The very existence of New Orleans is defined by its relationship with the Mississippi River. The city was founded at a key strategic location, from which it controlled military and trade access to the Mississippi. Nevertheless, the city has a deeply troubled relationship with water today. Within the city, continuing subsid- ence increases the city’s vulnerability to flooding. Outside the city limits, the coastal land loss threatens the very existence of the city in the next one hundred years. As the coast moves inland, it creates confusion about what is coast, what is river, and where the city should exist. To analyze New Orleans as a river city is to examine the relationship not only between the city and the Mississippi River but also between the city and a network of waterways—the river, its diversions, bayous, and lakes—related topographically to the riverine system and to the use of that network for transportation, commerce, and natural resource production and extraction.

Much of the city was once a watery landscape of swamps and marshes, with limited access routes, characteristic of the Mississippi delta landscape (Figure 8.1). Within the city today, despite its being surrounded by and threaded with water bodies, the water is largely invisible, drained from the surface, and hidden by levees and floodwalls. Unless one makes a specific effort to find the water, it is possible to move through the city without ever seeing it.

Until the late twentieth century, the city’s relationship with the river was defined in two ways: by the commerce of the port and shipping activities, vital to its economic existence; and by the business of flood control and protection, vital to its continuing physical existence. The river has always been a dangerous and powerful force passing through.
FIGURE 8.1

New Orleans is still surrounded by the swamps and marshes that make up the Mississippi delta landscape.
Photograph by Elizabeth Mossop, 2014.
Evidence of a distinctly different relationship appeared in the 1970s as a result of the controversy over the development of a riverfront expressway. For the first time since the mid-nineteenth century, the river came to be regarded as providing an urban amenity and a desirable view. This new attitude was furthered in plans for the World’s Fair held in 1984. The fair itself, which was sited on the riverfront and featured a gondola ride over the river, drove subsequent redevelopment on the riverfront. This included the development of the promenade known as the Moonwalk, the creation of waterfront parkland in Woldenberg Park, and the orientation of the World Trade Center and Audubon Aquarium of the Americas to the river. The riverfront became seen as a tourist attraction and a location for recreation—as contributing to a new urban milieu. With little urban development taking place in New Orleans after the crash of the oil industry in the late 1980s, however, this impetus did not move beyond these first urban gestures to the river.

In twenty-first-century New Orleans, this river-city relationship is changing even more profoundly. The impacts of Hurricane Katrina, which devastated the city in 2005, have brought many changes to the region, both negative and positive. Within the city, there is a clear consensus that it would be beneficial to make the river more accessible—that is, to open the city more fully toward the river and to engage the river as a part of the urban landscape. A component of this vision is a new attitude to managing drainage and flooding that calls for accommodating water within the city and designing “blue/green” infrastructure into the urban form. At the regional scale, there has also been a shift in thinking about the river and its relationship to the city—a move away from the imperative of flood control to address the need to restore the delta’s function and to use controlled flooding for land building and ecological restoration.

All of these new ideas remain in a state of flux. With the 2015 observation of the ten-year anniversary of the storm and with the reality of climate change becoming a more pressing challenge, there is urgency to find strategies that will allow the city and its delta as well as a healthy future grounded in a mutually sustainable relationship. This essay begins by addressing the development of the delta over time and the ways in which New Orleans’s geography and the Mississippi’s engineering have influenced the development of the city’s urban form from its earliest settlement by the French until the present day. A discussion of the city’s historical attitudes to the river follows; it highlights the forces that have shaped the unplanned and planned urban developments along the river, which have articulated the relationship between the city and river. An appraisal of the post-Katrina New Orleans and reviews of major planning projects undertaken in the last ten years conclude the essay. These urban and regional projects are reshaping the city’s relationship not only with the river’s course through the metropolitan area but also with the delta, whose vitality and restoration are key to New Orleans’s viability.

Development of the Delta Landscape
Over thousands of years, the delta landscape of southern Louisiana has been built by the Mississippi River. Draining 41 percent of the land area of North America, the river
historically deposited sediment over a broad swath of land in annual flooding caused by upstream precipitation and snowmelt. This sediment deposit built new land fanning out from the river’s course. Periodically, the river would change course and begin the buildup of land in another fan, or delta lobe, and the old lobe would gradually begin to degrade as it became more susceptible to the assault of the Gulf Coast wave action. Thus, the coast advanced and receded, gaining and losing land over long spans of time. Until recently, the land gains and losses stayed in balance, generally with a net gain in land building. Since 1930, however, there has been significant deficit, with the addition of only 250 square kilometers and the loss of 3,100 square kilometers. Projections combining the ongoing land loss with sea-level rise show a scenario for 2110 where all of southern Louisiana is gone and New Orleans is on the coast.

River Engineering

Beginning in the nineteenth century, expanding human settlement on the river plains, the growth of river-based transport, and the need to protect agriculture, commerce, and housing from the river’s annual flooding led to a complex reengineering of the river to support human activity and settlement. Modification of the river began in the early 1800s to increase the efficiency of river navigation by stabilizing the meandering river channel and its banks and by reducing channel width and complexity to create a self-scouring channel. Flood control was achieved through a complex system of levees to separate the river channel from the floodplain, engineering floodways to reduce flood stages near critical infrastructure, channel straightening to increase channel capacity, and the construction of dams to attenuate flood peaks and store water. Commerce as well as land value were the framing criteria. For example, at the Bird’s Foot Delta, the various discharge channels were modified to facilitate shipping. Major engineering interventions in the nineteenth and twentieth centuries created a seemingly positive relationship between the city and river, stimulating New Orleans’s economy by enabling both the growth of the city’s port and urban development.

Today, the river is highly engineered, and although it is generally confined by levees, it has a considerably higher water level and less capacity to hold additional water, with, therefore, a significantly higher risk of catastrophic flooding and damage from system failures. Within New Orleans, the river is confined by a combination of earthen levees and concrete floodwalls. And at the broader scale of the Mississippi delta, the river is effectively disconnected from the surrounding delta, so that the natural cycle of land nourishment and building has been broken.

The loss of wetlands off the coast of Louisiana has been attributed to both the engineering of the river and to the impacts of coastal industry. The canals carved through coastal wetlands by industry, most notably oil and gas, permit the intrusion of salt water, destroying the wetland vegetation over time. Reduction in land building has been caused by the disconnection of the delta plain from the river distributary network, as well as by the reduction in sediment loads due to upstream reservoir construction. In combination, these have reduced the natural wave attenuation capacity of the coastal shelf,
increasing the risk of flood hazard from storm surge. Additionally, in New Orleans, similar interventions, for example the construction of the Mississippi River Gulf Outlet and other smaller industrial canals, have led to the destruction of the cypress swamps and wetlands of the Central Wetlands Unit, leaving the city significantly more vulnerable to storm action from the east.

