovery than other groups. Social vulnerability is evident from individual (e.g., children,

⁴ Retrieved on July, 2009 from: http://www.unhabitat.org/downloads/docs/866_14075_Vulnerability.pdf

⁵ Vulnerability Reduction and Disaster Mitigation. *Risk and Disaster Management*. Retrieved on July 2009, from the UN Habitat website: <http://www.unhabitat.org/content.asp?typeid=19&catid=286&cid=871&activeid=867>

elderly, female) to societal levels (e.g., emerging economies), but also depends on other factors, such as access to income, wealth, social capital, housing and power, as well as culture and driving forces like urbanization and demographic change (Peacock, Kunreuther, Hooke, Cutter, Chang, & Berke, 2008). However, the level of importance of those indicators may vary according to where the community is in terms of its social cohesion and spirit. Sustainable reconstruction and recovering strategies cannot be successful without an understanding of the relationship between disasters and human settlements; consequently, identifying vulnerabilities is extremely necessary in order to promote overall development of the community.

Little work has been done on the integration and measurement of both physical and social vulnerability because it demands long-term sustained data collection activities. The current approaches, which essentially present isolated case studies, are not sufficient for advancing the science of the dynamics and changes in vulnerability and resiliency. In addition, the episodic nature of post disaster and hazards research has generally resulted in it being carried out in a manner particular to each case, employing different measurement, research, and sampling strategies, resulting in incompatible and inconsistent findings, and limiting comparability and generalizability (Peacock, Kunreuther, Hooke, Cutter, Chang, & Berke, 2008). Assessing vulnerability is a difficult task and the development of tools to measure and compare vulnerability indicators is still undergoing research. Therefore, this paper will be limited to identifying and analyzing the indicators that make the studied neighbourhood vulnerable, rather than trying to measure them.

1.2. Concepts of resiliency and recovery when facing the atrocities of a disaster

According to Pelling (2003), “*Resiliency is the capacity to adjust to threats and mitigate or avoid harm. Resilience can be found in hazard resistant buildings or adaptive social systems.*” In the case of cities, it can be defined as “...*the physical capacity to bounce back from a significant obstacle*” (Vale & Campanella, 2005). Cities are resilient by nature, and rare are the cases of cities being entirely lost due to a fatality of any kind. Even though a location’s level of resilience depends on many factors, such as the scale of destruction, the human toll, and the cause of the destruction, urban resiliency has been increasing since the 1800s. If in one hand, the modern age has brought a wider variety of ways to devastate a city, on the other, it has also brought ways to improve its resilience. Nowadays, the rules of capitalism, globalization and the constant presence of the media, combined with innumerable international aid agencies, have all been helping cities to recover from disaster faster than ever before.

Vale and Campanella (2005) describe recovery as the process of physical, political, social, economical and cultural rebirth of a place. A fully recovered city is one that reaches the levels of normalcy it used to have previous to the catastrophe that afflicted it. However, the recovery process can be analyzed from various points of view, since different individuals share distinctive ideas of ‘city’ and ‘recovery’, depending on the background of who is assessing the process. Buildings and infrastructure can be one way to define ‘the city’, but the relative density of residents, the number of cultural institutions, and the opportunities for commerce are other ways to characterize it. The concept of ‘recovery’ can be judged by different mindsets, conditioned by professional

training or personal attachment to people and places (Vale & Campanella, 2005).

The recovery process also unveils the importance that certain societies bestow on certain organizations, usually the ones primarily chosen to help with the recovery, showing who sets the priorities and who benefits from them first. It also shows through the ‘narratives of resilience’ whose voices are louder, whose histories are being told, and who has been left apart from the process. It is extremely important to bring people back to the area, as rebuilding entails reconnecting the same familial, social and religious networks that existed before. Repairing, reusing and improving the pre-disaster structures are the means to re-establish the human connectivity of those networks. It is about reconstructing social relations found in churches, schools, and other institutions.

A positive way of facing the atrocities brought on by a disaster is by the “discourse of opportunity” (Vale & Campanella, 2005). Believing in those opportunities for change and improvement is a form of increasing resilience. Therefore, it is natural for the authorities, government, and community leaders to introduce this discourse as a way to give hope to the society, reframing devastation as an opportunity for progress and positive change:

After being damaged or destroyed by natural disasters, several communities in the United States have engaged in ‘sustainable recovery’ since the mid 1990s – the practice of improving the social, economic, environmental and physical condition of the community so it is stronger than it was before the disaster occurred (Sustainable Restoration Plan of Holy Cross/Lower 9th Ward, 2009).

The negative side of it is that the community can be easily manipulated by the most powerful layers implementing their ideals and interests as priorities, turning the

opportunity into opportunism.

Vale and Campanella (2005) affirm that disaster recovery is not systematic and cannot be measured without taking several variables into consideration. However, the U.S. National Science Foundation has seen recovery as a system, and in 1977 they created a model called “Reconstruction Following Disaster”. The model describes disaster recovery as an ordered patterned process, classified into four predictable stages that follow a temporal line. On the one hand, Vale and Campanella establish that recovery depends on many variables, but on the other, they affirm that resilience has many similar constants observed in different cases, independently from the source of the catastrophe. Therefore, resiliency is a measurable concept. However, a study conducted by RAVON⁶ remarks the need for an extensive comparative research in order to develop tools and parameters to measure resilience (as well as vulnerability). Creating measurement tools is not the objective of this paper; it will instead use pre-existing tools, concepts and questions suggested in the literature to serve as a base for discussion.

⁶ Resiliency and Vulnerability Observatory Network

1.3. Heritage preservation and its key role in empowering communities

The distinctive nature of a place is deeply important in maintaining its identity. This nature can be defined as ‘urban character’; a combination of intrinsically connected elements that define how a certain area looks and feels. According to Worksett:

...urban character is not only defined by the architecture but also by other elements - street alignment, variety of land use, variety of age of structures, mix of public, private and semi-public spaces, height relation of the structures and socio-economic activities of the people... (1969).

Even though it is undeniable that the most preeminent component of the group is the built one, it must be noted that social, economical, historical and cultural patterns also play an important role defining the uniqueness of a place. The built environment of a place is influenced by several external factors, and is essentially the answer for the society’s needs as well as the reflection of its self-image. Moreover, the prime need of a society is for the site where the city will be established to be adapted to its natural setting. Therefore, urban character can also be defined as the product of human intervention in between the natural and built environments.

Some cities or neighbourhoods have a stronger sense of place than others; they differ themselves from the standard image of the worldwide metropolis or suburbia and rely on distinctive features not found anywhere else. In those cases, individual heritage monuments or large heritage complexes are usually some of the key contributors to enrich a place’s character. They are fundamental elements when it comes to organizing the urban space, providing points of reference for the local community, and serving as charging the public space with references to the past.

The signs of the past give the urban centres a sense of tradition and urban life. It expresses the relations the city weaves with the citizens and vice versa. The danger is the heritage in ruins and the extinction of our memories... One of the main principles of rehabilitation is the protection of the cultural urban heritage in order to strengthen the local identity (Serageldin, 1999).

However, due to fast urban development, conserving historic areas, especially liveable ones, is extremely challenging.

Growth and development need to be facilitated in such a way that they complement and enhance this distinctive character, while ensuring the ongoing preservation and protection of individual heritage places and heritage precincts (Serageldin, 1999).

Through innovative solutions, interventions in historic sites must be capable of not only protecting the district's character but also enhancing the sense of place that it engenders. They should also attempt to balance the different interests of all the parties involved in the process. Preservation usually affects citizens, authorities, organisations and others in different manners since they all maintain different opinions regarding how, what and why to conserve based on their personal interests. If regarded as cultural capital, heritage preservation can be a development asset that can help to empower communities and generate income.

In addition, preserving the urban character, and therefore the heritage of a place, also plays a key role when adapting cities for climate change. After all, due to the tight connection between built and natural environments, some of the most common concepts promoted as “sustainable” and “green” are derived from examples from the past. Older, historic communities tend to be centrally located, dense, walkable, and are often mass-transit accessible – qualities advocated by the Smart Growth principles; older, historic buildings are remarkably energy efficient because of their site sensitivity, use of local

materials, quality of construction, and passive heating and cooling systems – hence, “green architecture” is most of the time a modern version of a place’s vernacular architecture. For this reason, it is crucial to safeguard the cultural heritage as an important component of any effort to promote sustainable development. Post-disaster reconstruction plans must take into consideration the cultural and historic characteristics of a place in order to give continuity to its original essence. Heritage preservation can be useful not only as a mitigation measure, but also as a recovery tool for the physical and social consequences of a natural disaster.

Although this essay will focus mostly on the issues of cultural heritage that relate to the urban landscape and the architectural patrimony, it is important to note that there are no isolated actions. Alterations in any aspect of the local culture will reflect directly in the community life, changing the way people relate to their living environment. In times of globalization, culture is becoming more and more standardized each day, so heritage preservation is one of the most effective manners of protecting the sense of identity and the traditions of a determinate culture.

1.4. Sustainability: the perfect equation between new and old

Sustainability is fulfilling the needs of the current generation without compromising the ability of future generations to meet their needs by looking for a more natural way to live and build. A sustainable community conserves, restores, preserves, reuses, reduces and regenerates (Cazayoux, 2003). Nowadays, most sources of energy used on a daily basis by our society are environmentally degenerative. Accordingly to the U.S. Green Building Council, in the United States buildings account for high levels of electricity and water consumption, energy use, carbon dioxide (CO₂) emissions and waste output. That being said, during the past decades people have been changing habits and acquiring a better knowledge of the environment in which they live and the concept of a sustainable lifestyle has become accepted as a necessity. The world has become increasingly more aware that renewable resources are available to be used, leading to an environmentally friendly lifestyle with the benefits of energy and economic self-sufficiency.

Within this search for a more sustainable way to live and build, new technologies have been developed, methods of green building among the most popular:

Green building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from sitting to design, construction, operation, maintenance, renovation and deconstruction. This practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Green building is also known as a sustainable or high performance building ⁷.

⁷ **Definition of Green Building**, Retrieved July 09, 2009, from the United States Environmental Protection Agency website: <http://www.epa.gov/greenbuilding/pubs/about.htm#1>

The Green Building Council has pointed out numerous advantageous aspects related to this technique. They range from environmental benefits, such as the enhancement and protection of ecosystems and biodiversity, the improvement of air and water quality, the reduction of solid waste, and the preservation of natural resources. In regards to economic benefits, green building reduces operating costs, enhances asset value and profits, and optimizes life-cycle economic performance. Several health advantages can also be associated with green building: the improvement of the air, thermal, and acoustic environments, and the improvement of the occupants' comfort and health, all of which minimize the damage on local infrastructure and contribute to overall quality of life⁸. It's a common saying in the green building movement that "the greenest building is the one that isn't built" (Tristan, 2007).

In a society used to labelling new tendencies, "green" has become a way of life. With concerns about global warming arising every day on the news, it has not been hard to sell this concept as an unconditional truth, and green building as, if not the only, the best manner of achieving sustainability.

During the past years the idea of a sustainable city, neighbourhood or building unit has been strongly connected to the "green" design and LEED certifications⁹.

However, while people rapidly link the concept of "green" to cutting edge technology

⁸ **Benefits of Green Building.** *In Green Building Research.* Retrieved July 03, 2009, from the U.S. Green Building Council website: <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1718>

⁹ The Leadership in Energy and Environmental Design (LEED) is an internationally recognized green building certification system, providing third-party verification that a building or community has been designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts (Retrieved July 03, 2009, from the U.S. Green Building Council website: <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>).

and modernity, they rarely connect it with anything old and historic. Seeking salvation through green building fails to account for the large existing building stock.

People often tend to think that historic buildings are inherently energy inefficient. The opposite, though, is more likely to be true: that many historic buildings are inherently very energy efficient. One comes to recognize this when intrinsic properties (of the buildings)...are better understood (Walter Sedovic, AIA, Walter Sedovic Architects).¹⁰

Few are aware that “the greenest building could be the one already built”; in fact, it could be the ones built centuries ago, when the first inhabitants of a place passed through a process of trial and error trying to understand and adapt their construction techniques to the climate of the region in which they had planned to settle.

Before sustainability had a name, traditional builders incorporated sustainable elements into buildings. For one thing, they didn't yet have the means to engineer nature out of buildings as we do today, and have since World War II. Working in sync with the environment was the norm...Current energy modelling programs don't tend to weight these elements appropriately, if they are considered at all (Walter Sedovic, AIA, Walter Sedovic Architects).¹¹

Historic architecture, particularly the vernacular type, is deeply tied to the land and meets many of the principles outlined for structures intended to be sustainable. The use of durable local materials, the thoughtful placement of the building in order to take advantage of the natural sun and wind patterns, and the use of natural heating and ventilation systems based on the physics of thermal mass and air movement, are some of the sustainable assets of the historic buildings (Park, 1998)¹². In addition, other features found in the old buildings mirror several of the “new” standards advocated today, such as porches, large windows, skylights, backyards, shade trees, indigenous plantings, and they

10 Newsletter of the Committee on the Environment, AIA Historic Resources Committee's Fall Conference, Minneapolis November 17–19, 2006. Retrieved July, 21, 2009, from the AIA website: http://info.aia.org/nwsltr_cote.cfm?pagename=cote_a_200608_preservation

11 Newsletter of the Committee on the Environment, AIA Historic Resources Committee's Fall Conference, Minneapolis, November, 17–19, 2006. Retrieved July, 21, 2009 from the AIA website: http://info.aia.org/nwsltr_cote.cfm?pagename=cote_a_200608_preservation

should not be overlooked by modern designers. According to preservation experts, the reuse of existing buildings is one of the highest forms of sustainable design, however the new sustainable-design measuring criteria do not give enough credit to existing building reuse. Experts defend the idea that re-using already built structures is an underused approach to save energy. “The ‘green design’ movement has largely ignored the inherent ecological advantages of building re-use...” (Michael Jackson, FAIA, Illinois Historic Preservation Agency). In fact, they consider every building as a deposit of non-recoverable energy:

When a building is torn down for new construction, we lose more than the built resource (and its associated heritage)—we lose embodied energy... This is the energy that has been spent in its construction, as well as the manufacture and transportation of materials. A "teardown" not only discards the embodied energy of the existing building, but spends that energy again (and likely more, as teardowns average over double the square footage of the structure being replaced) on a new home or other building.¹³

When it comes to the costs of preservation versus green building, Sharon C. Park¹⁴ affirms that the life-cycle cost metrics used to calculate longevity, performance and financial return to the investor, are not effective to measure intangible values such as the improvement of life quality. According to her, when the historic preservation advocates discuss the sustainability and the embodied energy of the existing buildings, they are also adding emotional values of memory to the economic metric. The ones who only wish to equate the payback period for new construction are forgetting to count the other advantages that the existing buildings can bring to their communities, such as stability, sense of pride and place, a scale of liveability, and the interesting craftsmanship of materials and details that are usually not found in new construction. She confirms the

¹³ **Definition of Embodied Energy.** Retrieved July, 21, 2009 from the Green Building Organisation website: <http://www.thegreenestbuilding.org/embodiedenergy.html>

notion that historic buildings are usually constructed to last and have stood the test of time; if effectively adapted to contemporary standards, rehabilitated buildings can have a new life cycle of at least forty years. Furthermore, while the mechanical systems generally have to be replaced, building structures can still outlast these elements for years. According to Park, however, what happens is that the market is usually more attracted to the shorter cycle used to “pay off” a new building. She states that:

the “green” movement needs to get away from the catalogue of construction parts that can be used or reused in new construction and consider both the amortized investment found inherent in older buildings and the contributions these buildings make to the cultural, social, and historic environments they have helped to shape.¹⁵

Another factor that is not taken into consideration is the cost of maintenance of new technologies. According to Carl Elefante (2003), life-cycle cost analysis used to quantify green building practices does not weight in the advantages of, for example, having an easily repairable old wood window versus having a “high-performance” window, sold as maintenance-free. In fact, the new windows are usually not repairable, and the fact that they come with a twenty-year guarantee doesn’t mean they won’t have to be entirely substituted before that:

For preservationists, it is an absolute mystery why so many “high-performance” windows are designed without any consideration for their renewal. Such systems are sold as maintenance-free. In fact, they cannot be repaired. For example, today’s glazing systems are complex, multi-component assemblies. While their thermal and solar heat-gain performance characteristics may be admirable, window assemblies made out of materials that last for hundreds of years (aluminium, glass) are doomed to early retirement due to “differential durability” problems, for example edge seals that fail in a couple of decades. A 20-year guarantee should not mean that a building element is guaranteed to need replacement in 20 years (Elefante, 2007).

