Katrina the Seam[STRESS]: Rebuilding Through Flood Architecture

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INTRODUCTION

Some think New Orleans should cease to exist. Its elevation below sea level makes it very susceptible to flooding. The city is "no more stable than a delicate saucer floating in a bowl of water," claims Douglas Brinkley.[1] James Lee Burke calls New Orleans "an insane asylum built on sponge."[2] Marvin Olasky reflects, "We build below sea level… and we're shocked, shocked when disasters occur."[3] And people *were* shocked in 2005 when Hurricane Katrina unexpectedly ravaged the entire Gulf Coast, causing one of the worst natural disasters in American history. Over 1,500 people died at the hands of the storm, and over 180,000 homes received substantial damage or were completely destroyed.[4] The *unnatural disaster* was unlike anything that ever transpired on American soil. Income disparity, education inequality, residential segregation, and racial discrimination determined whether or not people evacuated. The storm exposed the "sociopolitical flooding" that has existed in New Orleans for centuries.

Nevertheless, residents have emphatically defended the city's rebuilding. Their passion for New Orleans with its Mardi Gras Indians, second line parades, jazz music, and delectable cuisine show exactly why New Orleans *should* exist. Since future hurricanes and catastrophic floods are inevitable, it is imperative for New Orleans to develop an urban design strategy for mitigating disaster.

The purpose of this research is to investigate "flood architecture" as a conceptual prototype for the rethinking and re-use of abandoned, contentious border zones in New Orleans. Marginal spaces between communities provide a medium through which flood architecture can weave the social fabric, mitigate natural disaster, and build socio-economic value. First, historic correlations between physical space and socioeconomics must be understood. Since contested borders reinforce social hierarchies and racialized space, border sites must be re-conceptualized as urban inflections that move in tandem with the social landscape. This ensures that the border is simultaneously inward and outward looking to create equality among its constituents. By including a socially attractive and culturally rich program, the border will create an urban infrastructure of democratic public space. This reduces sociopolitical tension and creates a web of flood refuges throughout the city that is accessible to all residents. The final objective of this research is to develop a design methodology and conceptual proposal for flood architecture in New Orleans that synthesizes the natural, manmade, and sociopolitical environment to offer a holistic strategy for mitigating disaster.

FLOOD ARCHITECTURE + CONTENTIOUS RACIALIZED SPACE

Racialized Space in Pre-Katrina New Orleans

> You simply get chills every time you see these poor individuals… so many of these people… are so poor and they are so black, and this is going to raise lots of questions for people who are watching this story unfold.[5] *Wolf Blitzer on CNN* September 1, 2005

In New Orleans, racialized space has existed since the arrival of the slaves 250 years ago. An 1817

city ordinance demanded that slaves live with their owners, resulting in the distinctive slant-roofed buildings that comprise the "backyard pattern" of living in the French Quarter. These icons of racialized space formally distinguish the slave quarters, located at the lower part of the slope, from the main house. Free people of color were pushed to the flood-susceptible "back-of-town." Rampart Street, named for the wall that once fortified the French colonial city, separates this area from the white "front-of-town," beginning New Orleans' extensive history of spatially marginalized minorities.

Much of the racial organization of New Orleans can be attributed to "nuisance areas."[6] These areas have low property values and attract the economically challenged because of their undesirable features. The back-of-town, now Treme, was located adjacent to the swamp, the Old Basin Canal, the railroad, two cemeteries, and the slums of the former Storyville red-light district. Similarly, the Gert Town neighborhood, located in a trough between the Carrollton Avenue area and the Gentilly Ridge, was formerly an industrial site marking the intersection of the Yazoo and Mississippi Valley Railroad, the Illinois Central Railroad, and the New Basin Canal. Its predominantly African American demographic provides another example of spatial racialization in New Orleans.