City Topography
The flood events of recent years have caused many people to question New Orleans’s location and, therefore, its viability. In *Bienville’s Dilemma*, geographer Richard Campanella clearly articulates the conundrum of the city’s location as having an enviable situation but a terrible site. He concludes a certain locational inevitability, balancing being far enough downstream to control the river’s mouth and far enough upstream to be resilient to floods and storms. The problems with the city’s location for human habitation, which were encountered from its founding, were related to its low-lying terrain and its position between river and lake. The city’s terrain flooded in heavy rains, and also flooded with storm surges driven from the river and the lake by high winds or abnormally high volumes of water.

The city’s topography has been a key determinant of its form and performance. The first settlers occupied the highest dry land along the natural levee of the Mississippi, spreading from the French Quarter and thence downstream to the Marigny, Bywater, and Holy Cross neighborhoods and upstream to the Irish Channel, Garden District, and Carrollton. Until the twentieth century, settlement was confined to high stable ground along the river. “Back-of-town,” to the north toward the lake, cypress swamps lay just above sea level but were too wet to inhabit permanently (Figure 8.2).

By the turn of the twentieth century, population pressure had spread development into the back-of-town swamps, where pumps were needed to drain the ground. The construction of a comprehensive drainage system began in 1900, and with the invention of the Wood Screw Pump in 1913, drainage technology increased in efficiency and continued incrementally through the first four decades of the twentieth century. By 1950, the entire back-of-town area from the French Quarter to the lakefront was completely drained and developed for residential neighborhoods. Storm water was conveyed to the lake through drainage canals. Flood events were reduced in severity, but they nevertheless continued to plague the city.

This mechanical drainage of the former swamps had a major unintended consequence. The drying out of the ground caused the peaty layers below the surface to shrink and the ground to subside. As the elevation became lower, the ground became even more vulnerable to flooding, and with the evolution of a “bowl” between the higher elevations along the lakeshore and riverbank, the water no longer drained naturally to Lake Pontchartrain. Mechanical pumping of storm water became necessary to lift it up to the level of the lake. In the mid-twentieth century, levees were built along the lake, and floodwalls were constructed along the drainage canals to protect the subsiding city. By the end of the twentieth century, most of the city was below sea level. It is often
described as a bathtub, to illustrate its bowl form between the higher boundaries of river and lake. When it rains, the water enters a conventional storm water system that takes the water from the bottom of the bowl, through pipes and drainage canals to a series of pump stations, where it is mechanically lifted and sent through outfall canals to Lake Pontchartrain. This system can store half an inch of rainfall, and it can pump half an inch of rain in one hour, after which the city begins to flood. In an average year, two-year storms commonly bring more than three inches of rain in a period of three hours.

The River’s City, the City’s River

The Mighty Muddy Mississippi gives, and it takes away. It is literally New Orleans’s lifeblood, supplying the city’s water and contributing substantially to its economic well-being, while remaining a threat to its existence. The formidable power of the river—which is calculated to be the sixth (or seventh depending on methods of measurement) among the world’s rivers in terms of volume of discharge at its mouth—has always shaped the city’s relationship to it. There are voluminous literary responses
to the fearful aspects of habitation on the river’s floodplain. Lyle Saxon, a prominent writer on Louisiana in the early twentieth century, offered a timeless description of the destructive “Great Flood” of 1927 in his *Father Mississippi*: “Picture to yourself this great inland sea, mile upon mile of muddy water, with never a bit of dry land anywhere: houses askew, roofs fallen in, and the water filled with dead animals. . . . Floating here and there, the household treasures are seen. . . . Beds and bedding, chairs and sofas, objects having a mute and tragic quality of their own.” Although New Orleans itself did not experience devastating flooding in 1927, the horrific scenes that Saxon described in the neighboring river parishes of Plaquemines and St. Bernard were repeated in the city after Hurricane Katrina made landfall on August 29, 2005.

To characterize the historic relationship between river and city in the form of a possessive: for most of its existence, New Orleans has been the river’s city, but the Mississippi has not been the city’s river. In fact, locations in New Orleans’s metropolitan area are described in relation to travel along the river. Activities and places are located either on the “east bank” or the “west bank,” which are not cartographic directions per se because of the meandering nature of the river. Rather, “east” is land lying to the left and “west,” land lying to the right along a downriver trajectory toward the Gulf of Mexico. Nevertheless, as noted above, since the 1970s the expression of desire to take urban ownership of the river has become more pronounced. A number of circumstances have brought about this marked change of attitude. Primary among them are the aggressive marketing of the city as a global tourist destination, which began in the 1970s, and the comprehensive planning efforts that have been undertaken in response to the extensive urban destruction caused by the flooding that followed Hurricane Katrina.

The Nineteenth-Century Industrialization of the Vieux Carré Riverfront

The river established the city’s image from the time of its earliest conception and documentation. New Orleans’s foundational grid plan—eleven blocks along the riverfront and six blocks back from the shore—was laid out in 1721 by French engineers Pierre Le Blond de la Tour and Adrien de Pauger (today the French Quarter or the Vieux Carré). At the riverfront center of the plan was a public square, the Place d’Armes (today Jackson Square). Between the city’s main plaza and the river, a protective levee—in French, *levée*, or raised bank—quickly rose. It was engineered initially by de la Tour and de Pauger on top of the natural levee, which was produced by silting, to bring the height of the earthen bulwark above what was understood to be the river’s high water line. Both Jackson Square and the Vieux Carré waterfront—the stretch of levee that extends roughly one-half mile upriver and downriver from Jackson Square—were, and have continued to be, the key sites of reference for the city’s relationship to the river (Figure 8.3).

When preeminent U.S. engineer Benjamin Latrobe penned his *Impressions Respecting New Orleans* while he was consulting between 1818 and 1820 on the municipal waterworks, he not only described the levee’s physical form but also its societal functions. Both commercially and socially, the levee was the city’s heart: “Along the
levee, as far as the eye could reach to the West & to the East were ranged two rows of
market people . . . the articles to be sold were not more varied than the sellers . . . [N]ear
the steam boats every thing like business seemed suspended, & the levee was full of
persons, well dressed, without any apparent object but to take the air” (Figure 8.4).

Other visitors to one-hundred-year-old New Orleans in the early nineteenth century
made similar observations. In 1824, Arthur Singleton wrote of the levee, where “gentle-
men carry sun-umbrellas, . . . [as] a fine evening promenade for the ladies . . . [who]
wear no head-dresses in fair sky; but modest becoming white or black lace veils . . . The
negresses wear checked turbans, of gay colours.”