It is clear that each movement has its own advantages and disadvantages that

¹⁵ Notes from the AIA Historic Resources Committee’s Fall Conference, Minneapolis, November, 17–19, 2006. Retrieved July, 23, 2009, from the AIA website:
http://info.aia.org/nwsltr_cote.cfm?pagename=cote_a_200608_preservation

mostly depend on the context and the site of each particular project. And, when it comes to new constructions the concepts of green design should be everyone's preference, the designers and the community should start looking to the past in order to find affordable, durable buildings that were intended to adapt to the local weather and built with regional materials. Some places count with a large availability of good quality historic buildings that often goes overlooked. Understanding how vernacular architecture works, emphasizing its sustainable assets and safeguarding the traditional construction techniques is a manner of not only preserving the local heritage, and therefore culture, but also guaranteeing an affordable housing stock for the population.

Historic buildings...can be examples for all to admire, but also inspiration to some who may be spurred to learn how to use those skills on buildings not only from the past but also in the future (Charles Liddy, AIA, Miller Dunwiddie Architecture).¹⁶

Above all, preserving cultural and architectural heritage should be seen as another way of reaching sustainability, caring about the environment and enriching the community life.

The retention and reuse of historic buildings is a sustainable measure; the built environment represents the embodied energy of the past generations, thereby connecting the society with their past.

Knowing about or even passively experiencing the past enriches our lives. The physical embodiment of our cultural heritage—in a grand building or a utilitarian neighbourhood—establishes a connection between generations and is an essential element of social sustainability (Jean Carroon, AIA, Goody Clancy).¹⁷

The ultimate difference between the green and preservation realms, is one of perception,

¹⁶ Notes from the AIA Historic Resources Committee's Fall Conference, Minneapolis, November, 17–19, 2006. Retrieved July, 21, 2009, from the AIA website:

http://info.aia.org/nwsltr_cote.cfm?pagename=cote_a_200608_preservation

¹⁷ Notes from the AIA Historic Resources Committee's Fall Conference, Minneapolis, November, 17–19, 2006. Retrieved July, 21, 2009, from the AIA website:

http://info.aia.org/nwsltr_cote.cfm?pagename=cote_a_200608_preservation

since they both share common goals and objectives and should be allies. However, green building and preservation specialists discuss and defend the benefits of each of the movements without looking for efficient solutions to combine both principles together. It is necessary to make bigger attempts to merge their respective interests and objectives and become more integrally linked. The green building advocates should recognize the sustainable features of historic buildings and accept re-use of old structures as a path to sustainability, while trying to be more flexible and to loosen up on rules and regulations regarding what is considered 'green'. On the other hand, preservationists should make an effort to find ways to incorporate new green technologies into historic buildings when working on a rehabilitation project. "Utilizing buildings that are already built and using energy efficient, environmentally friendly products when renovating those structures is a big step toward a greener tomorrow" (Fields, 2007).

Sustainable rehabilitation of places of heritage significance must carefully consider the implications of environmental, cultural and economic factors over time and their interrelationship within the overall project. Sustainable development and heritage preservation are mutually dependent, and should be seen as vehicles for long-term economic growth, environmental health, poverty alleviation and community development.

Section 2 - Presentation of the Case

2.1. The city of New Orleans: A place that matters.

“All cities impose on nature, but it might be said that New Orleans doesn’t just impose, it defies” (Lewis, 1976). Geographic location is a major determinant on the type and frequency of natural disasters a city may experience. Therefore, the location of New Orleans can be described as its predicament (Cable, 1980). Lewis (1976) explains this affirmation by simply distinguishing two common terms: the “site” or “the actual real estate which the city occupies” as opposed to the “situation” that “is what we commonly mean when we speak of a place with respect to neighbouring place.” According to him, while New Orleans’ site is wretched, its situation is good enough to make it worthy of being altered. Attached to the shores of the Mississippi, the Native-American word for “Father of Waters”, the city and the river have been developing a sometimes-troubled relationship, where the dominant side has always been the river. The Mississippi has been a strong presence in the city and in the life of its residents: “For most New Orleanians the river has been the most important mental and physical landmark, shaping not only ideas about the city but also moulding it spatially” (Kelman, 2003). Despite all the dreads, the fact that a million people work and make a living in this site only calls attention to the excellence of the situation (Lewis, 1976).

The combination of the city’s history and geography has resulted in a unique place, one that has not been duplicated anywhere else in the United States. Colonized by the French and the Spanish, the city developed its own foreign and eccentric character.

By the time the Americans bought it in 1813, New Orleans had a consolidated Creole¹⁸ culture and a distinguished appearance. The nearly tropical weather of the region is reflected in everything from its picturesque architecture to the “faintly corrupted”¹⁹ local behaviour. The city has been important both mythologically and historically because of its extraordinary geographical location at the entrance to the Mississippi, making it the gatekeeper to the continental United States. No place would ever command the Mississippi as New Orleans and the same surroundings that were so miserably connected to the city were paradoxically their connection with the rest of the world (Lewis, 1976).

Despite the tropical hazards such as hurricanes and diseases, it seemed to be New Orleans’ destiny to reign above nature. Around 1718, under the command of Jean Baptiste le Moyne - sieur de Bienville, the early explorers succeeded in settling the foundations of the city. For the first two hundred years, nearly all-urban and rural developments were confined to the natural levee of the river, rarely over fifteen feet above sea level, where the most solid foundation material was silt. Indeed, the substratum of foundation material in the region still consists of compact clay, only found about seven feet below the surface. Pumping techniques have made some of the swampy areas habitable, allowing most of the contemporary city to develop. However, its site is highly exposed to floods, since the river is ten to fifteen feet above sea level and any puncture of the levees becomes a threat for the city. In addition, the hurricanes that periodically strike the city drive high tides ahead of them augmenting the danger of flooding in all areas

¹⁸ Creole was the word used to designate the native-born white Orleanians of Spanish and French ancestry. Over the years the word took a broader meaning and is used to describe anybody or anything that is native or associated to the traditional New Orleans (Lewis, 1976, p. 5).

¹⁹ According to Lewis, outsiders would blame the long hot summers on the “*fetid condition of New Orleans’ politics*” (1976, p.7).

below sea level (Lewis, 1976). But even though the list of the site's difficulties seems to go on continuously, overcoming them has made the city's inhabitants grow stronger: "The very awfulness of that site gave the inhabitants a certain cheerful 'esprit de corps'" (Lewis, 1976).

Lewis explains the evolution of the city in four periods. The first one dates from 1718 to 1810, when the city was considered European, both in structure and human behaviour. This is the period when the Spanish and French shaped the local culture, ending with the arrival of the Americans. The second period is when New Orleans becomes America's western capital, spreading far outside its European shape to form what is today's geographical skeleton. The Civil War and the economical predominance of the northern cities mark the end of this period in 1865. The third period is when New Orleans emerges again by the mid-twentieth century as a stable city. The new extensive geographic form is a result of new technologies and attitudes. The last period, beginning in 1945 and lasting until the 1970s, is when the city underwent drastic changes due to revolutions in history, technology and social problems.

However, even if it is important to consider the city's identity, to protect and be proud of its heritage, it should never be forgotten that a city is a city. New Orleans is afflicted by the same economical, geographic, political and demographic problems that haunt any other common city. And those issues, added to its particular geographical and social vulnerabilities, has resulted in what can certainly be described as a new period in the city's evolution—a period unfortunately characterized by the geography of

destruction and chaos in contemporary New Orleans.

2.2. A city under siege: Katrina and the struggles of recovery.

On August 29, 2005, Hurricane Katrina struck Louisiana, followed by Rita, which hit ground on September 24, both as Category 3 storms. The aftermath of the disaster put New Orleans under a new spotlight. Once known as a famous touristic location, the lively city scenario has suddenly been transformed into the embodiment of calamity. In the days following the storm, approximately 80% of New Orleans was flooded as a result of breaks in the levee system, caused by the force of the winds and the storm as well as the weakness of the infrastructure built to protect the city, resulting in a nearly total evacuation of the city (Figure 2):

...They not only devastated New Orleans and Louisiana but created damage from Texas to Florida. The hurricanes caused more than 1,300 deaths, displaced more than 700,000, and destroyed nearly 300,000 homes, and between 50,000 and 100,000 households were still displaced 6 months later (GAO, 2006b, 2006d; Office of Inspector General [OIG], 2006)... They caused the most property damage in U.S. history—nearly \$100 billion (Townsend, 2006) (Kapucu & Van Wart, 2008).

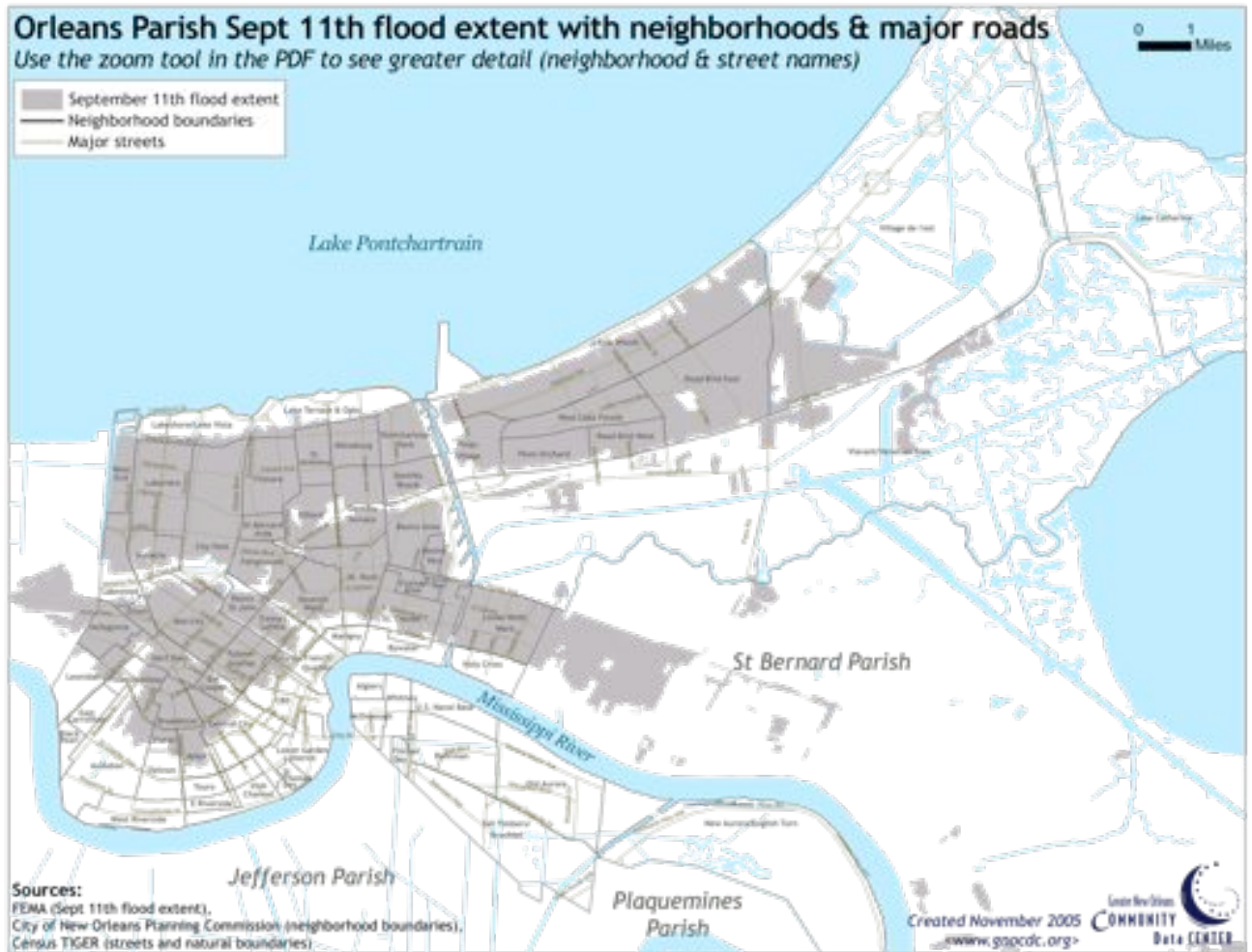


Figure 2: flood extent map

Source: FEMA

This unfortunate event gained international attention, not only because it was a tragedy, but also because it revealed that even supposedly well-developed countries can get caught unprepared in the face of adversity. The city's struggle to recover from what has been called one of the biggest environmental catastrophes in United States history has become visible to the whole world. Likewise, the occasion turned out to be the revealer of the veiled racial and class inequalities of modern America, exposing a very vulnerable layer of society to the public eye. Disasters of any sort cause physical and economic injury and can also bring damage to the image of the city, revealing its fragilities to the world. A disaster situation uncovers how all levels of government respond to a crisis and how prepared they are. The citizens expect their authorities to defend their city, and the complete destruction of a place can occur as a result of their failure to protect it. From the moment a city is hit by a disaster it turns into an open lab, one used to dissect and understand the social structure of a community and its relationship with the authorities (Vale & Campanella, 2005).

Ideally, in cases with locations constantly affected by natural hazards, the creation of mitigation tools, preparedness measures, effective response actions, as well as sustainable recovery plans, should be a priority among governments, organizations, and the community. But it is not always the case since, according to Kapucu and Van Wart (2008), extreme disasters require additional leadership capabilities because they overwhelm local capabilities and damage emergency response systems. In addition, the United States government's neoliberal practices have scaled down state responsibility for risk reduction and response, and placed greater emphasis on the role of companies and

private citizens. In the case of New Orleans, the failed state response and recovery efforts combined with an intricate combination of lack of preparedness and resurging social issues led the city to apply an uncoordinated evacuation-emergency support plan that resulted in a slow process of recovery.