At the beginning of the 20th century, technology contributed to the racial geography of the city. In 1917, the wood pump drained the large swamps between the original city and Lake Pontchartrain, allowing the city to expand back toward the lake. This expansion heavily favored whites because blacks lacked the financial means to live there. Racist deed covenants made the new developments "whites only." The streetcar system was also an agent of residential segregation. As the streetcar lines extended away from the city center, it was no longer necessary for blacks to live near their white employers. This overturned the "backyard pattern" of slave residences. Many blacks moved toward the former swamplands. With the aid of public transit, whites were able to move even further outside the Central Business District, creating a greater divide between the races.

The Industrial Canal is among the most significant racialized spaces in New Orleans, separating the Lower Ninth Ward, a tight-knit, African American community, from the rest of the city. The neighborhood has historically been low-income and severely marginalized by the city government. While the rest of New Orleans has running water, sewers, and paved streets, the Lower Ninth has open drainage canals and dirt roads. In Douglas Brinkley's book *The Great Deluge*, he provides an account of former city councilman Oliver Thomas, "We had trouble with law enforcement. Even when we were little kids, the wrong deputy would show up and shoot over our heads and run us back just for sport."[7] The Industrial Canal isolates this community from the rest of the city, sustaining it as a distinct, underprivileged enclave.

The growth of racialized space throughout the 20th century had significant effects on the substandard quality of living among blacks. The segregated public housing projects of the 1940s strengthened racial divides. They not only diminished the likelihood of racial integration in the future, but they also undermined the rights of low-income black residents to a high quality lifestyle. Over time, drug markets and gang violence began to consume these neglected neighborhoods. The residents are among the highest percentage of unemployed individuals and families below the poverty line. In the 1950s, four out of five African American homes were substantially dilapidated and forty percent of black households were overcrowded. Many lived in substandard wood-frame shanties. As living conditions worsened, enclaves began to expand, increasing the percentage of racialized communities in New Orleans.

One of the greatest instances of racialized space and lingering bitterness in New Orleans is the Great Mississippi Flood of 1927. Officials prevented the city from flooding by detonating thirty tons of dynamite at the Caernarvon Levee, flooding much of rural St. Bernard Parish, an ethnic, white low-income community. This is the quintessential contested space because government officials designed an event to further marginalize an already marginalized community. Subsequently, Hurricane Katrina caused suspicions to recur when the Industrial Canal levee of the predominantly black Lower Ninth Ward breached. Many were convinced that the city had once again sacrificed a low-income community for the benefit of affluent white neighborhoods. Each hurricane season, this historic collective memory resurfaces, exacerbating the city's already vast sociopolitical divides.

Racialized Space and Hurricane Katrina

The harsh reality of Hurricane Katrina is that it disproportionately affected the most marginalized residents of New Orleans. According to the 2000 United States Census, 27.9 percent of New Orleans residents lived below the poverty line, 11.7 percent were age 65 or older, only 74.7 percent had graduated high school, and 27.3 percent did not have cars. Additionally, many had disabilities. 10.3 percent were ages 5-20, 23.6 percent were ages 21-64, and 50.1 percent were age 65 and older. 67.3 percent of New Orleanians were African-American. These statistics alone explain why thousands of New Orleans' 500,000 residents were unable to evacuate when Katrina struck.[8]

The evacuation for Hurricane Katrina racialized space at a national scale as affluent residents fled to almost every state in the country, leaving the physically and economically challenged behind. Most elderly and poor New Orleanians had neither the financial means nor the physical mobility, access to transportation, or access to information to evacuate. Many of these residents had lived in New Orleans their entire lives and lacked social networks outside the city to make evacuating more feasible.

Racialized space also thrived at a local scale as masses of desperate people bottlenecked the entrances to the Superdome in search of shelter. Conditions were hardly better than those in the storm itself; the so-called refuge lacked electricity, water, and proper sanitation. There were reports of rape, vandalism, violence, and gang activity. Tribal instincts took over as trust disintegrated and racial segregation increased. The people were virtually helpless. How could a city abandon those most desperately in need of its help at such a critical time?