Singleton’s letters reflect a prosper-
ous, antebellum New Orleans where newly established steamboat traffic would make
the city the country’s fifth largest and its port the world’s fourth largest, and where the
riverfront accommodated both bustling commerce and genteel leisure.

However, New Orleans’s mid-nineteenth-century prosperity, which was fed by
increased river transport and concomitant commercial and industrial activities, even-
tually drove more urbane, leisurely activities away from the river’s edge as the water-
front became increasingly busy. The arrival of goods not only required wharves (the
first constructed in front of the Vieux Carré in 1812) for unloading but also sheds for
short-term protection, warehouses for longer-term storage, and offices for business
transactions. In 1867, the first railroad line was laid along the Vieux Carré waterfront,
and it was soon joined by others, further industrializing and crowding this zone at the
heart of the old city.
Powered by the river, the levee was the city’s economic engine, and all traces of its gentility had vanished by the end of the Civil War. Lafcadio Hearn, whom the Cincinnati Commercial newspaper sent south to report about Louisiana at the end of the Reconstruction era, was overwhelmed by the activity on the levee in the vicinity of Jackson Square. In “At the Gate of the Tropics” (1877), he ecstatically described the riverfront: “In the center of this enormous crescent line of wharves and piers lie the great Sugar and Cotton Landings, with their millions of tons of freight . . . a hundred river boats have landed without jostling . . . Here one sees a comely steamer . . . At intervals other vessels arrive, some, like mountains of floating cotton” (Figure 8.5). As Hearn noted, specialized sections of the levee developed for handling particular goods. By 1900, a coffee landing had been established upriver between Canal and Poydras Streets. Further upriver yet close by, a banana landing emerged after the United Fruit Company consolidated its shipping at New Orleans’s port in the first decade of the twentieth century.

With the introduction of sugar refineries and coffee roasting plants in proximity to the levee, manufacturing joined commerce on the riverfront. In 1908, the city’s Public Belt Railroad—a nonprofit terminal switching railway organized to facilitate the passage of goods between the port and an expanding network of inland rail lines—began operating along a track that ran parallel to the levee. For security and safety, the Dock Board erected high walls on the city side of the tracks in 1953, effectively sealing off the river not only from access but also from view. Today, the Public Belt is the only remaining railroad traveling along the riverfront. Its protective walls form a major obstacle

Figure 8.4
John L. Boqueta de Woiseri, A View of New Orleans Taken from the Plantation of Marigny, 1803, picturing the coexistence of commercial and leisure activities on the Mississippi River levee in the early nineteenth century. Photograph courtesy of the Historic New Orleans Collection, Williams Research Center, acc. no. 1958.42.
between the city and the Central Area Riverfront, as it became known, which includes the Vieux Carré riverfront and the riverside corridor stretching approximately one mile in both upriver and downriver directions from Jackson Square.

Comprehensive Urban Planning and the Vieux Carré Riverfront, 1919–48

The city’s complete abandon of the Vieux Carré waterfront to transport, commerce, and industry, as well as what might be considered its shunning of the river as a potential urban amenity, can be seen in planning documents prepared for New Orleans in the early twentieth century. In 1919, the New Orleans Association of Commerce hired nationally respected Philadelphia architect Milton B. Medary Jr. (1874–1929) as a planning consultant. Medary’s chief contribution was the authorship of a series of weekly articles that appeared in the New Orleans newspapers over the course of a year, from the summer of 1920 through the summer of 1921. Each week, Medary’s essays introduced New Orleanians to the progress that cities at home and abroad had made through zoning...
Medary perhaps took his cues from his clients, whose interests were in stimulating economic activity in New Orleans, chiefly that involving the port. However, consultants to other U.S. river cities made prominent, contemporaneous recommendations about ameliorating urban conditions on riverfronts. In his 1910 study of major thoroughfares in downtown Pittsburgh, for example, Frederick Law Olmsted Jr. described the assets that waterfronts—in Pittsburgh’s case, rivers—offered cities in the realms of transportation, recreation, and “civic beauty.”

In 1926, New Orleans entered into what would become a long-term consulting relationship with renowned Saint Louis planner Harland Bartholomew (1889–1989). Bartholomew advised New Orleans under an initial four-year contract, which was not renewed in the economic downturn of the Depression years. However, the city hired him again in 1948, when progressive mayor deLesseps “Chep” Morrison took office, and he worked with municipal officials until the late 1960s. Bartholomew’s method involved the production of disparate reports that separately studied such components of master planning as zoning, truck and railroad transportation, major streets, the port, industry, recreation, and civic art. His firm never produced a consolidated master plan for New Orleans, although many of the recommendations published in various reports were enacted. During the almost twenty-five years that Bartholomew served as the city’s planner, neither the expanse of the Central Area Riverfront nor the specific area of the Vieux Carré waterfront garnered significant attention. We can glean from his reports, however, attitudes toward the riverfront that were surely connected both to its long-standing commercial and industrial functions and, in the case of the Vieux Carré, to its increasing decay (Figure 8.6).

Following his separately published studies of recreation and parks, Bartholomew prepared “A Proposed System of Parks and Pleasure Drives” in 1929 (revised and printed in 1934). This system emanated from the generating nucleus of the Vieux Carré and adjacent Central Business District (CBD), connecting the city’s two major recreational areas—Audubon and City Parks—and a proposed linear park along the lakefront, where developers contemplated residential expansion by means of a network of landscaped parkways. None of these ran along the river. The parkway drive closest to the river was St. Charles Avenue, roughly three-quarters of a mile distant from the
Further, the parkways terminated at the so-called back-of-town—the rear of the French Quarter and the CBD.

Although the 1920s saw an upsurge in admiration for the historic value of the French Quarter, spurred by rising numbers of artists and writers who took advantage of low rents there, it was not until 1937 that the passage of the Vieux Carré Ordinance (made possible by state legislation in 1936) established a district in which the avowed goal was...
preservation (second in the nation after Charleston). In the minds of decorous New Orleanians, the Vieux Carré riverfront, nevertheless, remained a rough-and-tumble area, known after the repeal of Prohibition in 1933 for its seamen’s bars and other drinking establishments, where the real possibility of violence lurked.