The emergency actions taken by the local authorities immediately after Hurricane Katrina served to demonstrate that, even if knowing about the constant eminence of a major natural disaster, the government can still be unprepared to react efficiently in the one's occurrence. According to a study conducted by Kapucu and Van Wart (2008), the event was predictable and should have been relatively manageable, but the local leaders were lacking the necessary competence in environmental scanning, strategic planning, networking, and personnel planning. However, even if affected by tropical storms and hurricanes approximately thirty times since 1900, it was the first time in centuries that Category 3 winds directly hit the city (Dyson, 2006; Kapucu & Van Wart, 2008).

The city's overexposure to all types of weather hazards during the years, combined with technical negligence, caused infrastructure problems that had already afflicted New Orleans long before Katrina hit in 2005. In fact, the fragility of the levee system had been common knowledge since the extensive flooding that occurred during Hurricane Betsy in 1965. Within this context, several actions that could have related to the mitigation of the disaster in New Orleans, and even the most elemental component of mitigation—the levees, was left virtually unattended (Kapucu & Van Wart, 2008):

While faced with the challenge of enabling all residents to come back as fast as possible, the government leaves beside the risk factor, and the importance of

creating a new sustainable city, in the case of new natural hazards to come. Rebuilding safely was one priority among too many (Nelson, Ehrenfeucht & Laska, 2007).

Despite the vulnerable geographical site, the city of New Orleans has been developing and expanding without major constraints. In fact, due to several facilitating factors, it is a known fact that communities continue to develop and expand into high hazard areas, frequently resulting in the destruction of environmental resources that could be used to reduce losses. Short term technological fixes such as levees, sea walls, and beach re-nourishment programs can also have detrimental environmental consequences and promote increased development (Peacock, Kunreuther, Hooke, Cutter, Chang, & Berke, 2008). According to Vale and Campanella (2005), even in cities where substantial urban areas have been devastated, new city plans that aim to correct or limit the risk of destruction in the case of a new disaster are in fact rare. The institutional structure and planning practices of the pre-disaster rarely change during or after a disaster because real estate interests and property rights tend to rule the shape of the city. Even if some small changes such as building codes and construction types can be made, larger urban patterns are hardly ever altered. Burby (2006) also categorically affirms that the development of disaster-prone areas is sometimes unintentionally facilitated by the local and Federal government policies in the United States. Uninformed local decision-making, overlooked construction regulations, and the facility to obtain Federal funds in case of a disaster can create the perfect conditions for unsafe urban development. “In short, many of our communities are becoming ever more vulnerable to natural hazards while simultaneously becoming less disaster resilient” (Peacock, Kunreuther, Hooke, Cutter, Chang, & Berke, 2008).

In the aftermath of a disaster, governments have to act fast, sometimes exercising direct power and revealing a repertoire of techniques that might not be appreciated by all. This was the case when the first emergency reconstruction plan of New Orleans, known as BNOB²⁰, was released right after the disaster when most residents had not yet returned to the city. Therefore, public participation was limited, specifically among the most deprived residents, as they were the ones having the most difficulty returning. This significant but vulnerable layer of the population felt left out of the planning process, and long-existing social conflicts rose again. Distrust and opposition coming from all parties involved led to the production of various reconstruction plans over the course of the last three years. The lack of a centralized planning process, added to a high level of bureaucracy, made the reconstruction slow and ineffective. As a result, being urged to return to their homes, the residents started to take control of the reconstruction of their own houses and neighbourhoods. Consequently, three scales of reconstruction were created, on individual, neighbourhood, and city levels. This situation brought up a conflict between professionals and volunteers, whose roles were being overlapped, contributing to the confusion. Because the BNOB restricted the initial reconstruction plans for what was called “risk-free zones”, professional planners were looked at with skepticism by the residents; this was because what they were calling risk free zones were, indeed, mostly lower class African-American neighbourhoods. Their scientific and technological-based plans were not enough to convince the population and the residents of those deprived areas, who saw the scientific-based plans as prejudicial, looked for their own risk assessments, and declared “everybody was at risk”. The disagreements have created inconsistent policies, elongating the rebuilding and allowing unsafe developments

²⁰ Bring New Orleans Back

(Nelson, Ehrenfeucht & Laska, 2007).

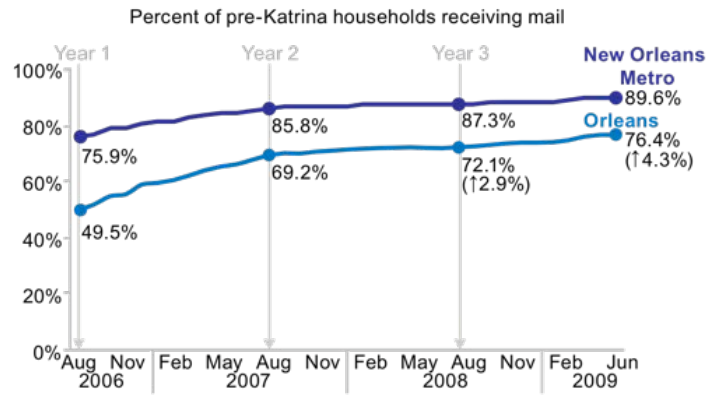
Eventually, the lengthy reconstruction and the constant vulnerability of the site resulted in the declaration of New Orleans as an endangered heritage site by the World Monument Foundation, which included the city and its neighbourhoods in their annual Watch List in 2006 and again in 2008. Faced with so many challenges and under the intermittent menace of furious hurricanes, many wondered if it was even worth the effort to rebuild the city. But New Orleans is a city of special character that must be preserved, and if new, stronger mitigation measures are created in order to protect the city against the hazards, there will always be hope. However, it must be considered that there is no healthy future without a healthy past. Consequently, safeguarding the city's extraordinary heritage must be used as a mitigation measure. New Orleans is considered one of America's greatest "outdoors museums" (Vogt, 1991), there are nineteen local and national registered Historic Districts in New Orleans, the largest concentration of any American city. Regardless, residents of historic neighbourhoods in New Orleans continue to struggle to restore their homes while also preparing for future challenges. Though some communities were able to raise themselves out of the turmoil and get organized for reconstruction, others are still dealing with serious consequences of the destruction caused by Katrina.

As New Orleans ends its fourth year since the hurricane and levee failures, the city's metro area has reached almost 90 percent of the pre-Katrina number of households

receiving mail ²¹; the Orleans Parish reached only 76.4 percent of it (The New Orleans Index, August 2009). A significant percentage of residents, especially the most deprived ones, still haven't been able to return to their original neighbourhoods. According to a statement launched by the GNOCDC in June 2009, nine neighbourhoods still have less than half of the active residential addresses they did in June 2005 (Graphic 1).

While there are fewer unoccupied residences in Orleans St. Bernard and Jefferson parishes this year, the scale of blight remains high—65,888, 14,372, and 11,516 residences, respectively—posing significant challenges for local governments. Steep rent increases have abated, but at 40 percent higher than pre-Katrina, rents remain out of reach for many critical workers. Typical rent for an efficiency apartment is \$733 per month, unaffordable for food preparation, health care support, and retail sales workers (The New Orleans Index, August 2009).

²¹ The GNOCDC used media/marketing company Valassis' comprehensive mailing list database to compare active-address households in June 2005, June 2008 and June 2009 across New Orleans neighborhoods.



Graphic 1: percent of pre-Katrina households receiving mail

Source: *The New Orleans Index*, August 2009

Section 3 - The Holy Cross Neighbourhood

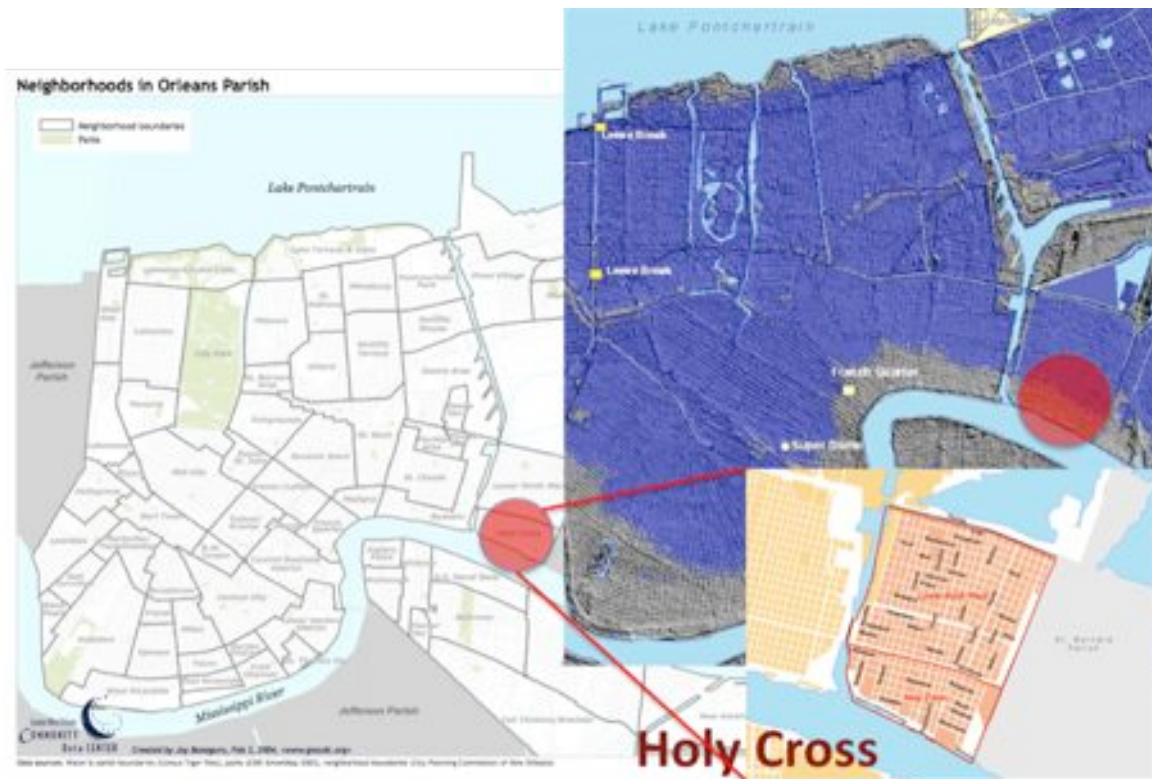


Figure 3: the Holy Cross neighbourhood

Sources: Greater New Orleans Community Data Center (<http://www.gnocdc.org/orleans>), NORA New Orleans Redevelopment Authority (http://www.noraworks.org/images/map_dist8.gif)



Figure 4: the Holy Cross and the Lower 9th Ward, 2007

Source: H3 Studio project team

3.1. The physical and historical context of Holy Cross.

Named after a Catholic school built in the area in 1879, Holy Cross is one of the two neighbourhoods that compose the Lower 9th Ward²². Nested in between the levees of the Industrial Canal and the Mississippi River and delimited on the North by St. Claude Avenue, the neighbourhood represents the final stanza in the eastward expansion of the City of New Orleans to the S. Bernard Parish line. The most important elements that first influenced the arrangement and the nature of the neighbourhood were the river and its natural levee. The site was at first the ground of Indian settlements, and later was chosen by the French as the location on which to build their fortifications, denoting the strategic significance of the area. The fertile land by the river gave place to sugar plantations, a pattern that lasted until the 1830s, when the plantation land was divided into smaller and more affordable plots. The low prices attracted European immigrants as well as freed African Americans to establish themselves in the region; the newly arrived population would subsist mainly from farming. Having easy access to transportation through the Mississippi River, the small truck farmers would make their living selling their crops to local markets and restaurants. However, the agricultural land use started to give way to a street grid, gradually engulfed by development. Most residential development in Holy Cross dates the late 1800s, but the year of 1850 was chosen as the beginning of the historical period since, apparently, that was when the most serious wave of development began. Other buildings consisted mostly of commercial entities, such as corner stores, churches and schools. Holy Cross' street grid was speculative and did not

²² The other vicinity is the Lower 9th Ward, and is separated from Holy Cross by St. Claude Avenue. Nowadays both neighborhoods are part of the Planning District 8.

count with the Baroque planning strategies seen around the city. Although the area's urban character resembles its adjacent neighbourhoods, it has two fundamental differences: in Holy Cross the lots are larger and the blocks are less filled in. Until the end of World War II the area maintained a rural character, and it was only by the 1950s that the farms were completely replaced by more significant real estate developments (The Holy Cross Neighbourhood Snapshot). The rural character of the neighbourhood is still noticed in the shape of the lots that have big backyards, and the low density of the region if compared to other parts of the city.

However, the two events which had a major impact on the neighbourhood's morphology date from the first half of the 20th century: the construction of the levee in 1912 and the Industrial Canal in 1920; both equally contributed to isolating the area from the rest of the city. The neighbourhood, located in the east part of the town, connects to the central districts primarily by Saint Claude Avenue, which crosses the Industrial Canal. The construction of the Industrial Canal in the 1920s helped to articulate the neighbourhood's space, physically separating it from the rest of the city. With time this separation also became psychological, and the canal became not only a physical but also a mental barrier that still persists today. The residents of the downtown districts consider the neighbourhood "far", while the Holy Cross residents feel that they are isolated. This "segregation" from the rest of the city may be one of the factors that helped protect the small town nature of the neighbourhood and bring the local community together. The idea that they have no one else but each other to depend on possibly brought the locals closer together, creating common sense of trust between them. This is one of the reasons why

this neighbourhood developed so many churches and community organisations, which have always been helpful before, during and after times of crisis.

Holy Cross' urban patterns also contributed to the creation of a strong, close community. Since the neighbourhood has never been suburbanized, it has preserved its human scale, so important when bringing people together. Walking distances, open porches and yards and local stores have facilitated the interaction between the local population, creating strong personal ties:

Although challenged with the problems of most inner city communities, there are a number of organizations, churches and individuals in the area who are addressing these problems and holding on to the family-oriented atmosphere characteristic of this neighbourhood (Holy Cross Neighbourhood Snapshot, Pre-Katrina).

From the beginning of the 20th century until the 1950s, Holy Cross developed as a working class neighbourhood, populated by white-ethnic immigrants and a large number of black families. "The modest homes with ample backyard space, wide streets fit for automobiles, numerous churches and small corner shops, was the American dream for many" (Graham, 2008). During the 1960s, the whole Lower 9th Ward region suffered from a drastic depopulation, especially on the part of the white residents. Because of the desegregation of the school system²³ in 1964, the Anglo-Saxon population chose to live in "homogeneous" neighbourhoods, starting a new process of spatial segregation that affected the entire city and the minorities were left with no choice but to inhabit the lowest and most disaster prone areas of the city: "...in a phenomenon dubbed white flight, many...simply moved to suburbs where few, if any, nonwhites lived" (West's

²³ Definition of white flight - The attempt to end the practice of separating children of different races into distinct public school. Retrieved April 03, 2009, from the West's Encyclopedia of America Law website at: <http://www.answers.com/topic/school-desegregation>)

Encyclopedia of America law).²⁴ By the time Hurricane Betsy hit New Orleans in 1965, the Lower 9th Ward, and consequently Holy Cross, were almost entirely occupied by African Americans. This vulnerable layer of the population did not count as a high incentive for the government to invest in the area's infrastructure, and the neighbourhood's property values stagnated. Therefore, this marginalized society became unexpectedly able to afford to buy their houses. The above average level of property ownership helped the locals to develop an outstanding sense of attachment to place and build a vibrant community instead of a miserable ghetto.