FLOOD ARCHITECTURE + INFLECTED BORDER ZONES

Hierarchical borders generate racialized space by creating and sustaining barriers between communities, resulting in an uneven distribution of power. Social anthropologist Michel Laguerre states that in order to have minorities, one must have racialized space in which the dominant group can use space as a separator to keep others in a subordinate position.[9] These borders must be re-conceptualized as urban inflections within a fluid landscape whose elasticity responds to the social tensions that create marginalized space. By establishing a network of socially fluid borders throughout the city, a framework for flood architecture emerges that mitigates the sociopolitical aftermath of disaster.

Physically, the border is an urban vacuity, but socially, it is dense with stigma, controversy, and contestation. Jane Jacobs identifies urban borders as "zones of low value" that emerge in undesirable areas, such as near train tracks, highways, industrial parks, and public housing projects.[10] These locales are typically associated with racialized space, marginalized communities, and "dead ends of use" because they lack amenities to attract users. Borders are complex and ambiguous because they can have a variety of meanings such as confinement, hierarchy, or security. Physical walls offer protection for those on the inside and exclude those on the outside. Hierarchical borders establish "horizontal lines of division" that distinguish status, power, superiority, and inferiority among people.[11] When neighborhoods are too inwardly focused and leave their surroundings to decay, one-way borders emerge. The border condition must be simultaneously inward and outward looking in order to create democratic relationships and mutual respect among its constituencies. The border must be redefined as a place of social crossing and concordant interaction rather than one of ignorance.

The border vacuum constitutes a static urban frame whose immobility polarizes neighborhoods and perpetuates social stigmas. In Eadweard Muybridge's *The Horse in Motion*, he captures each movement of the horse through a series of static frames. In Marcel Duchamp's *Nude Descending a Staircase, No. 2,* on the other hand, similar moments are layered in order to free the frame of its fixity and create a dynamic image. By re-conceptualizing the border as a dynamic urban frame, or inflection, it can direct flows of people, goods, ideas, information, and capital between neighborhoods and thereby mitigate the racial, economic, and cultural tensions that perpetuate racialized space.

Flood architecture can activate borders to create a network of democratic public space that provides a contextually sensitive venue for promoting social justice. Democratic public space is socially and physically accessible to all regardless of race, class, gender, ethnicity, age, and socioeconomic status.

For example, during carnival season in New Orleans, the city's streets comprise egalitarian space,

> …rooted in the practices of all classes and hues of citizenry, from the social aid and pleasure clubs of the late 20th Century black American ghetto to the Uptown mansions of the white Carnival elite… The streets of the French Quarter and of all New Orleans are more than a path for movement: they are places in themselves, scenes for a pageant. More than any building, they have provided the setting [for] what are surely the city's essential art forms—the early jazz music of the marching bands and the parades of Mardi Gras. [12]

There are no fees to attend the parades nor do the events foster gentrification, enclaves, or racial stigmas. Instead, everyone has an equal opportunity to attend and enjoy the cultural traditions of the city. By nurturing the relationship between urban space and culture, the streets of New Orleans offer a successful precedent for public space that encourages social interaction and equality.

Diller Scofidio and Renfro's High Line project creates democratic public space through its innovative, 1.5-mile-long public park located on an abandoned elevated freight rail line in Manhattan. The historic rail line operated through most of the 20th century, carrying meat to the meatpacking district, agricultural goods to the factories, and mail to the Post Office. Today, site-specific microclimates occur along the railway, such as mosslands, meadows, wetlands, and woodlands, providing a variety of places for meandering, relaxing, viewing, and socializing. The self-seeded landscape is reminiscent of the vegetation that once grew on the unused site. Since the park is virtually an extensive green roof, the plants are able to retain approximately 60-80% of the water that falls on the site. Porous paving also reduces storm water runoff. The High Line's combination of cultural history, open space, and an innovative environmental agenda weaves together the social fabric surrounding the neglected border, providing an excellent precedent for flood architecture.