**The Vieux Carré Riverfront and the “Second Battle of New Orleans,” 1946–69**

Ironically, it was the passage of the Federal-Aid Highway Act in 1944, rather than the nascent preservation movement itself, that contributed to a midcentury shift in the treatment of the Vieux Carré riverfront. Responding to the opportunities of the act’s fifty-fifty funding provision, the state legislature commissioned Robert Moses in 1946 to prepare a transit study. Moses, then fifty-eight years old, was well-known for his highway, park, and housing development projects in New York and held a number of prominent positions, serving as commissioner of New York City’s parks and planning departments and the chairman of the Triborough Bridge Authority. His “Arterial Plan for New Orleans” (with Andrews and Clark, 1946) included a six-lane (108-feet-wide) section of elevated expressway along the French Quarter riverfront (Figure 8.7). He argued that the city’s greatest transportation need was for a corridor that would promote the free flow of long-distance traffic from one side of the city to the other, bypassing its commercial and historic core and connecting to proposed upriver and downriver interstate interchanges while efficiently funneling local traffic to in-town destinations. He reasoned that the proposed elevated section would free surface streets at the port and posited that no harm would be done. The French Quarter “would still be wedded to the Mississippi, but its precincts would not be choked with needless through traffic.” After Bartholomew returned to the city in 1948 to prepare a master plan, he took issue with the details of Moses’s recommendations involving riverfront transit but not with their substance.

Like Moses’s report, Bartholomew’s “1951 Major Street Plan” emphasized the necessity for widened traffic lanes at the river’s edge. In contrast, however, Bartholomew argued against the expense of elevating the roadway and stated a preference for opening lanes at grade level. Nevertheless, he admonished his clients that if sufficient width for the highway could be not obtained because of existing buildings that could not be demolished (including the historic Pontalba Buildings, French Market, and Jackson Brewery), elevation might be necessary. Frank rationalization was his ploy. Unlike Moses, however, he made no effort to assure his clients that a connection between Jackson Square and the river could be maintained, writing that “sidewalks and planting strips could be eliminated.” He was, thus, clearly willing to sacrifice pedestrian and landscape amenities along the riverfront.

Today, New Orleanians generally remember the mid- to late-1960s controversy over the “riverfront expressway,” which both Moses (1946) and Bartholomew (1951) espoused, as one that solidified the city’s preservation movement and began to shift attitudes about the use and abuse of the riverfront. During the 1950s, interstate planning proceeded, and the proposed riverfront expressway was planned to form a section of an auxiliary highway loop that circled around to the port from the main
interstate trunk bypassing the city center.25 No strong alignments for or against the riverfront expressway emerged until the early 1960s. In the wake of the inauguration of the National Historic Landmark Program in October 1960, preservation proponents advocated to have the French Quarter listed as a landmark. Opponents mobilized to reject the nomination, fearing that it would compromise economic opportunities. In 1962, pro-preservation advocates were emboldened when the Dock and Levee Boards announced the removal of wharves along five blocks of the riverfront, including Jackson Square’s frontage. Immediately, proposals circulated to open the view to the river from Jackson Square by creating “Place Pontalba” at the water’s edge, in reference to the two early nineteenth-century apartment blocks that fronted Jackson Square on the north and south. Meanwhile, powerful business proponents—including the Chamber of Commerce and a group known as the Central Area Committee—rallied support for a bond issue that included monies for the acquisition of riverfront expressway rights-of-way. With support from Mayor Victor Schiro and the Times-Picayune—the daily morning newspaper—the bond measure passed in July of 1963. A year later (October 1964), the federal government announced that the riverfront expressway was to be included in the Interstate Highway System, making ninety-ten funding available for its construction.26 The fight was on, but there were multiple positions in play. The “Second Battle of New Orleans,” as it came to be called, reprising the 1815 confrontation of U.S.
and British troops just downriver from the French Quarter, comprised a complex history, but it is important to stress the key role that the controversy played in reclaiming the riverfront as an urban aspect—and prospect—of which the city could be proud. At stake for preservationists was not only the Jackson Square waterfront but also the integrity of the French Quarter as a district.

New Orleans’s local fight became a national one after October 15, 1966, when two critical pieces of federal legislation were enacted. One was the Department of Transportation Act, section 4(f) of which contained a provision for environmental protection mandating both the study of alternative land uses and the demonstration of minimal impact for federally funded projects. The other was the National Historic Preservation Act, section 106 of which required federal agencies to take into account the effects of their actions on properties either listed on the National Register of Historic Places or meeting the criteria to be listed. After the passage of these landmark acts, opponents of the riverfront expressway found grounds on which to attack the federal government’s approval, first for the elevated roadway and later, as the battle dragged on into 1969, for the alternative at-grade solution. They gained vocal, effective supporters in the national arena (articles appeared in *Time, Newsweek, U.S. News and World Report*, and *Businessweek*), among whom was Wolf Von Eckardt, architecture critic for the *Washington Post.* Lawsuits in civil district and federal courts ensued. Eventually, the federal government asked the President’s Advisory Council on Historic Preservation to comment on the project. The hearings held in early March 1969 were damning, concluding that the expressway “would require the use of land from the banks of the Mississippi River, a part of the Vieux Carré Historic District, . . . would curtail and seriously impair the use of the Mint [opened 1838] as a museum, . . . [and] have a serious adverse effect upon that quality of the District, which has been described as the ‘tout ensemble,’ a quality of high importance.” The battle concluded on July 1, 1969, when Secretary of Transportation John Volpe announced that he was withdrawing federal support from the project after hearing convincing arguments that it would do harm.

**Reimagining the Central Area Riverfront after 1969**

Transportation planning was the crux of the controversy surrounding what effects a high-speed, six-lane freeway on the river’s edge would have on the French Quarter and its riverfront. The 1969 triumph of preservation concerns did not push aside the city’s pressing midcentury transit needs, but the victory of preservation-minded New Orleanians reflected the city’s growing appreciation for and embrace of the river’s role in the urban environment. Indeed, the landmark federal ruling had implications not only for historic preservation but also for urban planning. Two young attorneys, Richard O. Baumbach Jr. and William E. Borah, who founded the organization Help Establish Logical Planning (HELP) in 1966, when antagonists were fully engaged in the expressway fray, published a consummate, detailed history of the dispute in 1981. Their paramount conclusions were that New Orleans could not achieve its urban potential unless comprehensive planning replaced piecemeal problem-solving.
However, Harland Bartholomew’s planning contract was not renewed after the 1969 expressway decision, and the goal of comprehensive urban planning succumbed to the lucrative opportunities for parcel development along the riverfront as the city’s wharves were decommissioned. Containerization dramatically and rapidly changed shipping; commercial activities moved to locations farther upriver and downriver as river traffic patterns responded to the opening of the Gulf Intracoastal Waterway and the Mississippi River Gulf Outlet. In order to understand the post-1969 development of the riverfront, it is necessary to introduce briefly key architectural projects that took shape in the late 1950s, which influenced the combatants in the riverfront expressway controversy, as well as critical projects that took shape after its settlement, many of which ignored the celebration of the river that the 1969 decision supported.