Thanks to its high quality houses and unique urban composition, Holy Cross was not extremely affected by the abandonment that occurred in its surrounding areas, becoming a stable neighbourhood over the years. The latest data on Holy Cross is from the 2000 U.S. Census, and it helps build a portrait of the neighbourhood before Katrina. Until then, the Holy Cross was composed of mainly middle to low income families, who were reported to have been living there over generations. The population was predominately African-American (87.5 percent) and female (55 percent)²⁵. The neighbourhood's average household income was an average of \$32,202 dollars, about ten thousand dollars less than the city standard. Also, 58 percent²⁶ of households were renters, even though there was a significant and increasing number of homeownership in the area (Holy Cross neighbourhood snapshot, pre-Katrina). Some believe that the

²⁴ Retrieved April 03, 2009, from the West's Encyclopedia of America Law website at: <http://www.answers.com/topic/school-desegregation>

²⁵ U.S. Census Bureau, 2000. From a compilation by the GNO Community Data Center. <<http://www.gnocdc.org>>

²⁶ U.S. Census Bureau, 2000. From a compilation by the GNO Community Data Center. <<http://www.gnocdc.org>>

aforementioned “distance” of the neighbourhood from the city core protected it from the strong gentrification that affected other nearby areas such as Bywater or Marigny.

However, in recent years, a light gentrification trend has been observed. New residents started to be drawn to the area because of its undeniable qualities as the affordable historic housing stock and the old-fashioned town atmosphere. Even before 2005, young professionals, students and artists were already tempted to move to the area, attracted by the inexpensive and high quality properties with unique features, such as backyards. The once predominantly low-income, African-American population has started to live side-by-side with a newly arrived wave of middle-class young Caucasians.

Pre-Katrina Statistics	Holy Cross				City Wide			
	1980	1990	2000	% change	1980	1990	2000	% change
Population	6,482	6,101	5,507	-10%	557,515	496,938	484,674	-2.47%
% Black		77%	87.96%		55%	62%	67%	
Housing units	2,369	2,385	2,340	-1.89%	226,055	225,573	215,091	-4.65%
Home Ownership	54%	47%			36%	36%		
Mean Home Value	\$36,000	\$50,500	\$57,050	11.48%	\$62,700	\$89,100	\$130,000	31.46%

Table 1: Holy Cross' Statistics

Source: City of New Orleans Neighbourhoods Rebuilding Plan

But the major event that might have permanently influenced the character of Holy Cross was still to come. In August 2005, Katrina’s storm rush pushed through the Industrial Canal, breaking it into two sections and forcing a wall of water into the neighbourhood. The floodwaters were as high as five feet in Holy Cross and, as the terrain gradually slopes down, up to twenty feet and more to the north parts of the district. In the lower parts of Lower 9th Ward, the water stayed for nearly five weeks, ruining everything below its surface. The northern part of the Lower 9th became the largest

demolition of a community in modern U.S. history. It is estimated that of 220 square blocks from Claiborne Avenue to the Bayou, only 140 homes remained. According to the GNOCDC report the Lower 9th Ward received the largest number of residential demolition permits (2,107) in the entire city (Figures 5 and 6). Block after block, entire houses were swept off their foundations, with corner stores and other businesses flattened, leaving behind a thousand fatally wounded. At the end, what remained was a shallow layer of muck, canal water and sewage. However, on the higher ground in Holy Cross, it was a different story: the flood waters receded after only a few days and most of the area's historic houses did not suffer significant structural damage. Yet, due to its proximity to the Lower 9th, the area was also included on the city's "Look and Leave" policy that stated that residents could only visit their homes during the day, but could not get trailers or remain in the neighbourhood overnight. The residents were forced to relocate, not being allowed back into the neighbourhood until mid-October 2005, when the overnight curfew was lifted. Even if by then their property was inhabitable, they were not able to return because electricity, water, and police and fire services were not restored in the area until nine months after the storm— one of the last areas to do so in all of New Orleans. Few Holy Cross homeowners had flood insurance because the area wasn't considered a flood plain due to its higher elevation, and the cost of construction prevented most evacuees in the neighbourhood from renovating. Many residents also had to wait for the government's Road Home money and battle with insurers about wind damage versus flood damage. Another significant fight was with FEMA and the city over "red tagging," which denotes that damage is greater than 50 percent. Holy Cross had an uncommonly large number of "red tagged" buildings, slated for demolition despite being

structurally sound (After Katrina, 2009).

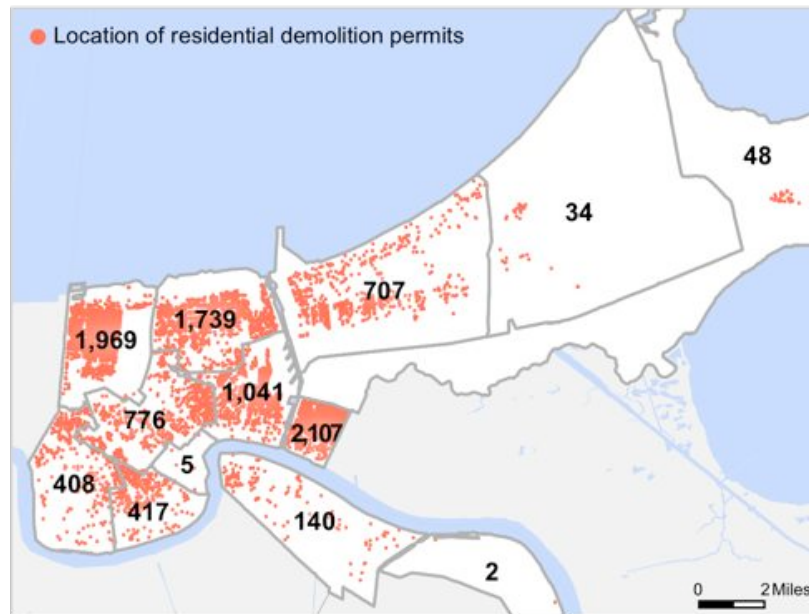


Figure 5: residential demolition permits by planning district, May 2009

Source: GNOCDC analysis of May 2009 City of New Orleans permit data.

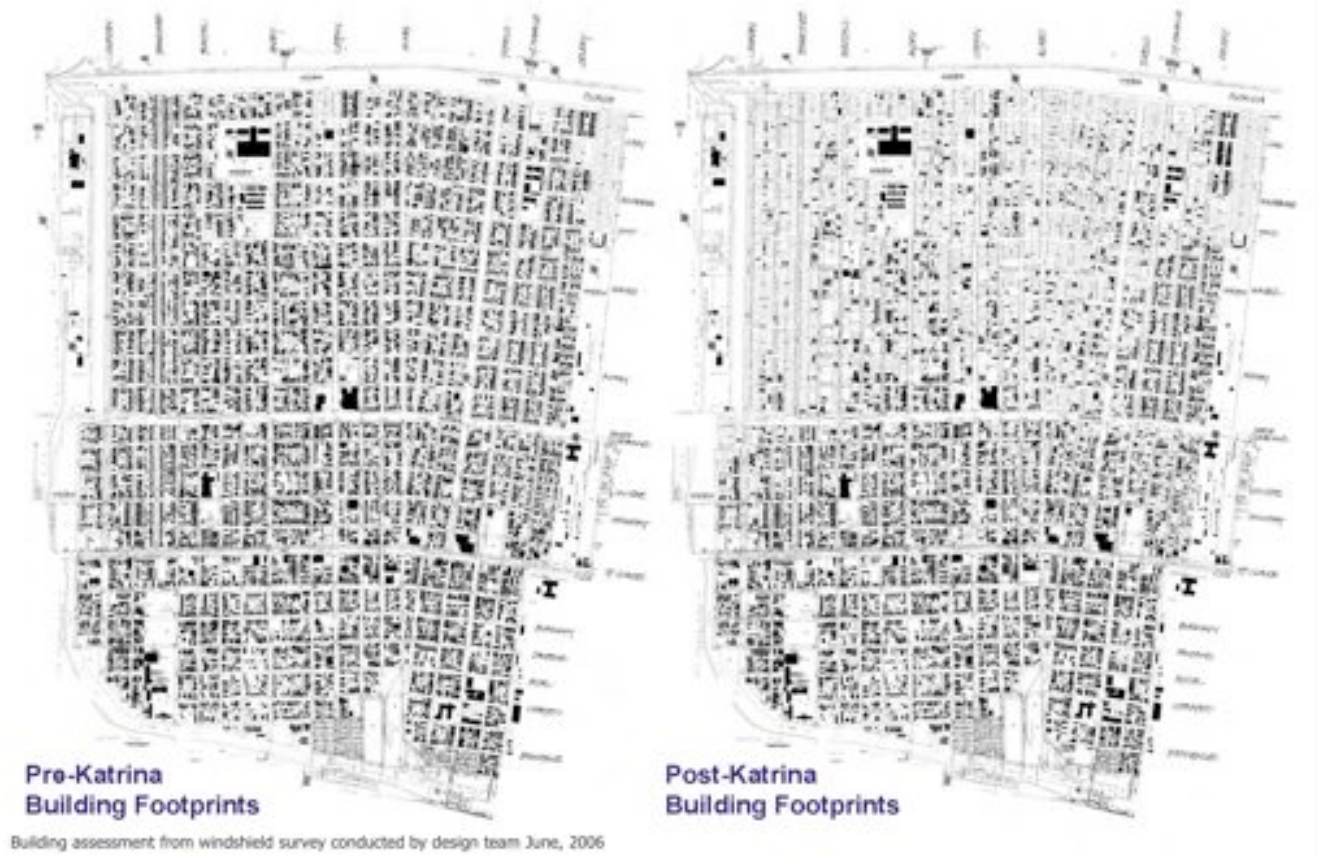


Figure 6: Holy Cross' footprints

Source: City of New Orleans Neighbourhoods Rebuilding Plan

However, Holy Cross and the Lower 9th Ward have shown to have impressive resources and power, as they found a way to recover despite all the challenges. In fact, the case of Holy Cross has been seen as one of the most preeminent examples of bottom-up efforts towards recovery in the city of New Orleans. Due to a strong history and sense of community, excellent leaders, and geographical location, this sole neighbourhood has been able to do much more for itself than one would expect. Undeniably, the site where the Holy Cross is located - on high ground, on the natural levee of the Mississippi River - was one of the main factors that worked in favour of the neighbourhood when the levees broke. However, the high level of communitarian organization and the strong social ties between the local residents allied to the neighbourhood's status as a historic district were also facilitated the reconstruction process. Tired and frustrated with contractors, bureaucracies and the insurance companies, the residents found energy and strength to take action and try to build a better future. Their grassroots efforts and sustainable ideals have raised attention for the neighbourhood, creating an opportunity for the Holy Cross' community to receive a large share of assistance from various organizations. "It appears that the people most in need are the ones giving the most to make their neighbourhood – and our city – a better place" (R. Stephanie Bruno, Operation Comeback Director and Holy Cross resident).

3.2. Holy Cross' potentials and limitations

Holy Cross is a place of multi-sided characteristics that can hardly be nominated uniquely as an advantage or a limitation. All the distinctive features of the neighbourhood can work against or in favour of its redevelopment, only depending on how they will be handled during the years to follow. This section will only name the two most significant of the many attributes that make this place so special: the cultural heritage and the social capital. However, other important aspects will be presented in the discussion section.

3.2.1. Cultural heritage

In a globalized world, protecting the cultural heritage of a place is much more than just the conservation of historic monuments, it is a matter of protecting also the sense of identity that has been lost little by little in the name of new developments and modern values. Nevertheless, one of the elements that makes Holy Cross so distinctive from many other neighbourhoods is its exceptional identity, which is the result of a unique combination of tangible²⁷ and intangible heritage²⁸ reflected in the local architecture, culture and atmosphere. The long-term interaction of the community with their surroundings has seemingly created a remarkable sense of place in the neighbourhood.

Holy Cross' architecture is represented by an important collection of historic buildings dating from 1850 to 1936. The building stock is homogeneous in shape, size, and height. However, like the rest of New Orleans, Holy Cross' peculiar architecture is defined by an eclectic mix of types²⁹ and styles³⁰ of buildings inspired on the different cultures that once colonized the area, including French, Spanish, and West Indian. The majority of the buildings are made of wood, mostly featuring an ordinary frame construction, however some examples of the standing planks³¹ technique can be found.

²⁷ Tangible heritage: physical artifacts left by previous cultures and civilizations, most commonly works of architecture and art (UNESCO, 2005).

²⁸ Intangible cultural heritage: practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artifacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognized as part of their cultural heritage (UNESCO, Paris, 2003).

²⁹ The house type is a matter of its shape and the arrangement of its rooms (Vogt, 1991).

³⁰ Style is determined by the ornament and trim on the house, and by things such as its windows and doors (Vogt, 1991).

³¹ This technique involves the use of thick vertical planks placed upon the sill to form the substance of the wall.

In addition, unique landmarks, such as the St. Maurice Church, the Jackson Barracks, the two Doullut Steamboat Houses stand out, elevating the neighbourhood's historical value. Another important addition to the area was made in 1859 by the Brothers of Holy Cross who took over a plantation in order to establish a boys' boarding school, thereby founding the Holy Cross high school. For the last 140 years, the school has been one of the neighbourhood's important landmarks (Out Beyond the City: history of the Lower 9, 2009), not only because of its impressive three-story brick Italianate structure with decorative cast iron galleries, but also because the school's ground is a remain of the extent and configuration of the plantations which once characterized the area.