FLOOD ARCHITECTURE + AN INTERVENING SOCIAL PROGRAM

Borders must employ a socially mobile medium to attract flows of people, culture, and capital to the site. In *Babette's Feast*, an award-winning Danish film, a young woman changes the lives of the local townspeople through the French cuisine she prepares. Fine wines, delectable hors d'oeuvres, savory poultry dishes, and mouth-watering desserts expose the conservative guests to the wonders of worldly pleasure. Food is both a personal and a shared multi-sensorial experience that fosters unity within a group of people. Border food venues consist of markets, urban agriculture, a culinary learning center, and informal activities specific to the culture of the surroundings. In New Orleans, such programs might include crawfish boils, second line parades, and festivals. Hegemonic relations and social stigmas will dissolve as people become engulfed by the multifarious food experiences.

Border markets provide a sociopolitical infrastructure for the city that attracts residents from all directions, confounds social barriers, and provides food security for all, thereby mitigating the "unnatural" component of disaster. Findlay Market, located in the heart of Cincinnati's most blighted neighborhood, Over-the-Rhine, is a successful example of urban public space because it attracts socially, economically, racially, and ethnically diverse crowds through its unique offerings of high quality meats, produce, ethnic food, and distinctive homemade goods. The market is convenient for locals that are economically dependent on its resources but also attracts those from afar through its ambitious schedule of concerts, parades, and festivals. It also addresses sociopolitical issues through its Arts in the Market organization that helps at-risk youth create art installations for the community. By establishing markets throughout the borders of New Orleans, contested sites will transform into border-node hybrids where a diverse yet high quality culture of food becomes a shared value and experience among otherwise heterogeneous cultural differences.

Urban agriculture promotes sustainable communities, creates civic stability, and offers jobs to the economically challenged. It makes healthy lifestyles accessible to all, regardless of economic status and race. Jac Smit, President of The Urban Agriculture Network, explains, "Farming in open city spaces fills in social as well as physical gaps, enabling people to come together as neighbors rather than as potential adversaries, creating spaces where people can congregate in productive work."[13] Urban agriculture consumes carbon diox-

ide to help reduce hurricane susceptibility created by the destruction of wetlands. This reduction in global warming also diminishes hurricane intensity, creating long-term energy and disaster relief savings for the city. Lastly, a system of urban farms throughout New Orleans creates unique, transformative sites as crops grow and change throughout the year. Urban agriculture is socially empowering because it enables people to grow their own food, participate in the design of the site, and contribute to production of culture.

Since economic opportunity goes hand in hand with educational opportunity, the border program includes a job training facility. A culinary learning center supports the other food venues by offering classes related to planting, harvesting, and preparing food. It encourages individuals to develop more health-conscious lifestyles and develop a deeper understanding of ecological principles. Spatial flexibility supports a wide range of events from cooking studios to presentations to community dinners. Significant outreach creates trans-neighborhood connections. In New Orleans, Café Reconcile offers training to at-risk youth in preparation for work in the restaurant and hospitality industries, the second largest of the city's business sectors. Job training within borders makes economic opportunities available to all socioeconomic classes.

Borders alleviate flooding by offering an infrastructure for water retention. During heavy rains, water can be funneled from neighborhoods down sloped landscapes to nearby border reservoirs. The site is virtually a large rain garden, or planted depression that absorbs water runoff from impervious areas such as roads and rooftops. The water soaks into the ground, reducing erosion, water pollution, and flooding. Native plants are advantageous because they are already accustomed to the climate of the region, thereby requiring little maintenance. Wetland plants are beneficial because they absorb excess water. Subterranean drains carry water from the sites to a central storm water system. Rain barrels dispersed throughout the site provide local storage for rainwater that can be harvested for site irrigation, farming, or use in restrooms. Rainwater can also be filtered and purified for cooking and cleaning in the culinary learning center. The incorporation of water retention and recycling into the border localizes flood control, improves water quality, reduces waste, and creates an aesthetically pleasing landscape.