In 1958, during Chep Morrison’s tenure as mayor, the Crescent City Connection bridge across the Mississippi River was completed, providing the city’s first Central Area highway connection between the east and west banks. The bridge provided a crucial link in the expanding metropolitan transportation network. It channeled traffic from the elevated Pontchartrain Expressway—a connector from the new I-10 highway to the river, which was also completed in 1958—into a cross-river flow, and it would have also funneled traffic onto the proposed route of the riverfront expressway. Although that project was declared nonviable, the bridge nonetheless brought increased traffic into the sensitive riverfront area since its east bank access ramp was sited less than a mile upriver from the French Quarter. Indeed, the bridge’s proximity to the French Quarter stimulated expressway proponents to argue on behalf of a “missing link” rationale for the riverfront highway.

Also during Morrison’s administration, plans for a new building to house activities related to international trade materialized. The public/private partnership behind the project awarded its design in 1959 to acclaimed New York architect Edward Durell Stone. Several locations were considered, and during the height of the “Second Battle,” the site chosen was the area that stretched between Canal and Poydras Streets at the river—that is, the iconic site near the river’s edge where the French Quarter and the CBD were understood to meet. Stone’s thirty-three-story International Trade Mart (later named the World Trade Center) was dedicated in 1968, and it still stands with overwhelming symbolic value as the city’s “campanile.” The building demonstrated for the first time the virtue of staging civic moments of gravity at the riverfront. The revolving lounge on its uppermost floor provided some of the first dramatic views of the river available in the city and propelled desire for more such venues. The tower was closed after Katrina, and it became a flash point of post-Katrina reconstruction ethos, as the city, which owns the building, entertained proposals for redeveloping the site. Although forces for the building’s demolition seemed strong, its elevation to National Historic Landmark status in 2014 perhaps tipped the balance. In 2015, it received a new lease on life and, at this writing, will be retrofitted as a high-end hotel and condominium tower operated by the Four Seasons.

The International Trade Mart established a precedent for towers near the river’s edge, stimulating the genteel conduct of business and tourism on the riverfront. A twenty-nine-story Hilton hotel opened in 1977 at the termination of Poydras Avenue just upriver
and across from the mart. Downriver, at the foot of Canal Street, additional high-rises rose in the late 1970s and early 1980s; they bundled shops, hotel rooms, and office spaces on the order of the vertical malls developed along Chicago’s upper Michigan Avenue in the same era. These were the thirty-two-story One Canal Place and the twenty-nine-story Westin hotel. They, too, gave tenants and visitors remarkable views of the river.

The Central Area Riverfront intervention that seems most clearly linked to the victory over the riverfront expressway was the Moonwalk. Developed in the mid-1970s during the tenure of Mayor Maurice “Moon” Landrieu (1970–78), the Moonwalk provided the city with the first riverside promenade to be developed since the abandonment of the riverfront to transportation and industry after the Civil War. Directly opposite Jackson Square and across Decatur Street, a small raked amphitheater with a terrace above it enabled pedestrian access over the Public Belt Railroad’s security wall to the Moonwalk. Because subsequent, privately developed riverfront projects have targeted global tourism, the Moonwalk, by comparison, seems quaintly local, fashioned out of citizen desire to reconnect with the river.

Recently, a number of scholars have analyzed New Orleans’s riverfront developments of the 1980s in terms of the Rouse Company’s self-styled “festival marketplaces,” bent on reorienting New Orleans’s stumbling economy toward tourism in response to its declining share of the oil industry’s economic activity. The Louisiana World Exposition (World’s Fair), a public/private venture, opened in 1984 on eighty-five acres of CBD riverfront property between Poydras Avenue and the Crescent City Connection bridge. The fair brought the city to the river, where a gondola ride spanned the awesome waterway for the short duration of the event.

The fair also spawned the renovation of the Jackson “Jax” Brewery downriver in the French Quarter, adjacent to the Moonwalk, as a multilevel shopping mall, which opened concurrently in 1984. Additional riverfront outcomes of the fair were developments on the fair’s site itself: the Rouse Company’s Riverwalk Marketplace, which opened in 1986 and connected to the earlier Hilton hotel via a pedestrian bridge, and the New Orleans Morial Convention Center (opened in 1985), which occupied some of the exhibition buildings created for the fair and which has subsequently expanded upriver. Although these projects on the CBD section of the riverfront have enriched their developers and contributed importantly to New Orleans’s economy, they neglected opportunities to incorporate the river’s edge as a public amenity, creating yet another barrier layer that has bolstered the existing obstacles of security walls and railroad tracks. The convention center, for example, extends six-tenths of a mile along the waterfront and offers virtually no connection with the river. A touristic port has replaced a working port, but it continues, for the most part, to shun the river.

The “City Edges” Project, 1973–74, and Public Access to the Riverfront
In contrast to the development of the CBD section of the riverfront, the production of the French Quarter section since the building of the Moonwalk has portended an alternative, closer relationship with the river. In 1990, two projects opened that celebrated its
presence. The Audubon Nature Institute designed its Aquarium of the Americas such that visitors entered from an expansive riverfront plaza and, once inside, they could view the river both through interior expanses of glass and from exterior upper-level terraces. The city’s new Woldenberg Park then extended the aquarium’s entrance plaza downriver toward the Moonwalk to create an uninterrupted riverside promenade of seven-tenths of a mile in length.\textsuperscript{34}

Although all of the projects previously discussed were undertaken in the absence of a comprehensive plan for the city’s riverfront development, many citizens, in addition to Baumbach and Borah, advocated for a holistic planning initiative. In 1973, close on the heels of the riverfront freeway decision, Moon Landrieu’s administration and the Tulane School of Architecture joined forces to apply for a grant from the National Endowment for the Arts to participate in the endowment’s bicentennial “City Edges” program. They won a $40,000 award to study the riverfront that funded the work of three faculty and thirty students in a yearlong design studio entitled “New Orleans and the River” (Figure 8.8).\textsuperscript{35} At the end of 1974, faculty published the studio project in two volumes of working papers and two summary booklets. William Turner, dean of the School of Architecture, introduced their findings:

The renewal of interest in river-edge development may prove to be the renaissance for the City. . . . At the root of all of this work . . . is the relationship that people have to the river. As is frequently observed, without a map one would never know that New Orleans is . . . located on the Mississippi River. . . . Lack of contact between the people of the city and the river has often been deplored by physically oriented urbanists who see the tremendous opportunity for heightening urban amenities in alternative riverfront development schemes.\textsuperscript{36}