To understand the origin of the local architecture's inherited green features it is necessary to understand its development through the course of history. The Native Americans inhabitants of the area that was later called Louisiana seemed to be the first to understand the local climate and therefore build their villages accordingly. Different clans would use different construction techniques and styles, but they would always build their homes in a way to guarantee their comfort and protection from the weather. They understood the thermal comfort of being above the ground and the need to build steep roofs in order to resist the rainy weather. The native civilizations have always been the prime example of a peaceful symbiosis between men and nature. They live from it, are forced to understand their environment, and peacefully coexist with it instead of conquering it. Differently from the Native Americans who had been occupying the region for generations, the French and Spanish colonists had to go through a series of attempts until they found the most effective manner in which to build their settlements. Learning

from the Native Americans, they were forced to change their European cultural model, and through trial and error, the colonists worked on their clothing, their shelter and their landscape in order to become accustomed to the local weather and achieve human comfort. But when they had finally developed the best way of building, they had constructed structures that were highly adaptable and made with local materials such as cypress wood, which is weather resistant and unattractive to termites. They would infill the wood structures with a mass infill that helped to stabilize the room temperature and cut down infiltration. The first houses were placed on ground level, but with time the population learned that, due to the seasonal flooding, it was a better idea to raise the structure off the ground on cypress hill blocks. Two other very particular elements of Louisiana's vernacular architecture, the porches and the steep pitch roof, were also added to protect the houses from the heat and torrential rain. The large plantation homes were raised a full story off the ground and the main living area was actually the space located on the second level. Their kitchens and other service buildings used to be separated from the main house. High ceilings and openings above the doors helped to ventilate the rooms, and the home would be opened at night to dissipate the heat collected during the day. Most of the life of the homes would take place on the outside porches, where people could be in contact with the fresh air and nature. The urban houses would benefit from a private courtyard with water and ample vegetation. Thanks to those, the cooler air would descend into the courtyards and be pulled into the buildings, expelling the warm air to the street side of the houses (Cazayoux, 2003). This adaptation process resulted in an architectural heritage full of green features, which have become so common to the local culture that they often go unnoticed: large windows that allow daylight to penetrate the

buildings, saving energy; shutters that reduce heat gain and protect the houses from storms; high ceilings, transoms and operable windows that create airflow and therefore a natural and efficient ventilation system; wood used in construction that comes from much older trees, higher in quality and resistant to termites and floods; and lime plaster used before the turn of the century to cover the walls, not only a great insulator but also water resistant (Fields, 2007). This vernacular type of architecture found nowadays not only in New Orleans but everywhere, comes from the concept of understanding and designing with the natural environment and should never be abandoned in the name of new technologies. Preserving the materials and ancient building techniques is already a green measure, but the preservation benefits also extend to the society as a whole. Safeguarding the built environment also sustains the land that is already settled and the community that has grown around it.

The house that holds the most significance for this study, however, might not be considered the most renowned: the shotgun cottage and its variations (see figure 7). Believed to have their origins in the Caribbean Islands, these houses are a readapted version of the constructions the African slaves used to have historically: “One room wide, one storey tall, and several rooms deep, the shotgun houses sit several feet above the ground on concrete block piers, its primary entrance below the front porch gable” (Zamore, 2009). Its rooms are lined behind each other without a hallway, and the doors to each room are placed in a linear fashion, allowing the air to circulate. These houses were in the majority, constructed with recycled pine bargeboards originally used to transport merchandise down the river. The camelback is the most common variation of the shotgun

and has a two-story addition to the back of the building; it was designed for single families in high density urban areas.

This house typology has a particular importance in Holy Cross: according to a 1986 survey from the University of New Orleans and the State Historic Preservation Office, the main architectural type found in the neighbourhood are eighteenth, nineteenth and early twentieth-century shotgun houses³². They represent 58% of the neighbourhood's building stock, and qualify as one of the biggest collections of shotguns in the Gulf Coast region. Other building types, such as Creole cottages³³, side halls³⁴, bungalows³⁵ (see figure 8) and camelback houses³⁶ (see figure 9) are also represented. The same survey categorizes 27% of the building stock "architectural intrusions", meaning that they don't represent any particular type or style. If looking into the overall building mix, the most common architectural styles in the neighbourhood are the Italianate (27%), followed by the bungalow (17%). Other styles, including Greek revival, Eastlake, and twentieth century eclectic are also found. However, it is important to remark that Holy Cross is one of the few areas with a significant component of pre-bungalow-era shotgun houses,

³² The shotgun house is thought to have arrived in Louisiana in the early 1800s from Haiti. It is a very common style in New Orleans and its popularity continued until the 1940s. A shotgun is a long, narrow rectangular house, with all rooms arranged directly behind one another in a straight line, front to back. (Vogt, 1991). The shotgun gets its name, legend has it, from the saying that a shotgun blast at the front door could pass uninterrupted through all the rooms to the back (<http://www.casasugar.com/1017383>).

³³ Creole cottages were popular in New Orleans during the early 1800s. They are generally rectangular, and most were built very low to the ground and right up to the sidewalk. They had four rooms, two fireplaces, and two small rooms on the rear called cabinets. The earlier cottages had hipped roofs, while the later and most common ones had a side-gable roof. The cottages built on the country side were raised off the ground and had a porch (Vogt, 1991).

³⁴ The Side Hall house is another variation on the basic shotgun which provides access to the second and third rooms without disturbing the first or second. The side hall can be enclosed, partially enclosed or fully open (<http://bywater.org/Arch/Architecture.htm>).

³⁵ Bungalows became popular in the small Midwestern towns from the 1910s to 1930s. These narrow rectangular houses have low-pitched gable or hipped roofs and small front porches, usually enclosed by screens (<http://www.uwec.edu/geography/Ivogeler/w367/styles/s9.htm>).

³⁶ The camelback is a single or double shotgun with a two level portion over the rear rooms.

featuring elaborated and recognizable styles like Eastlake and Italianate. In other regions across the Deep South, shotguns are usually associated with working class house types and are usually very plain. But despite their simplicity, the importance of the shotgun lies with its power to impact the character of a neighbourhood, creating a unique scenario. According to Zannore (2009): “the repetition of these houses, with their clean, uncomplicated forms, creates an instantly recognizable image of a community and sense of place”. Therefore, the exceptional, well-preserved concentration of shotgun houses and the overall pre-Queen Anne Revival structures existing in the neighbourhood justified Holy Cross listing on the National Register in 1986 and its designation as a Local Historic District in 1990.



Figure 7: A traditional single shotgun

Source: author's own



Figure 8: A Bungalow style double shotgun

Source: author's own



Figure 9: A remodelled camelback house in Holy Cross

Source: author's own



Figure 10: An example of a ranch style

Source: author's own

3.2.2. Social capital: local community as the agent of change

It is undeniable that social networks can be a valuable asset for individuals and communities. According to Robert D. Putnam (1993; 2000), one of the scholars responsible popularize the concept, social capital refers to social networks and the associated norms of reciprocity. He also defends the value of social networks, saying that dense connections can bring advantages to a neighbourhood and can even benefit local people who don't directly participate in the networks themselves. He distinguishes different types of social capital, like “bonding” social capital – defined as links among people who are similar in ethnicity, age, social class, etc.– and “bridging” social capital, which are links that cut across various lines of social cleavage. Advocates of “social capital” also defend the correlations between vibrant social networks and outcomes like better school performance, lower crime rates, better public health, reduced political corruption, improved market performance, and so on. The World Bank has adopted the concept of social capital as an organizing tool, defending that “increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable” (The World Bank, 1999). However, more research on the subject appears to be necessary, since, according to Putnam himself: “...it's not easy to imagine an experiment in which some people are required to have friends or attend church or whatever, and others are required not to” (Putnam, 2004).

It is certainly not easy to imagine an experiment where people are forced to participate in social activities in order to create strong bonds and benefit the entire

society. However, in rare occasions, real life laboratories in which it is possible to observe the development of such relations can be found in unique places, like Holy Cross. The concept of social capital, especially the “bonding type”, can be clearly applied to the neighbourhood and can also be pointed to as one of the ruling factors of its recovery: “In the Katrina-ravaged New Orleans neighbourhood, where many homes were passed along by families across three or four generations, pluck and unity prove to be the cornerstones of rebuilding” (King, 2008). In Holy Cross, relationships have always mattered and still do. The connections between the long-term residents have been reinforced by the outstanding number of community organizations which have always been active in the neighbourhood, resulting in a strong community able to commit themselves to each other.

Another possible reason for such a strong social network in the neighbourhood is related to the small scale of their living environment. Putnam (2004) directly relates social capital to space - from the architectural to the city scale:

“...schools, but also offices, housing developments and entire cities need to be designed with an eye toward how architecture can encourage easy, casual connections among people who might otherwise find themselves in isolated niches” (Putnam, 2004).

He establishes a connection between scale and social capital and suggests “smaller is better” from a social capital point of view. With smaller towns, firms and classrooms, decentralization is considered the key to increasing the empowerment of grassroots organizations. “‘Subsidiary’ as a design principle is relevant here, as are ‘cellular’ organizations, like ‘schools within schools’ in which smaller groups are nested within larger ones” (Putnam, 2004). Because of its physical isolation from the rest of the city

and small town characteristics, Holy Cross' urban shape became another facilitator for social interactions.

On the other hand, social ties are fragile and subjected to all kinds of threats. The bonds between the neighbourhood's residents have been slowly undermined in the past decades due to gradual infiltration of newcomers to the area. Also, it is undeniable that Katrina had a major impact on Holy Cross' social networks. Yet, the ties have proven to be strong enough to get the community leaders and residents organized to rebuild the neighbourhood. Another negative side of such strong and well-organized societies can be observed in Holy Cross. When acquiring a high social capital, groups and organizations have the means and sometimes the motive to work to exclude and subordinate others. If not well managed, those organizations can end up putting their own interests and priorities before the community's. Additionally, the experience of living in close-knit communities can cause a loss of enthusiasm and initiative - especially for those who feel they are different or excluded in some way. In the case of the studied neighbourhood, a certain level of exclusion is observable. During informal conversations with some of the residents, a certain tone of discontentment could be noticed, especially when referring to the community leaders and their projects or the arrival of newcomers. Another sign of a possible exclusion is that it is not clear to what degree the "average" resident of Holy Cross is aware of what a Zero Carbon Footprint Zone means, or if becoming green is one of their priorities. They are certainly aware of those concepts now, but they seem uncertain of how to achieve them.

Therefore, the Holy Cross recovery plans must carefully preserve and strengthen the neighbourhood's weakened social capital, giving tools to the local community to continue knitting their social fabric. Moreover, this process has to be achieved without excluding the needs of the most vulnerable population to cater to the sometimes selfish ideals of certain groups and organizations. The evident sense of community among the population of Holy Cross is one of the characteristics that has made this particular neighbourhood resilient. When it comes to a crisis, a well-mobilized community is more efficient and effective to address and solve its own problems:

Emergency management normally starts at the local community level. Community capacity building refers to the means by which a community can tap into its own strengths and abilities rather than being overwhelmed by routine problems or even small disasters. Capacity building is not likely unless the community first has the assets necessary and the will to mobilize these assets. When a community is well mobilized to address and solve its own problems, more efficient and effective results occur under routine conditions (Government Accountability Office [GAO], 1993; Kretzman & McKnight, 1993; Mileti, 1999; National Academy of Public Administration, 1993).

Section 4 - Thesis Statement, Methodology and Analytical Framework

4.1. Thesis Statement

Holy Cross was chosen from the several neighbourhoods of New Orleans because of its concentration of most of the required characteristics to suit this study. The neighbourhood is a live laboratory where concepts of resilience, vulnerability and recovery can be observed. Although it suffered heavy flooding after Hurricane Katrina, the neighbourhood is on higher ground than other parts of New Orleans and drained more quickly. Specialists from Tulane/Xavier Center selected Holy Cross for Bioenvironmental Research and the Louisiana Department of Natural Resources (DNR) in February 2006 as a pilot project for energy efficient reconstruction. Apart from the fact that Holy Cross is trying to be a role model for sustainable reconstruction, it also accommodates an excellent sampling of historical buildings, which were not extremely damaged by Katrina. Additionally, the neighbourhood's mix of tangible and intangible cultural heritage provides it with a strong sense of place and natural "sustainable" urban patterns. Finally, even if considered socially vulnerable, Holy Cross' social and racial issues have always been allied with high social capital, symbolized by a strong capacity for community organization, which led the locals to take action when the government failed to help them.

Therefore, the recovery of such a unique place can be a complex process, which entails the creation of a more resilient community without hurting the historic character of the neighbourhood. The reconstruction should by no means be unsustainable, however,

it demands special consideration to the neighbourhood's heritage. There are concerns about the future effects of the several projects taking place in the neighbourhood, since they will have a direct impact on the local community and thus on their cultural and social bonds. The use of modern techniques such as green building in a site of such an important architectural stock brings up questions regarding the concepts of green and sustainability, nowadays strongly associated with new construction but rarely with preservation.

Within this context, this study will attempt to assess to what extent the reconstruction process currently taking place at Holy Cross is indeed respecting and giving continuation to its identity and what the impacts on the future of the neighbourhood could be. The paper will also analyze if the new projects are succeeding in integrating modern green building technologies while preserving the heritage character of the neighbourhood. Finally, it will evaluate if the sustainable reconstruction of Holy Cross could be used as an example to reconstruct other historic neighbourhoods of similar characteristics. By those means, this paper has as its ultimate objective the demonstration of heritage preservation's important role in building stronger, resilient communities.

4.2. Methodology and Analytical Framework

In order to formulate and answer the questions raised below, the author has started with a comprehensive review of secondary sources of information related to the studied case. This first stage served to create a broad knowledge base and consisted of the assessment of specialized literature, together with the analysis of several experts' points of view. The literature review helped to understand the panorama of New Orleans and Holy Cross before and after Katrina, as well as understand concepts of resilience, recovery, reconstruction, green building and heritage preservation. The comprehension of the morphological development in the urban territory of the city of New Orleans, and especially Holy Cross, also played an important role in this research. Therefore, the analysis of historical data, maps and photographic material helped to trace the evolution of the city and the neighbourhood.

Those notions mentioned above were important to give base and prepare some of the tools used to collect data for this research. But on the other hand, the secondary information accessible from the online and published sources was insufficient to build a precise image of the neighbourhood's current state. Therefore, a trip to the site proved to be necessary in order to conduct a field research. The visit to New Orleans took place in the first two weeks of May 2009. The time spent in the city was used to observe the physical, social and historical context of the site and outline the neighbourhood's conditions after Katrina. The visit also allowed the validation of some of the secondary sources such as maps and pictures with the information found "in loco". Another method

of data collection implemented in the field trip, consisted of the application of open survey questionnaires (see Annex 1 for the draft) used to gather opinions from several of the stakeholders involved in Holy Cross' reconstruction process. The initial idea was to contact a varied but small sample of experts and a larger sample of the neighbourhood's population. The author attempted and succeeded to personally contact, for an unofficial interview, at least one member of the following categories: professors, organization managers, local authority officers, as well as urban planning and heritage preservation specialists. The contacted experts belonged to several institutions such as Tulane University, University of New Orleans, the Preservation Resource Center, the National Trust for Historic Preservation, the Vieux Carre Commission, the Global Green Foudation and the New Orleans Historic District Landmarks Commission. The interviews were conducted freely and did not restrain to the questionnaire and the high level of expertise of the interviewed people compensated for the small sample. Therefore, the information collected was enough to raise questions as well as assemble different views, conflicts of interest, and ideas for future developments on the studied site. Due to the several restrictions to interview the members of the local community (see 4.3 Limitations), the author opted instead, to participate in one of the neighbourhood's association bi-weekly meetings in order to gather opinions from the locals about the interventions going on Holy Cross. It is important to emphasise that the primary sources of information collected during the field visit reinforced the literary base, providing an accurate and detailed description of the limitations and potentials of Holy Cross. The data was essential to enable the later analysis of the impacts of each recovery plan on the future of the neighbourhood.