FLOOD ARCHITECTURE + THE PARABLE OF THE SEAMSTRESS

The border site for this design proposal is located in New Orleans at a critical intersection of historically and culturally rich communities including the French Quarter, Treme, the Iberville Housing Development, and Louis Armstrong Park. In order to activate this contested border, the physical, social, and environmental flux of its surroundings must be

Figure 1: Zippers in the Iberville Public Housing Development reveal the promiscuity of Storyville.

Figure 2: Mardi Gras Indians weave over U.S. Interstate 10, which once severed their parade thoroughfare.

negotiated. The following allegory offers a conceptual design methodology for the site based on the paradoxical attitude of the city. New Orleans jazz funerals combine traditional somber funerary processions with brass band parades, singing, and dancing; the experience is simultaneously mournful and celebratory. Even though New Orleans is continuously devastated by racial tension, crime, and natural disaster, its residents remain optimistic and always rebuild.

"Katrina the Seamstress"

In New Orleans, liminal borders have caused quite the uproar. The collision of disparate races, ethnicities, cultures, and lifestyles has resulted in stigmas and bitter resentment that have spanned centuries. The city's vast racial divides originate from 1718 when free people of color were forced to live in areas susceptible to flooding outside the original city. Against this is the upbeat spirit of the New Orleans; much of its famed culture stems from African traditions. Thus, there is this paradox—the forces of social controversy weigh down on the city while its residents simply let the good times roll.

"Katrina the Seamstress" reacts to the social contentions of New Orleans by enabling residents to rebuild the contested border. As the border is continuously devastated by racial tension, crime, and poverty, sewing kits containing needles, thread, tape measures, scissors, zippers, and fabric are distributed to residents. New Orleanians use the cultural tradition of Mardi Gras costuming to transform the decaying border into a pluralistic urban seam rooted in pleasure and discovery.

In 1794, the Carondelet Canal was excavated through the African "back-of-town," located just outside the present-day French Quarter. Soon after, the railroad system and cemeteries also impose upon the community. New Orleanians install zippers in response to the controversial *carving* of the site. Residents expose Storyville, the red light district that was in operation from 1897 to 1920. Despite efforts from city officials to blot the district from memory, there have been significant efforts to *unzip* the truth.

Racial resentment has caused the border to *stretch* thin since the city's controversial response to the Great Mississippi Flood of 1927. The city was prevented from flooding at the expense of the low-income St. Bernard community. By *hemming* the site, residents are able to prevent further fraying at the border.

In 1941, the Iberville and Lafitte public housing developments were constructed on either side of the border as part of the city's urban renewal efforts. During segregation, the former was predominantly white and the latter was black, causing the site to