The study’s summary report argued for establishing “easy, useful, and human-scale links between people and the river” and proposed such interventions as (i) establishing “pedestrian plazas above . . . wharf height simply providing clear and visual access over the levee,” (2) “overcoming the rail barrier [by] bridging,” and (3) “cracking the wharf monolith [by] opening up two or three bays of particular wharf structures as mini-parks or breaks overlooking shipping activity and the river.”\textsuperscript{37} In terms of the Central Area Riverfront, the study called for a “River Walk” (preceding the Rouse development of the Riverwalk Marketplace) stretching along one and a half miles of riverfront. Here would be constructed “small separated viewing platforms between various wharves” as well as more monumental public plazas sited at key nodal points that emphasized the city’s landmarks.\textsuperscript{38} The study further recommended the integration of the upriver waterfront with a boulevard system, which would circulate from Esplanade Avenue at the river, northwest to City Park, southwest along Carrollton Avenue to the termination of St. Charles Avenue at the river, and downriver along St. Charles. Spurs from St. Charles would lead back to the river via Audubon Park and four major avenues—Jefferson, Napoleon, Louisiana, and Jackson—where wharves would be opened up to create view sites and recreational areas.\textsuperscript{39}
The 1974 “City Edges” recommendations, as well as Baumbach and Borah’s later 1981 arguments for comprehensive planning, went nowhere as the city coped with innumerable problems during the last quarter of the twentieth century. In the wake of the federally mandated integration of public schools, white flight ensued, and New Orleans’s population and its tax base dwindled. Houston became a more attractive home for oil industry operations, while Miami’s international airport snatched Latin American traffic from New Orleans. Urban development proceeded slowly and incrementally without benefit of a master plan, until Hurricane Katrina humbled the city and citizens’ will prevailed to create a master plan and to pass legislation that would give it the force of law.

**Natural and Man-Made Disasters and the Urban Response**

While the city can be protected against floods from the river to a great extent, which can be predicted in advance, it cannot be protected from hurricanes in the same way. Storms are by their nature unpredictable, uncontrollable, and often fast-moving. The impact of Hurricane Katrina in late August 2005 is well documented (especially in the archive of the *Times-Picayune*). Following the many catastrophic failures of New Orleans’s system of protection during Katrina, it has been substantially upgraded using significantly more sophisticated modeling and greater transparency in its implementation and management. New floodwalls have replaced substandard ones, levees have been made higher, pumping stations have been upgraded and moved to the lake, and
improvements are underway to increase the capacity of underground drainage infrastructure. To reduce the risk of storm surge from Lake Borgne, a giant Inner Harbor Navigation Canal Surge Barrier has been built at the confluence of the Intracoastal Waterway and the (recently closed) Mississippi River Gulf Outlet. All of these measures have contributed to an increased level of protection from both river flooding and flooding associated with storms. But these improvements and interventions only achieve a 90 percent reduction in flooding from a hundred-year storm event (compared to protection in the Netherlands addressing four- to ten-thousand-year storm events). There will still be overtopping of levees in some areas, pumping will not keep up with rainfall in many storms, low areas will be flooded (although to shallower depths), and power will be lost. And the modeling on which the new system is based does not effectively account for slow-moving storms or unpredictable storm events. So there is a continuing and significant risk.

The catastrophic impacts of Hurricane Katrina were, in part, due to the failure of the flood protection system, but the extensive flooding that the city experienced was also due to the fact that more than 80 percent of the city is now below sea level. As the city continues to occupy former swampland and continues to pump out groundwater, the ground will continue to subside. This land is already very low, and as it continues to sink further below sea level, it becomes increasingly vulnerable. While it is problematic to raise subsiding areas back to their original elevations, restoring the flows of groundwater in former swamp areas could prevent their sinking further. This would require a major rethinking of the city’s water management strategy and the development of new kinds of drainage infrastructure.

The Post-Katrina City

New Orleans after Katrina is a different place than it was in 2005. It has vast tracts of largely empty land, many neighborhoods with numerous vacant lots and buildings, visibly crumbling infrastructure, and a disturbingly high proportion of the population living in poverty. On several key indicators the city does not perform as well as the national average or as aspirational Southern metropolitan areas that have experienced greater than 10 percent job growth since 2000 (cities such as Nashville, Orlando, Raleigh, Austin, Houston, Charlotte, and San Antonio). However, it is also clear that the city has embarked on a new course, with signs of a more competitive economy and expanded amenities. The city weathered the recession impressively, suffering relatively less job loss and rebounding faster than the rest of the nation. Major reforms are underway in education, health care, and criminal justice that have significant potential to raise standards of living and build a more equitable community. Experientially, the city feels different; there is an influx of young, well-educated people who have moved here to take jobs in the public sector, education, and the film industry, as well as in the many new nonprofit and entrepreneurial enterprises. In the last five years, some parts of the city have been alive with renovation, new construction, new public amenities, and new businesses. But this intense activity remains concentrated in a few areas. We are
waiting to see how sustainable this new trajectory will be, and to evaluate to what extent the change is owed to one-time disaster recovery resources, or whether this has moved the city in a new and more sustainable direction.43

Reimagining City and Delta
The impact and aftermath of Hurricane Katrina has led to profound changes in our conceptualization of the relationships of city, river, and delta and of how to manage these going forward. This consideration of big questions and looking to the future has become easier as people have moved beyond the pressing questions of survival that took precedence in the years immediately following the hurricane. The enormous coastal land loss that was caused by Katrina and its notable and ongoing impacts on coastal communities and industries has forced a reevaluation of river engineering and much greater consideration of river diversion strategies to reconnect the river to the coastal basins of the delta, thereby allowing the redistribution of sediment to rebuild the coastal landmass. While there was a loss of population caused by the impacts of Katrina, the migration from the coastal areas of southern Louisiana has been ongoing as land loss has continued. Over the last ten years, a series of unprecedented broad-scale planning strategies has been proposed for the delta and the Lower Mississippi through initiatives by the state as well as through influential cross-disciplinary collaborations among academic institutions, foundations, nonprofit and community organizations, and industry. Within the city, there has also been a profound rethinking of the approach to urban water management.

Reengineering the River: Louisiana’s Coastal Master Plan(s) and the Changing Course Competition
Another advance born out of Hurricanes Katrina and Rita has been a groundbreaking planning effort by Louisiana’s Coastal Protection and Restoration Authority (CPRA) in the development of a series of Coastal Master Plans.44 The CPRA was formed in December 2005, in the immediate aftermath of the hurricanes, to be the central state authority accountable for planning and oversight of all coastal protection and restoration activities, including the development every five years of a Coastal Master Plan. In 2005, the state developed Louisiana’s Comprehensive Master Plan for a Sustainable Coast, known as “Louisiana Speaks,” and in 2007 developed the first Coastal Master Plan. The problem of land loss and the potential of land-building strategies for the delta were clearly identified. The subsequent 2012 Coastal Master Plan represented an important step in acknowledging the scale of intervention needed to achieve coastal sustainability in Louisiana.45 The plan selected 109 high-performing projects that could deliver measurable benefits to communities and coastal ecosystems over the coming decades. Moreover, the plan showed that if these projects were fully funded, at a price tag of $50 billion, flood protection could be substantially increased for many communities, and Louisiana could move toward a more sustainable coast.46
In concert with this, in 2012 the United States Congress passed the RESTORE Act that dedicates 80 percent of all administrative and civil penalties related to the Deepwater Horizon oil spill to a Gulf Coast Restoration Trust Fund. The act outlines a structure by which the funds, expected to be tens of billions of dollars, can be utilized to restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, coastal wetlands, and economy of the Gulf Coast region. And so we are at a historic juncture where there is both the public impetus and the potential to fund a sweeping restoration effort.