A summative evaluation of the effectiveness, achievements and possible impacts of the several projects that have been implemented in the neighbourhood will lead to a review of how satisfactory they have been in bringing Holy Cross back to life. Considering the impact that the recovery projects will have on such a unique and vulnerable community, this paper will analyze the roles of the most important organizations working on the resurgence of neighbourhood and their ability to articulate their projects to the urban environment. This paper will also assess the contribution of each project to create a more sustainable and resilient society by protecting and preserving the local cultural heritage, while adapting the site for future climate challenges. From the physical point of view, we will analyze specific circumstances, such as: the scale of planning and intervention, in order to verify how the new developments are placed in comparison to its site; how well the projects articulate with the existing urban fabric, in order to verify how the relations with the sector are established; the typology of the architecture, to verify if the project is giving a certain continuation to the existent fabric or if it offers possibilities to adapt new forms of occupation; the typology of the space, in order to verify if they give continuation to the traditional forms, uses and practices of the local culture; and the relationship between public and private spaces, in order to verify if the projects are able to integrate the uses and practices of the local culture. From the social point of view, we will analyze the following: if the projects are integrating and in some way contributing to the enrichment of the local culture; if the projects are respecting, maintaining and strengthening the social connections between the neighbourhood's residents; and if the most vulnerable residents are being considered and somehow included in the decision-making process.

For each project, the paper will discuss the choices that are proposed and the consequences that they might bring. Finally, through the analysis of all the compiled information, this paper will not only attempt to provide a conclusive answer to the questions that arose during the study, but also open new questionings regarding the issues related to the neighbourhood. To conclude, possible scenarios for the neighbourhood will be traced together with recommendations to help with the healthy redevelopment of Holy Cross and other communities facing similar issues.

4.3. Limitations

Some limitations were found when doing the necessary documentation for this paper. With regards to secondary sources, the main limitation was the lack of general registration for the historic housing stock of the neighbourhood. Another issue was the lack of accurate post-Katrina statistics, since the results of the 2008 U.S. Census had not been compiled yet. Regarding primary information, the main difficulty was the inaccessibility of some community leaders, who had not replied the several attempts to be contacted for an interview. Also, the unsafe character of the neighbourhood made door-to-door interviews with the local residents impossible.

Section 5 - The Intervention Projects and Their Issues

5.1. Introduction to the projects

For the past four years Holy Cross has been the image of a construction site. Through the dedicated work of the residents of Holy Cross and its neighbourhood association, and the ongoing efforts of several organizations and institutions, such as the Preservation Trades Network, World Monuments Fund, the Center for Sustainable Engagement and Development, Emerging Green Builders, Louisiana Technical College, Global Green, and ACORN³⁷, and the help of thousands of volunteers from campuses and church organizations around the United States, Holy Cross is getting back on the map. However, the sheer number of interventions and a complex number of stakeholders have resulted in unfinished plans, making the analysis of all those projects a difficult task. Therefore, this chapter will focus on four of the most enduring projects taking place in Holy Cross. Three of them are the result of the work of two leading organisations: the Preservation Resource Center of New Orleans and the Global Green USA Association. Two principles seem to guide their projects: green building and preservation; adaptation and re-use of heritage buildings. Even though they both share a common objective - the sustainable recovery of Holy Cross - the two practices have been taking parallel or sometimes even opposite courses to the neighbourhood's reconstruction. The fourth intervention, regarding the future of the Holy Cross high school, deserves to be mentioned due to the importance of its site for the neighbourhood. Therefore, the following sections of this chapter will provide a description and a brief analysis of the

³⁷ The Association of Community Organizations for Reform Now

projects that will definitively impact and influence the future of Holy Cross.

5.2. The preservationist model

The Preservation Resource Center of New Orleans (PRCNO) has been working on sustaining the city's historic patrimony since 1974. Since Hurricane Katrina, they claim to have assisted over 5,000 families in saving their houses, and over a hundred low-income families in returning to their homes. Their main commitment is to rebuild the city in a way that is sensitive to its past and its heritage: "In post-Katrina New Orleans, it is particularly crucial that we rebuild in a way that is sensitive to our past, or we risk losing everything that makes our city unique" (About PRC: Mission).

The PRCNO has several projects going on in the city and, more specifically, in Holy Cross. The "Operation Comeback" project has existed since 1987 and was first created to preserve the city's heritage from demolition by renovating blighted and adjudicated properties using the money from a donation-based revolving fund³⁸. The program focuses on neighbourhoods all over the city but is strongly present in Holy Cross, where it has helped to restore several houses: five pre-Katrina, ten post-Katrina, and twelve still in progress. A second program named "Rebuilding Together" (formerly known as "Christmas in October New Orleans") is the local affiliate of a national program and targets vulnerable homeowners (e.g. the low-income, elderly, and disabled). In Holy Cross, the program is responsible for rebuilding over 100 houses since 1993; 101 were concluded pre-Katrina, and 23 are post-Katrina projects. At the moment, they are

³⁸ Most of Operation Comeback's acquisitions and renovations are made possible by the donations to the Operation Comeback Revolving Fund, established after Katrina by Walter Isaacson, co-chair of the Louisiana Recovery Authority. Once a property is renovated and sold, the proceeds go back into the Revolving Fund and are immediately used to finance the next new construction or renovation project (source: <http://www.prcno.org/programs/operationcomeback/>).

working on seven more houses and two will be started shortly. The program works with predominantly volunteer labour³⁹ and has a budget of US\$ 1.5 millions to invest. In 2005, after Hurricane Katrina, a third program named “HOME AGAIN!” was developed as a joint venture of PRC and the National Trust for Historic Preservation to help in the city’s reconstruction. “HOME AGAIN!” was designed to assess the physical conditions of the houses in the historic districts of New Orleans and prove that they could indeed resist and recover from the flooding. They also attempted to demonstrate that, with a little bit of assistance, homeowners could quickly return to the comfort and safety of their homes and neighbourhoods. The program closed in October 2009 and has invested over one million dollars into 25 projects, 17 of which are in Holy Cross (Holy Cross becomes HOME AGAIN!). The PRCNO has been a long-term presence in Holy Cross and has done remarkable work on the recovery of the neighbourhood. These three preservation programs together with the State Historic Preservation Office's Historic Building Recovery Grant Program (a grant program lobbied for nationally by the Trust and the Lt. Governor's office that brought over 20 million dollars to Louisiana) assisted in rebuilding 165 historic homes in Holy Cross, which counts as over 16% of the occupied and currently receiving mail neighbourhood’s households (HOME AGAIN! Success Stories).

The PRCNO and its partners swear by the “the green building is the one already built” motto, fiercely defending the sustainable features of the historic buildings. They affirm that rehabilitating historic houses is the most sustainable way to revitalize a city, and this is the message that they try to pass to the members of the community, educating

³⁹ Most of the volunteers are from the AmeriCorps program.

them through workshops, lectures and training sessions. The process of restoration of the houses is carefully done and extremely respectful of their historic architectural features. The programs taking place in Holy Cross are the least intrusive as possible and respect the neighbourhood's urban pattern, scale and sense of place.

However, renovating and re-selling high quality historic houses do not protect the neighbourhood from gentrification. On the contrary, with real estate prices currently ranging from US\$ 95,000 for a to US\$ 200,000 (Figure 11), renovated historic homes are a bait to attract wealthier homebuyers looking for value, eventually resulting in increased property prices. Fortunately, due to the broad nature of their programs, the PRC projects also attempt to include and benefit the most vulnerable residents. Without "Rebuilding Together" the chances of the elderly, low-income population repairing their houses would be almost nonexistent.



500 Lizardi St.

Own a piece of history by living in the first Katrina Cottage built in New Orleans, by Operation Comeback. Enjoy the sunrise and sunset over the river from your front porch! This home is only steps from the park-like levee, and many other New Orleans landmarks. Retreat to your 612-square-foot, 2-bedroom, 1-bathroom home on a 30' X 111' lot, in Historic Holy Cross. All of this can be yours for \$95,000.



938 Lizardi St.

Come home to this wonderfully renovated shotgun with off-street parking and an outer building that can be used for storage or as a garage. This Arts and Crafts-style shotgun is a 720-square-foot home with 1 bedroom and 1 bathroom on a 30' x 114' lot. Many properties on this block are being renovated with the assistance of Preservation Resource Center. This perfect starter home may have grant money attached, and it is being offered at \$110,000.



4804 Dauphine St.

Imagine moving into a completely renovated 3-bedroom, 2-bathroom historic home with over 1,500 square feet of space, right where the Industrial Canal meets the "Mighty Mississippi." This home sits on a double 62' x 101' lot. Enjoy the beautiful view of the river, canal and downtown. Watch the sun rise and set at the levee. The house, fondly called the "tree house" has an interesting story to tell. This is a must-see! Once you visit, you'll be in love! All of this and more is offered at \$199,000.

Figure 11: Shotgun cottages remodelled and sold by the PRC

Source: Preservation in Print, November 2009

5.3. The green building model

Another eminent organisation working on the recovery of New Orleans is Global Green USA⁴⁰. According to an article in the New York Times, Global Green has brought in about \$15 million in grants and funding for recovery efforts in the city. As part of their commitment to provide New Orleans a sustainable redevelopment, they launched the Lower 9th Ward's showcase Holy Cross project. The initiative had celebrity supporters such as Brad Pitt who, together with Global Green, sponsored an international design competition to design a zero energy affordable housing development in Holy Cross. The contest had more than 125 entries and the winning design was created by Matthew Berman and Andrew Kotchen of Workshop/APD in New York. The project consisted of building five single-family energy-efficient homes, an 18-unit apartment building, and a community centre and intends to act as a landmark of sustainable development for the city.

Together with the lead funding partner, Home Depot Foundation, Global Green has been working with Workshop/APD and a team of experts to build the development. However, by the time of the site visit, on May 11th, 2009, only one house out of the five (used as a visitation centre) was completed, while two others were under construction. The projects for the apartment building and community centre were still waiting for approval from the city.

⁴⁰ Founded in 1994, Global Green is the American Arm of Green Cross International (GCI), which was created by President Mikhail S. Gorbachev.

During a meeting with the author, the Global Green promoters stated that the houses will be sold roughly at cost to those who lost their homes during the storms. Only former Holy Cross residents will be allowed to have access to those houses, as a manner of avoiding gentrification. If approved for construction, the apartments will be rented at a discounted rate. The properties are being sold under the dictum that energy efficiency will reduce energy bills. The reason for such dramatic savings is that the buildings feature 3- to 5.3-kilowatt solar arrays on rooftops, energy-efficient appliances, and a sustainable design that, if well managed, can use 75 percent less energy than a typical building. Still, when asked about the construction costs of the LEED Platinum houses, the developers seemed to be reticent. However, they have openly admitted that the model house has different features and better quality than the ones under construction, since standards had to be lowered due to the elevated prices. According to the promoter, the new houses cost around \$ 215 thousand to be built, but thanks to fiscal incentives and soft second mortgages, the sales price can be under \$160 thousand.

Global Green also advertises their project as an educational tool, as its model home serves as a “green” inspiration to the dozens of visitors who pass by the house every week. Many of them end up looking for ways to improve energy efficiency in their own homes and look to the organization in order to find information on contractors who specialize in energy efficiency work and places to buy the building materials. In an interview for The New York Times (Howell, 2009), Mr. Matt Petersen, Global Green's president and CEO, says that their objective is to create a different future for the entire city, and that green should be part of the New Orleans culture as much as jazz or Mardi

Gras:

One could debate that it doesn't make sense to rebuild New Orleans, given the fact that much of the city lies under sea level, but the fact is, it was going to be rebuilt, so why not make it a model? Why not create a center of expertise in a city that had no green building or energy efficiency experience?...We want to help it change its course for the future.

It is irrefutable that the Global Green project in Holy Cross has been implemented with nothing but good intentions, attending to the neighbourhood's own wish to become greener. But the impacts of such development have to be analyzed with critical eyes since the process affects not only the physical environment of the neighbourhood, but also the life of the local community. Even if, at first, the Global Green houses respect local urban pattern, maintaining the same lot size of the traditional houses, the cutting-edge architecture design is a far interpretation of the traditional camel-back houses⁴¹ and it surely brings a new visual element to the picturesque neighbourhood. And, if the entire project is completed as planned, it will cause a complete rupture of neighbourhood's urban character, affecting the local sense of place. It is not clear if the breakage is on purpose, to differentiate the project from the rest of the neighbourhood and as a sign of a new era, or if it is just the result of poor communication and coordination in making the project a better fit for the area. If the first possibility is correct, a trend might be starting and other developments of the same type may be approved in the area, endangering the local heritage and resulting in what could be the end of the historic Holy Cross. So far this break is justified by the promoters in exchange for a lifetime of low-cost energy. But when imposing cutting-edge technology on a low-income community, the costs and necessary knowledge of maintaining such infrastructure must be discussed and measured. In addition, the fact that the buyer of one of those houses will have to pay condo fees to

⁴¹ The camelback is a single or double shotgun with a two level portion over the rear rooms.

maintain their residences is not advertised by the promoters, who have been selling the idea of a life with virtually no bills.

On the societal level, however, the presence of Global Green in the area can also result in positive outcomes. The project brings the concept of green living to the eyes of the local residents, who otherwise might never have heard about it before the organisation settled in the neighbourhood. On the other hand, it is imperative to be cautious when transmitting such an abstract concept to the local population, because they might perceive the idea that sustainability cannot be achieved without high technology. The neighbourhood's residents must be aware that, when it comes to being green, lifestyle adjustments are the most effective tools, and even minor changes in their daily life activities can equally guarantee a sustainable future, from either inside an old shotgun or a LEED platinum house.

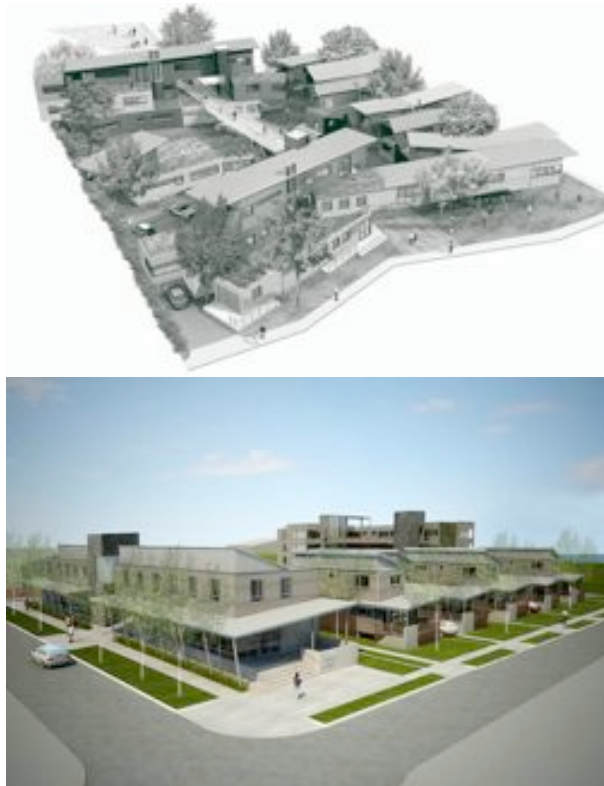




Figure 12: The Global Green housing project by Workshop/APD

Source: <http://www.conservationmagazine.org/articles/v8n1/forward-thinkers/>

Picture		
	Traditional houses	Global green houses
Type	Mostly shotguns (single or doubles)	Inspired by the camelback
Style	Italianate, Greek revival, Eastlake, Bungalow, Eclectic, etc...	Contemporary, “green”
Construction type/Material	Wood framing, recycled barge boards, in cypress or pine	Borate treated wood frame, Hurricane resistant metal roof
Elevation	Some are above the ground or are being elevated now	Are constructed 4 feet above the ground
Lighting	Large windows during the day, artificial lighting at night	Large energy efficient windows, solar powered lighting at night
Ventilation	Natural, using elements as French doors, transoms, high ceilings, room placement and corridors to facilitate the air movement	Natural, also uses elements as high ceilings and transoms
Energy source	Electric energy	Solar panels: 3 to 5.3 kilowatt solar arrays on rooftops (but the houses are also connected to the street grid)
Implementation and lot size	The average lot size for single shotguns is around 2,926 square-foot, most of the houses have a backyard	The whole housing complex is distributed over a 1.2 acre lot (Figure 12) and have a common courtyard

5.4. Historic + green: is conciliation a possibility? The 5200 Dauphine Street project

Preservation and green building practices have an equal number of pros and cons, and one ideal will always dominate the other depending on the circumstances applied to the project. But once the local context is defined, both fields should be able to work together, respecting the environment in order to achieve the community's best interests. It should not have to be a choice between "progress" and "stagnation", but a balanced way of achieving sustainability in an environmentally responsible way, while protecting its historic resources. In the historic district of Holy Cross, it is undeniable that preservation plays the strongest role in the reconstruction process. In this case, sustainability comes from conserving and giving a continued use to the neighbourhood's historic buildings and safeguarding its sense of place. The concept of merging green building and historic preservation is a new and developing field. After Hurricane Katrina, New Orleans was presented with an opportunity to rehabilitate its properties and infrastructure. Even though a symbiotic existence between the two realms is still far from being achieved, efforts to introduce such a concept are becoming increasingly acknowledged and accepted all over New Orleans.