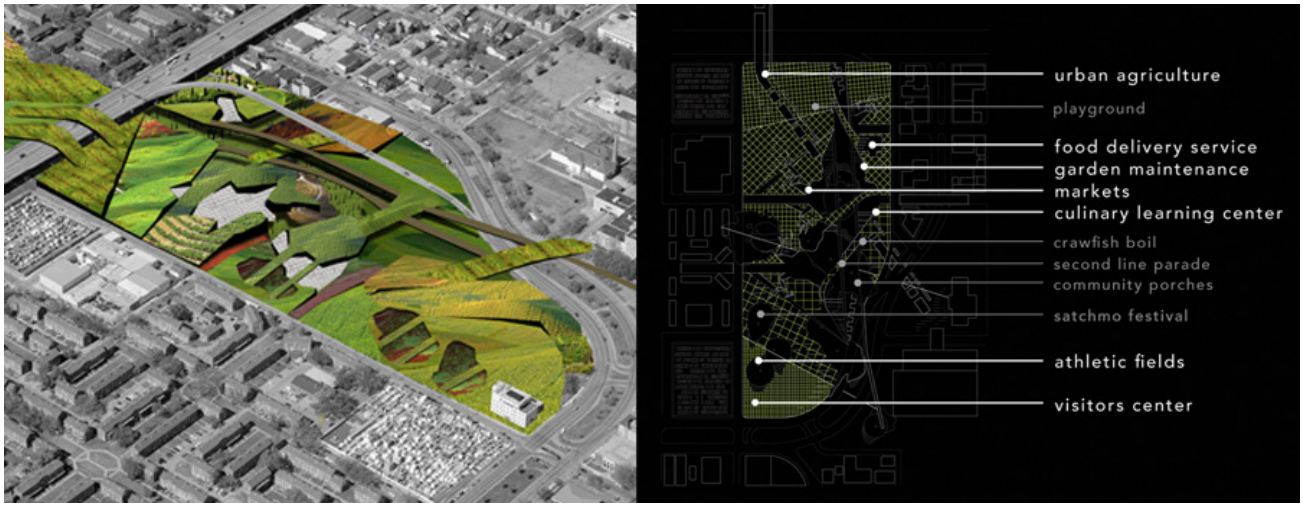

Figure 3: The sculpted border offers spaces into which food programs and social activities can be inserted.

rupture and *wrinkle*. New Orleanians inhibit this fracturing of the landscape by using thread to carefully *cinch* and *dart* the site.

In 1960, a portion of Treme, the oldest African American community in the United States, was leveled, displacing many of its residents, to create Louis Armstrong Park. The sole trade-off was a small community center located nearby. The park's extensive iron fence placed a discouraging burden on the community. As residents remove the fence, other failures of these urban renewal projects, including the proliferation of drugs and crime, *burn* the border, creating significant scars. Community residents prevent the complete disintegration of the border by *stitching* the wounds and *dressing* the burns.

The construction of U.S. Interstate 10 in 1965 was the most significant tragedy faced by Treme. The highway *severed* the tight-knit African American community, destroying their second line cultural promenade and its iconic oak trees. New Orleanians *weave* brightly colored string over the highway to in order to reclaim the thoroughfare for the Zulu parades and other festivities that still occur today.

The *devastation* caused by Hurricane Katrina in 2005 was catastrophic. Treme and the Iberville Housing Development were more devastated by flooding in comparison with the elevated French Quarter. Years later, the buildings in these neighborhoods remain neglected, leaving an abandoned supermarket on the proposal site. With their sewing kits in hand, New Orleanians embellish the crumbling bricks and dilapidated building materials by *knitting* and *draping* lace patterns throughout the neighborhood.

This year, as contentious issues contort the border, residents *starch* and *steam* press the site in preparation for Carnival season. The garment is *adorned* with urban agriculture, markets, and a culinary learning center as well as playgrounds, crawfish boils, second line parades, music venues, and summer festivals. The perpetual and unrelenting *seaming* of the contested border both affirms and strengthens the rapturous spirit of New Orleans.

The sculpting of the border is based on flows and forces through the site, as well as residues of these forces. Programmatic elements are pluralistically distributed into the site. Ruptures offer openings in which markets are pocketed. The culinary learning center is tucked into the undulations of the terrain. The nearby horse stables, which lead tours through the French Quarter, offer a food delivery service. The patterning of the landscape organizes the gardens and farm plots. There is also shaded space for spontaneous crawfish boils and festivals as well as a promenade for jazz funerals.