The Changing Course competition, initiated by the nonprofit Environmental Defense Fund, with support from the Van Alen Institute, brought together three teams of engineers, scientists, planners, and designers to create innovative visions for a self-sustaining Mississippi delta ecosystem. The explicit goal of the competition was to influence the 2017 Coastal Master Plan. It was hoped that the competition proposals would be sufficiently developed, tested, and considered by stakeholders to be eligible for inclusion in the plan, which will drive significant new government spending in the future.

The competition facilitated creativity and flexibility that could not be achieved in a formal government process but that could garner the support and participation of the state and the U.S. Army Corps of Engineers. Teams were asked to address two issues: the restoration of the Mississippi River’s land-building capacity as part of a self-sustaining ecosystem, and the support of the high-functioning navigation system in the lower river. The primary geographic focus for the competition was the Lower Mississippi River, from New Orleans south to the Head of Passes in the Bird’s Foot Delta, but teams were able to consider a broader geography socioeconomically, as relevant to strategies proposed. Schemes to be considered successful were those that maximized the use of the river’s freshwater and sediment for land building while achieving the best outcomes for sustainable community and socioeconomic development, ecosystem restoration, navigation, and flood management. The competition’s end product (it concluded in August 2015) was a series of compelling scenarios for a more sustainable and effective Lower Mississippi River delta. However, the big question remains: To what extent will these be influential? They have the potential to be profoundly significant in changing how people view questions of planning for both the river and the delta.

The solutions included major proposals for river reengineering through diversions and/or distributaries to promote land building and to address the associated changes to both human and ecological systems of the deltaic plain. They also addressed the form of the Port of New Orleans, the future of the energy industry in the delta, strategies for transport infrastructure, and the form of resilient human settlements. This scale and ambition of integrated planning is exciting and heartening in the face of the region’s challenges. The competition’s focus on real solutions generated by professionals guaranteed a body of work that should not be ignored in the discourse moving forward, both in public and also within the various levels of government and the Army Corps. The competition also provided material to those within key institutions and organizations advocating for more progressive solutions to the problems of navigation, land building, and flood management.
The New Urban Waterfront

The city that Katrina wrecked in 2005 was a city struggling to mobilize for the future. No more! The need to recover from Katrina’s devastation finally produced a master plan in 2010, for which Baumbach and Borah had argued thirty years earlier. The worth of relatively high land along the Central Area section of the riverfront levee, from which working wharves had been thoroughly removed, was apparent to all citizens. The public achieved consensus that this invaluable asset should not be turned over wholesale to private developers. In November 2006, the New Orleans Building Corporation—a public benefit corporation charged with managing and developing underused, deteriorated, or vacant city properties—the City of New Orleans, and the Port of New Orleans entered into a historic Cooperative Endeavor Agreement, releasing property from the port’s maritime servitude and paving the way for a new public use of the riverfront. And out of these conditions the “Reinventing the Crescent” project emerged in 2008, headed by the New Orleans firm Eskew+Dumez+Ripple (Figures 8.9 and 8.10). This riverfront study echoed the conclusions of the earlier “City Edges” project, amplifying and extending them to propose a six-mile riverside linear parkway on the east bank. In the plan, fifteen “special places” were highlighted to bring promenades, plazas, piers, amphitheaters, terraces, gardens, and parks to the river’s edge and to transform the urban waterfront through phased implementation, making it once again a part of the city, embracing its grandeur, and connecting across the infrastructure into the city fabric.

A first phase of the project, Crescent Park, opened for public use in 2013 with twenty acres of parkland between Mazant Street in the Bywater and Elysian Fields Avenue in the Marigny. The park includes a waterfront promenade, a new plaza on the Piety Street Wharf, and areas for play and picnics. Its future connection to the French Quarter through the Mandeville pedestrian bridge will complete the first section of the plan. Crescent Park demonstrates the potential of waterfront connections to transform the city’s relationship with the river, giving residents and visitors access to distant views rare in this flat city, and connections to recreation along the mighty river as well as to its maritime activity (Figure 8.11). The question “Whose riverfront?” has come prominently to the fore in post-Katrina rebuilding, and the city now seems poised to lay claim again to its riverfront and, perhaps for the first time in its history, to make the river its own. Nevertheless, the future of the plan’s further implementation is currently unclear. Reflecting its historically ambivalent relationship with the river, the city has made no commitment to proceed with subsequent phases. The success of the first phase and the renewal of adjacent riverfront properties could, however, serve as a model and an incentive for further implementation over time.

Within New Orleans, the newly accepted concept of embracing the city’s connections to its watery environs is expressed at different scales. There are many small-scale projects, such as the renovation of the Rosa F. Keller Library in the Broadmoor neighborhood, that have been designed so that their landscapes maximize their sites’ water-holding capacity through underground storage, bioswales, detention basins, and rain gardens. At the metropolitan scale, the Greater New Orleans Urban Water Plan presents a holistic water management strategy. In 2010, Louisiana’s Office of
**Figure 8.9**

“Poydras Street at Spanish Plaza,” showing the proposed development of the Central District Riverfront where the Central Business District (left, upriver) meets the Vieux Carré (right, downriver). The World Trade Center (originally the International Trade Mart, 1968) is at center. The oval skylight of the Audubon Aquarium of the Americas (1990) is at right. The high-rise Hilton hotel (1977) and the low-rise Riverwalk Marketplace (1986), between the hotel and the river, are at left.


**Figure 8.10**

“Moonwalk,” illustrating the proposed development of the Vieux Carré riverfront opposite Jackson Square, including the enlargement of Washington Artillery Park and the extension of the Moonwalk (mid-1970s) upriver and downriver. The renovated Jax Brewery (1984) sits on the upriver side of the park development.

Community Development Disaster Recovery Unit funded Greater New Orleans, Inc., to develop the Greater New Orleans Urban Water Plan for St. Bernard Parish and the east banks of Orleans and Jefferson Parishes using federal Community Development Block Grant Disaster Recovery funds from the U.S. Department of Housing and Urban Development. A large team of local and international designers, engineers, scientists, and planners (many of them Dutch), led by the architectural firm Waggonner and Ball, was responsible for developing the plan (Figure 8.12).