Even when a property is damaged beyond repair, options such as deconstruction provide an alternative to destruction with less negative impact on the environment, all the while preserving architectural elements as symbols of the city (Reid, 2008). One outstanding example is the Operation Comeback project at 5200 Dauphine Street in Holy Cross. The project began with a partnership between the Preservation Resource Centre and the Historic Green, a group of professionals associated with the U.S. Green Building

Council. It consists of deconstructing and redesigning a former camel-back shotgun house. According to the Operation Comeback officials, the building was in terrible condition and left neighbours concerned for their safety. The new design, supervised by former National Trust architect William Dupont, is inspired by the former structure, respecting its past form and use and will be built using the building's own salvaged materials. The building will be the first LEED Platinum project that has the support of the PRC and numerous other groups. After completion, the Centre for Sustainable Engagement and the Holy Cross Neighbourhood Association will occupy the space.

Projects like this are necessary because they break the usual barriers between traditional reconstruction, adaptive reuse, and the green movement, and hopefully will inspire others to make more conscious project choices. While 5200 Dauphine is a new construction, it is saving energy by recycling materials and utilizing them to the fullest extent, not to mention that its design respects the local sense of place, using real references from the past and giving true continuation to the neighbourhood's character. The local construction practices are also being valued, since the design and construction team will use a blend of traditional practices and new energy-saving systems. According to Historic Green, it is predicted that twenty-four apprentices will work on the traditional aspects of the project, such as the reuse of salvaged material and construction of traditional architectural elements. Actions like this might be a reasonable answer to adjusting the preservation field and the new green practices with flexibility and innovation.



Figure 13: Operation Comeback's project on 5200 Dauphine St.

Source: (<http://davidrmacaulay.typepad.com/.a/6a00d8341c89e853ef0120a56b5229970c-800wi>)

5.5. The Holy Cross high school: what is the future of this neighbourhood landmark?

According to Lerner (2003), the concept of “urban acupuncture” focuses on identifying the “pressure points” of a neighbourhood. When intervened, those specific spots have a ripple effect that affects the entire community. The Holy Cross School property can be considered one of the neighbourhood’s pressure points, since any intervention in the area will affect the community, and the repercussion could be a positive or a negative influential wave.

After Hurricane Katrina wiped out most of the neighbourhood, the Holy Cross School was displaced to Gentilly. The relocation led to questions on what would be the destiny of the site, since the school has been an anchor for that section of the Lower 9th Ward since 1879. Due to the importance of the site and the historic value of the school buildings, any project taking place in the area will certainly have a large impact on the recovery and redevelopment of the neighbourhood. According to an article issued in April 2009 by a New Orleans’ local newspaper (Hammer, 2009), the Louisiana Recovery Authority (LRA) authorized the city to use \$2 million⁴² to buy the devastated Holy Cross School in the Lower 9th Ward.

The LRA stated that the plan is to turn the Holy Cross campus into a National Center for Community Health and Research "to promote wellness, improve disease

⁴² The money is from the city's \$411 million available for long-term recovery. The city has been using the federal Community Development Block Grant money for various infrastructure projects.

management and enhance quality of life in this medically underserved community, where 60 percent of residents have low-to-moderate incomes." The Orleans Recovery Foundation is heading the project along with the city's health department. According to the article, the plan is to have FEMA demolish all of the buildings on the 12-acre school site, with the exception of the school's historic administration building, which was previously donated to the city (Figure 14). The future of the property brought up all types of discussion between not only the neighbourhood residents, but also those of the entire city. Comments posted on the newspaper's website shared different points of view on the situation, confirming the importance of the school site for the locals. Some of the most positive minds defined the plans for the site as a great way to support and improve the life quality of the local community, since such facilities will bring advantages to the neighbourhood, such as services, jobs and supporting business. Others sound more skeptical about the city's true intentions and who will really benefit from the project. Some also doubt their ability to get the project started, showing that many are still disappointed with the local government's actions towards recovery.

In May 2009, when the field trip took place, the authorities consulted on the case could still not give an accurate answer about the future of the old school. The rumours were that the city acquired the building, but no word was said about the Health Centre. It wasn't until the Neighbourhood Association meeting that the future of the buildings was absolutely confirmed. The objective of that specific session, attended by the author on May 14th 2009, was to present the residents with the company that was hired to demolish the school's buildings. The company's representatives were there to explain the

demolition methods and the length of the process. The historical importance of the property or the future use of the building didn't seem to be a priority for the participants, who were indeed much more concerned with the destiny of the demolition residues, and if whether they were going to be re-used to reconstruct the new building or donated to the locals. The overall interest of the public appeared to be more personal; they wanted to have access to the material so they could use it on the reconstruction of their own houses.

An article issued in the August 2009 edition of the Holy Cross Neighbourhood Association Newsletter (Allen, 2009) says that plans are still underway in developing the National Centre for Community Health and Research (NCCHR) project at the old site. The article assures the community that the centre's activities will not be limited to research, but also include community education, a community meeting space, as well as light retail. Attending to the residents' requests, a housing project might also be included in the plans. Presently, the centre is waiting on word from the National Institute of Health regarding a multi-million-dollar grant application that was submitted over two months ago. The HCNA sees the project as the "community's economic stimulus package" (Allen, 2009).



Figure 14: Holy Cross High School

Source: City of New Orleans, Neighbourhoods Rebuilding Plan

5.5. Different scales, same area of influence

This chapter presented the different ideological concepts guiding the redevelopment of Holy Cross as well as the organisations working behind them and an exemplar case study demonstrating that successfully managed to council both streams. However, the purpose of this chapter, was also to demonstrate the different scales of intervention of these projects. While the PRC has been spreading their seeds all over the neighbourhood by remodelling the old shotguns one by one; the Global Green is mostly represented by a single imposing project. But regardless of the scale, one thing is certain: both intervention levels have been influencing the entire neighbourhood. The same case applies to the case portrayed in the previous section: the Holy Cross high school. Even if still of an uncertain character, any future development that will take place in a site of such physical opulence and historic importance, will bring physical and social changes to the neighbourhood.

Section 6 - Notes on Holy Cross' Recovery Process

6.1. Introduction to the recovery pillars

The path to Holy Cross' recovery started based on two basic pillars: its people and their cultural heritage. However, during the process, a third pillar was added: sustainable practices. The conjunction of those three concepts should be the formula for success. Yet, nothing is simple, and many barriers have come along on the long road for the neighbourhood to reach pre-Katrina normalcy levels. That being the case, this chapter will demonstrate the symbiotic relation between the pillars of reconstruction and the current situation of the neighbourhood.

6.2. The interrelations between the community and the reconstruction process

During the months following Hurricane Katrina, the ‘discourse of opportunity’ mentioned by Vale and Campanella (2003) clearly presented the plans and documents regarding the reconstruction of the city:

The recent destruction in New Orleans and the surrounding areas presents the city and the region with a historic opportunity. That opportunity is to rebuild these communities in a way that brings forward their rich history while creating a new definition of a 21st century city. In the process, it also allows the city to address problems that were long-standing before Hurricane Katrina—to create a city that is stronger economically, physically, and culturally for all of its citizens (The New Orleans Principles, 2005).

The authorities have tried to build hope, showing the disaster as a new opening to build an improved and sustainable version of New Orleans. In Holy Cross, this ‘discourse’ came predominately in the form of ‘green’ ideals, as the neighbourhood showed an extraordinary interest in becoming a Zero Carbon Footprint Zone by 2020.

However, theory and practice have not seemed to be coordinated enough, and imposing hope to an already hopeless population has proven to be a difficult task. Even now, four years since Hurricane Katrina, many citizens of New Orleans still have a negative attitude about recovery due to the fact that the reconstruction of the city took too long to start and is far from being concluded. Retarding the rebuilding process has had a negative psychological effect on the local citizens, especially the most vulnerable ones, resulting in destitution of hope. Some of the city’s residents still live among the physical scars of the hurricane and the flooding, being reminded of the disastrous events that took place four years ago on an everyday basis.

In numbers, the neighbourhood's recovery seems to be very successful. According to the latest data published by the GNO Community Data Centre⁴³ in June 2009, the neighbourhood that had 2,240 households receiving mail in June 2005, now has 1,061 of them, meaning that 47 percent of the pre-Katrina population has returned.⁴⁴ This shows that Holy Cross has finally reached a turning point in its recovery efforts. In June of 2008, the same source indicated that 774, or 35%, of the pre-Katrina households were then receiving mail. Said another way, Holy Cross has grown by 287 households in the last year, what is considered one of the highest rates of neighbourhood growth in the city. The National Historic Trust has issued even more optimistic results on the neighbourhood's recovery: in August of 2009, their staff had identified 198 homes that were vacant but repaired or being repaired. By discounting the 'households' represented by Jackson Barracks and the nursing homes which, according to them, distort the numbers, they have anticipated that the occupation rate will soon be as high as 62%. That means that only about a year ago, the neighbourhood had actually achieved the necessary mass of population needed to be economically, socially and politically viable.

Despite the optimistic predictions and the visible actions to bring the neighbourhood back to life, physical signs of a slow recovery are still observable all over the place, bringing up questions regarding the real attainments of the process. Several buildings are still shut down and closed with wood barriers, empty lots are seen everywhere, there is no commercial activity in the area except for some stores on St. Claude Avenue, and the public transportation network still hasn't been restored. In

⁴³ GNO Community Data Center analysis of Valassis Residential and Business Database, www.gnocdc.org.

⁴⁴ The GNOCDC used media/marketing company Valassis' comprehensive mailing list database to compare active-address households in June 2005, June 2008 and June 2009 across New Orleans neighborhoods.

addition, the neighbourhood's sense of place and cohesion doesn't seem to be the same; partly due to the fact that the processes of reconstruction have brought newcomers, and thus new interactions, to the neighbourhood, causing transformations in the local social ties. Also, places such as community centres and churches, which used to play such an important role in the neighbourhood's social life and are an essential tool in order to re-establish interaction, are only now being re-opened. Therefore, solving such matters is clearly urgent in order to bring the neighbourhood back to its so-called normalcy.

Holy Cross' isolation from the rest of the city helped to build a rich local culture and create a vibrant community, and also to postpone its gentrification. If Hurricane Katrina's reconstruction process exposed the neighbourhood, providing it with many opportunities, it also brought this once forgotten little neighbourhood to the eyes of many, turning it into an object of curiosity and interest. In the period that succeeded Hurricane Katrina, Holy Cross received an influx of outsiders. The neighbourhood received not only some of the many people who moved to New Orleans in order to help in the reconstruction process, but also people who saw an opportunity to buy inexpensive properties in this newly promising area of the city. With apparently higher levels of education, they installed themselves in the neighbourhood and could be seen in the community meetings, bringing discussions to a new level that might or might not be appropriate to the neighbourhood's long-term residents. The result was an inevitable disruption of the sense of trust and closeness between the long-term residents of Holy Cross. However, the manner in which this until-now-light-gentrification trend is coordinated can bring either positive or negative results to Holy Cross. The creation of a

mixed-income neighbourhood is encouraged, but it's a two-sided knife. The new generation of residents can help the older one, bringing new insights, ideas, and another level of exigencies that can improve the community life as a whole. However, they can also intimidate the long-term residents, increase their property values, and push them away from the community meetings and eventually from the area. Another important consideration is that, in New Orleans, the issue of race is tied up with every aspect of urban life, giving another meaning to the word gentrification: Caucasians moving into a predominantly African-American neighbourhood can be considered to be gentrifiers, regardless of income.

Vale and Campanella (2005) also define resilience and recovery as “site-specific”, meaning that the distance to the epicentre of the disaster tends to directly relate to a place's level of resilience and recovery. If at first glance geographical location seems to influence those levels within the entire city, it is also important to observe that social conditions also play a major role when assessing the individual level of vulnerability and resilience of each neighbourhood. Different social backgrounds and connections are one of the reasons why each community has been recovering at different paces, even if sometimes located in similar geographical sites within the city. Vale and Campanella's (2005) affirmation could have a double interpretation in the case of Holy Cross. The neighbourhood could be considered very resilient, since it is located a few blocks from one of the most affected areas of the city, the Lower 9th Ward. But here, “site” can have another meaning, because even if located just a few steps from the epicentre of the disaster, Holy Cross' site is what spared it from the same sad destiny of its neighbours.

This same site, however, also contributed to the slow recovery, since, due to the high ground elevation, the neighbourhood's residents were never obliged to buy flood insurance. When damaged by the flood, they were not able to afford the repair of their homes. Also, Holy Cross' proximity to one of the epicentres of the disaster also impelled the residents to move back as soon as the floodwater drained. This results in a paradox; if the last affirmation is considered, Holy Cross is probably not as resilient as it could be. It is all a matter of perspective. When crossing St. Claude Avenue, the border between Holy Cross and the Lower 9th Ward, "recovery" can be put on an entirely different level. In this area, where the water breached the levee with such force that homes were knocked off their foundations, the devastation is striking. Homes were reduced to splinters and cleared as debris, and there is not much left there except for empty lots and the few houses built under the "Make it Right Nola" program. Four years after the hurricane, only 19 percent of the pre-Katrina 363 households became active again in the neighbourhood (GNOCDC, 2009). Under those circumstances, Holy Cross can be seen as successful only in showing that recovery is a very relative concept.