FLOOD ARCHITECTURE + THE FUTURE

Urban borders provide strategic sites for flood architecture because of their physical and social lim-

Figure 4: Urban markets form in the ruptures of the site, while the stretching of the site creates shaded space for crawfish boils. The nearby horse stables offer a food delivery service to urban farmers as renowned New Orleans vocalist and trumpeter Kermit Ruffins performs in a second line parade.

inality. By activating these abandoned, derelict sites, a progressive rebuilding strategy emerges in which borders are not spatially racialized but instead the backbone of the city. While traditional rebuilding plans, particularly those of post-Katrina New Orleans, treat neighborhoods autonomously, this strategy offers a conceptual framework for approaching the city holistically. By doing so, sociopolitical tensions and environmental disadvantages are mitigated at the urban scale, creating a more integrated, ecologically literate urban landscape.

The cohabitation of food, culture, and people transform the underutilized border into an essential refuge for hurricane-prone areas. The attractive qualities of food bring people together, expanding social networks that can be beneficial during disaster. The urban agriculture component creates food equity and offers sustenance in the case of an emergency. The financial stability of residents is strengthened by the job training facility. Water retention makes innovative use of rainwater to reduce flooding. These programs foster ownership and pride among community residents.

It is inevitable that a natural disaster will once again inflict stress on the fabric of the city. The implementation of flood architecture at contested borders offers a network of democratic public space toward which residents intentionally migrate. Flood architecture has the ability to provide food equity, promote environmental justice, foster social networks, and create security for residents. It weaves urban seams that tighten but do not rupture in the face of disaster.

ENDNOTES

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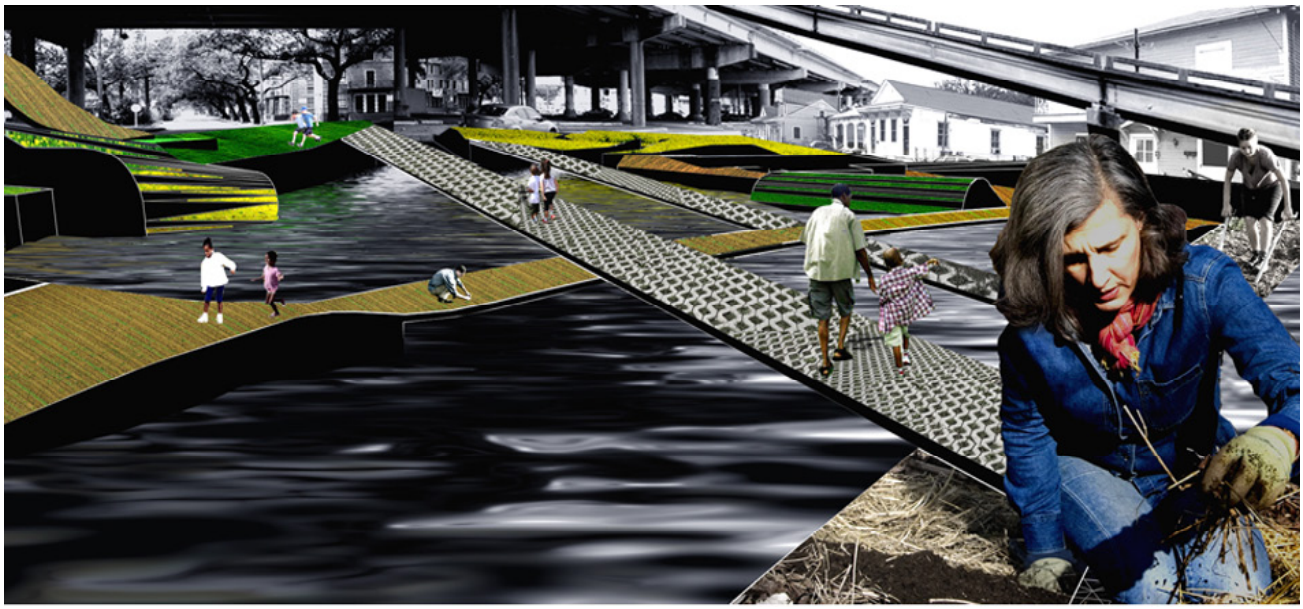

Figure 5: A network of border reservoirs and rain gardens mitigate flooding throughout the city.

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