6.3. The interrelations between climate adaptation and heritage preservation

Another paradox that troubles Holy Cross is the adaptation to climate change. It is extremely important to protect the neighbourhood from the inevitable weather hazards that affect the entire region and seem to be more frequent and powerful with every season. However, the process of adapting places of such important cultural heritage is a very delicate one, since any alteration to the neighbourhood's historic characteristics can break patterns and have huge social implications. So once more, the process of adaptation must be a cautious one; otherwise, trying to improve the neighbourhood's resistance against climate change might bring consequences that will actually negatively affect the levels of resilience. One example is the scenario if building new and green becomes a trend for future developments in the area. If such a 'green' revolution actually materializes, the impacts will be more than just on the neighbourhood's built scenario. It might result in the actual formation of new societal links, shaped by new values, slowly transforming and eliminating the local cultural heritage, and finally resulting in the end of the historic character of the neighbourhood. That would mean the break of social networks and the beginning of new ones, connected by other ideals and interests, different from those that were common to the long-term inhabitants of Holy Cross. This process can affect the local culture and result in a threat to the identity of the neighbourhood. Many questions regarding the maintenance and durability of green buildings have been left open. Will the average Holy Cross resident have the money and the expertise to maintain the expensive solar panels that are being sold as the best manner of saving money and the environment? Are those buildings made to last? Those questions

will remain unanswered, since the green projects are too recent to be able to tell what their future will be.

It is incontestable that sustainability is essential, but high technology and green building are not the only ways to reach it. In fact, the durability of the historic housing stock make it essentially sustainable. According to the World Monuments Fund (2006):

The historic houses of New Orleans that retained their original materials sustained considerably less damage than homes that had been renovated or buildings of more recent vintage. After flooding, houses with modern dry wall, which contains a paper coating, had more mould damage than those with traditional plaster walls. Original floors, millwork, windows, and doors made of cypress—harvested from the swamps drained to create many of the city’s residential neighbourhoods—tended to survive thanks to the wood’s rot-resistant properties.

Restoring, preserving, and giving a new use to the naturally ‘green’ potentials of the already existing housing stock must also be considered a great step towards sustainability. Promoting vernacular architecture as ‘green’ is a practice that has been introduced by organisations such as the Preservation Resource Centre and the World Monument Fund and should be extremely encouraged, even though some of the most influential voices in the local society seem to still prefer new technologies.

Due to its previous use as farmland, Holy Cross’s urban patterns are not as dense as the other historic neighbourhoods settled on the natural levee of the river (e.g. French Quarter, Marigny, Bywater). However, it is quite compact as far as modern parameters go, evoking the concept of “walkability”, an extremely desirable feature for a neighbourhood. Walkable areas help reduce the use of automobiles, and therefore air pollution, and are also a major convenience for residents who cannot drive, usually the

most vulnerable ones. Hence, this type of urban design, naturally found in the neighbourhood, can be considered one of Holy Cross' most sustainable assets.

Another issue troubling the neighbourhood is the result of the unique legal system in Louisiana. Unlike that of any other state, it derives from the Civil Code established by the French emperor in 1804. Four years before Louisiana became a state in 1812, the former French and Spanish colony adopted a version of the Napoleonic Code. The resulting system of "civil law" in the state differs from the other 49 states' "common-law" traditions in terms of methodology (Engber, 2005). One specific law has a particular influence in Holy Cross: the principle of "forced heirship", which gives all children the guarantee of a share of their parents' estate. This law played an important part in the construction of the neighbourhood's character, since it assured that generations to come would live on the same property, sometimes sharing the same roof. This process created the special attachment that the Holy Cross' residents have to their neighbourhood up until today. But alternatively, it also contributed to property disputes between the heirs, jeopardizing two central issues in the post-disaster environment: security of tenure and access to land. According to the UN-HABITAT, those crucial matters must be considered when developing programs to minimize vulnerability of populations to future crises, including measures such as protecting the land and property rights of displaced persons, and developing longer-term solutions for land and property disputes. These issues will have a profound effect on the ability of societies to recover from crises and develop systems that will reduce their vulnerability to future disasters (Land and Property Management, Risk and Disaster Management).

As a final point, a lot has been done when it comes to housing, but few measures have been taken to create a proper urban infrastructure in the area. What is the value of knowing that Holy Cross can be a walkable neighbourhood if there are no sidewalks? Or that it must be an example of ‘green’ technology when there is not even any natural green around? What benefit is knowing that it must recover economically but there are not enough people to justify the opening of commercial venues, or discussing how to reduce their carbon footprint when everybody heavily depends on cars⁴⁵, since there is no proper public transportation serving the area? What good can come from not talking about storm water protection and the provision of adequate infrastructure that will resist future flooding and wind damage?

It is one of today’s main challenges to adapt living in historic sites in order to better respond to the modern exigencies, protecting them from new disasters and climate change, while simultaneously respecting their old patterns and settings. Preserving the heritage during the reconstruction process is essential to maintain the neighbourhood’s social unity, so fundamental for the neighbourhood's resilience.

⁴⁵ “According to the 2000 Census, Holy Cross residents of working age (16 or older) relied heavily on cars, trucks and vans to commute to work prior to Hurricane Katrina. Nearly eight of ten workers drove to work. Three of four drove alone. Only 25% of workers carpooled and only 17% used public transit. Two percent of workers walked or used bicycles.” (Sustainable Restoration Holy Cross Historic District & Lower 9th Ward, 2006).

6.4. Holy Cross' urban symbiotic system

By observing the dynamics of Holy Cross (Figure 15), one can affirm that the most important element of this neighbourhood is its heritage. The neighbourhood's biggest potential lays with the fact that it evokes the "power of place", as result of the interaction of people and place over generations. In order to give continuation to this fruitful relationship, those two powerful elements cannot be detached from one another at any moment. If the residents are emotionally attached to their neighbourhood and they take pride in living in such a special place they will always have a motivation to fight hard for it. Respecting and maintaining the neighbourhood's urban character will not reinforce its resilience alone. In order to maintain this successful symbiosis, it is imperative not only to bring Holy Cross' long-term residents back, but also to keep them there. However, it has become increasingly more difficult to protect the neighbourhood's values, and gentrification is inevitable. However, the way this process is handled is what will play a major role in the future of the neighbourhood.

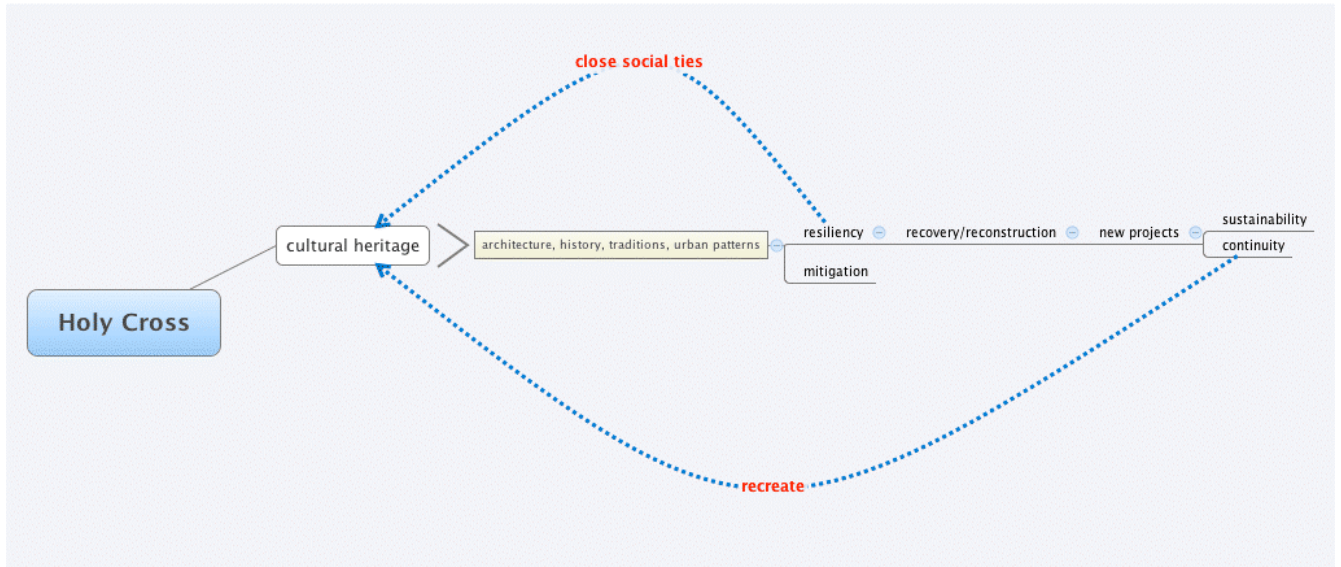


Figure 15: The neighbourhood's dynamics

Source: author's own.

Conclusion

It is common knowledge that climate change is of critical importance for humanity at present, as it directly influences the basic elements of life, such as access to water, food production, health and environment. Moreover, as time goes by it becomes increasingly evident that the adverse effects of climate change will affect urban settlements worldwide, having an even stronger impact on the most vulnerable communities. As a result, concern about the potential impact of climate change on the world's cultural and natural heritage has rapidly emerged in the international agenda. The outstanding and fragile nature of such precious urban sites and their role in maintaining the world's specific cultural legacies justify the need for tailored planning measures and strategies in order to adapt and protect them from harmful environmental challenges. Thus, planning sustainable urban settlements will constitute one of the major challenges of the twenty-first century.

Within this climate threat scenario, a seemingly strong city was recently torn apart as the result of a succession of accumulated errors and unpreparedness, turning what could have been just another tropical storm in one of the major natural disasters in the history of the United States. The City of New Orleans and its vulnerable population became publically exposed and its reconstruction process turned into an international matter. During the past four years, the city has been used as an open laboratory for students, academics and professionals, who have been harnessing the lessons learned from this tragic event and putting them to good use. One of the most positive outcomes so far is the proof that cities are indeed resilient, and so are their inhabitants. As much as

the “discourses of hope” only seem to be a tool to encourage common optimism, they have an element of truth. Examples such as the one seen in Holy Cross confirm that, even in chaotic times, people have the power to mobilize and fight back, representing the human capacity to its utmost degree.

Holy Cross is a place of paradoxes: it is already historic, but is trying to make history by becoming green; its location helped to save it from destruction, but also contributed to slow its recovery; and most importantly, it is the home of a vulnerable yet strong community. What was observed in Holy Cross was not the result of government plans and actions. It was an instinctive process of recovery, led by the local population, who used powerful tools to regain their neighbourhood. The acknowledgment of the role of those people, and therefore the cultural heritage they have built, as the basis of the recovery process is crucial. It is extremely necessary to consider the social and cultural processes that shaped the neighbourhood throughout the years, not only the architectural and aesthetic values but also the spiritual, technical and scientific influences.

In the face of a tragedy of incommensurate consequences, Holy Cross has proved to be resilient. It is understood that it is fundamental to protect Holy Cross’ built heritage and urban patterns as a way of providing continuation to the neighbourhood’s sense of place and the human circumstances that facilitate the development and transmission of the local culture. The preservation of the neighbourhood’s heritage as a whole is vital for its cultural diversity as well as for its sustainability. Nevertheless, it shouldn’t be forgotten that progress is not only inevitable but also desirable. Because of that, the

neighbourhood's social laces will eventually loosen and its cultural integrity will progressively start to disintegrate. Therefore, it is also important to provide Holy Cross' residents with a consistent urban infrastructure, stimulate the local economy, and create other sorts of mitigation measures that will guarantee the durability of the neighbourhood.

Even though there are still some doubts regarding the future reserves for this very unique place, the signs of a revitalizing neighbourhood are clearly there. Whether slower or faster, green or historic (but preferably both), there is no doubt that it will get back to normal at its own pace. By capitalizing on its unique cultural and social assets, Holy Cross can differentiate itself and set an example for a sensitive approach to historic community recovery and redevelopment, resulting in a strong and sustainable neighbourhood.

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Annex

Questionnaires – qualitative data collection

Target groups: professionals, experts, and residents

Sample type and size:

Technique: Semi-structured interview, open ended questionnaires

Number of interviews: to be defined on the field

Results presentation: the results will be provided in the form of an analytical report, containing conclusions and recommendations

Architecture/heritage experts– built heritage

Name:

Age:

Gender: F or M

Occupation:

Association/organization:

What are the main characteristics of the Holy Cross historical architectural stock?

How those buildings apply to today's sustainability's concepts?

Could you give examples of building techniques that could be reproduced nowadays? Are the materials and techniques still available?

Are the new projects taking place on the Holy Cross respecting/considering the heritage buildings?

Are they using the neighborhood's vernacular architecture as an example/inspiration?

Do you think the new projects are giving continuation to the neighborhood's character?

In your opinion, which one of the projects is the most influential one? Why?

What are the major challenges when adapting a historical neighborhood to the new "green" model?

What should be done to protect the neighborhood's built stock from a future disaster?

Urban planning experts – formation, morphology, character

Name:

Age:

Gender: F or M

Occupation:

Association/organization:

How did the spatial pattern of the Holy Cross (and the Lower 9th Ward) evolves in history?

What are the most notable characteristics?

In your opinion, what were the main events that had a major impact on the Holy Cross urban morphology?

What are the main elements that influence the urban character/pattern?

Do you think that, in the case of the Holy Cross, the urban patterns have a major impact on the community (and vice-versa)? How? Why?

How do the neighborhood's patterns apply to today's concepts of "new urbanism"?

Do you think that the Katrina had a major physical impact on the neighborhood's urban space? And if yes, do you think that those changes would also reflect on the local community? And how?

Which one the reconstruction plans taking place here is the most influential one?

Do you think those plans have been respecting the neighborhood's original morphology?

Do you think those plans are looking back to the Holy Cross original urban form as an example of "sustainable neighborhood" when rebuilding?

Are the current reconstruction plans giving a natural continuation to the neighborhood's patterns? Or they are interrupting them?

What are the major challenges when reconstructing a historical neighborhood to the new sustainable and green models?

Community (residents, associations)

Name:

Age:

Gender: F or M

Occupation:

Association/organization:

For how long have you and your family been living in this neighborhood?

If you had the choice to live somewhere else, would you?

If yes, where? And why?

If not, what makes the Holy Cross so special for you?

What changes (in general) have you been noticing in your neighborhood in the past years? (Prior to Katrina)

In your opinion what were the Holy Cross major challenges in the past?

What were the major infra structure needs? (Prior to Katrina)

What are the major challenges and needs nowadays?

What are the main assets of your neighborhood? (Prior and post Katrina)

In your opinion, which neighborhood associations are the most influential ones?

Could you name some of the aid projects/programs going on in the neighborhood right now?

From all the reconstruction projects which one do you think is being the most helpful/influential? And which one is the least? In which aspects?

Which project do you agree the most and why? Disagree the most and why?

When it comes to the reconstruction of the Holy Cross:

Do you think the community has been involved enough?

In which decision level do you think the community has been involved?

Which one of the projects took the community's opinion the most?

What is the "spirit" of the Holy Cross for you?

Which Monument/building better represents your neighborhood?

Which symbol/tradition better represents you neighborhood?

Could you define the neighborhood in one word?

Do you think the reconstruction projects are respecting the “spirit” of your neighborhood?

Do they allow the continuation of its culture and traditions?

(Optional)

Was your house affected by the Katrina?

If yes, have you received any aid? What type (financial, social, medical, etc...)

From which program(s)?

In general how the Katrina did affect your life?