The Greater New Orleans Urban Water Plan proposes a rethinking of the city’s approach to water management by finding ways to accommodate water within the city using green infrastructure to achieve greater resiliency. Within the context of the flood protection system, the plan proposes two major principles to guide water management: (1) to slow water down and to store it wherever possible, taking pressure off the pumping system; and (2) to infiltrate as much water as possible back into the natural cycle to circulate water through the system and recharge the groundwater. Key elements in the new system are (1) making the drainage system more robust by pumping from the northern side of the city to the lake and from the southern side to the river, (2) maintaining the city’s network of canals full of water to replenish the groundwater and prevent further subsidence, and (3) building substantial areas of water storage at low points and in vacant areas to create strategic parklands and integrated wetlands. Another key aspect of the plan is to make this infrastructure serve multiple purposes, so that water management is incorporated into the design of new public spaces, streets, and a network of parklands, all contributing to new investment and development in the city. The plan provides useful technical background for the reengineering of the city’s water management and...
espouses many of the pragmatic urban design moves available to the city in developing an integrated network of multipurpose open space to support more resilient water systems. These strategies have the potential not only to provide a viable framework for future urban development and revitalization but also to increase the quality of urban life in the city. While the plan does not have official status, the approach it represents is already influencing city agencies, such as the New Orleans Redevelopment Authority and the Sewerage and Water Board of New Orleans, in small-scale implementation of green infrastructure. Although the city may not currently have the capacity to adopt a large-scale comprehensive approach to water planning, the plan has the potential to be highly influential in the rethinking of the city’s water infrastructure.

Conclusion

As in many river and delta cities, the challenges of building resilience to storms and floods are forcing New Orleans’s citizens to change the way they imagine urbanism. In the United States, the impact of Hurricane Sandy, affecting as it did the populous Northeast, has brought these issues much more into the mainstream. Water must be taken into account and designed into cities in a way that it has not been in the past. In the case of New Orleans, if the river can be reengineered, then the delta landscape can once again become a dynamic one, with massively increased land building balanced against the inevitable, continuing land loss (Figure 8.13). In this scenario, the city becomes part of a different delta landscape, perhaps with a highly developed ecotourism industry working in concert with a sustainable fishing industry. In the short and medium term, the oil and gas industry would continue to be an important part of the Gulf landscape, but over the long term a different, environmentally sustainable energy and carbon
industry landscape would emerge in the delta. The form of the city itself would also change substantially if the infrastructure of resilient water management was integrated into its fabric and the city developed all of its waterfronts as important parts of urban life.

In New Orleans today, there is a rediscovery of the advantages of stronger connections to the river, the lake, and other urban waterways, which offer great potential for associated urban development and improvements in city life. The influence of the newly energized urban population is evident, with new ideas about public space and urban recreation emerging in the public realm. There is also a new understanding of and focus on the city’s urban water challenges, as manifested by communities and many special interest groups. This is the beginning of the cultural shift (in many ways more significant than technical solutions) needed to catalyze essential changes. If the city’s vested interests—politicians, bureaucrats, and corporations—can join its citizens in embracing this approach, it will be possible to remake the urban form in such a way that all streets, buildings, and open spaces will be designed to slow and store water.

Although the technical issues are exceedingly complex, at all of these scales there are viable solutions, and there is a substantial body of innovative work already existing and currently in progress that could drive successful new solutions. The cultural questions are more problematic, and the bigger question is whether these ideas can influence state and federal politics and corporate interests quickly enough to make a significant change to the developmental direction of cities and coasts. In New Orleans, we are seeing the hopeful beginnings of this, but even in our small city, with a clear direction forward, it is hard to predict if sufficient change will be enacted so as to allow the city to be viable into the next century.
Notes


3 Charles A. Camillo and Matthew T. Pearcy, *Upon Their Shoulders: A History of the Mississippi River Commission from Its Inception through the Advent of the Modern Mississippi River and Tributaries Project* (Vicksburg, Miss.: U.S. Army Corps of Engineers Mississippi River Commission, 2004).


6 While it is clear that the city has real geographic challenges, it is important to remember that San Francisco straddles a major fault line and many coastal cities, notably New York City and Miami, have demonstrated significant vulnerability to coastal storms and sea-level rise, without calling their existence into question.


9 Ibid., 36.

10 An excellent description of the city’s drainage infrastructure can be found at http://www.guttertogulf.com/, accessed February 1, 2016, in “Water History: Three Case Studies” and “Water Today: A Taxonomy.”


18 These were the Inner Harbor Navigation Canal (opened in 1923 and popularly known as the Industrial Canal) and the Huey P. Long Bridge (opened in 1934); see Milton B. Medary Jr., “Zoning Plan Affects Rails, Passenger Railroad Reorganizing Is Urged,” *New Orleans States*, October 18, 1920. Medary recommended one passenger line through the city terminating at a Union station, with substations on the east and west for local commuter travel. See also “New Orleans Must Plan to Meet Problems of Modern Life Says City Planner, Medary Speaks Before Commerce Body Members’ Council,” *New Orleans Item*, June 17, 1920, in which Medary was quoted as saying, “Waterways must be developed. . . . The railroads must be feeders of waterways, as highways are feeders of railways.”


Baumbach and Borah, The Second Battle of New Orleans, 32.


25 Constructed on the lakeside of the city center, I-10 opened through New Orleans in 1968. The riverfront expressway was to be a section of the proposed I-610 loop.

Baumbach and Borah, The Second Battle of New Orleans, 49.

Ibid., 111, 133.

28 Ibid., 176.

The Gulf Intracoastal Waterway opened from New Orleans eastward to Apalachicola Bay, Florida, in 1936, and westward to Corpus Christi, Texas, in 1942. The seventy-six-mile Mississippi River Gulf Outlet, which was completed in 1965, offered a shortened route to the Gulf of Mexico. The Corps of Engineers closed it in 2009, however, after analysis showed that it had contributed substantially to the flooding of the city in the wake of Katrina.


Landrieu, who succeeded Victor Schiro, had supported the federal government’s pro-integration policies from his seat in the Louisiana House of Representatives in the 1960s, and opened city government to black participation. He became Secretary of the Department of Housing and Urban Development in 1979 under President Jimmy Carter.

City Planning Commission, “New Orleans Riverfront, A Strategic Policy Plan” (New Orleans, 1991). The Dumaine Street Wharf was demolished to build the Moonwalk. The auditorium and terrace were components of an area previously known as the Washington Artillery Park.

Richard Campanella, Geographies of New Orleans: Urban Fabrics before the Storm (Lafayette: Center for Louisiana Studies, University of Louisiana at Lafayette, 2006); Gotham, Authentic New Orleans; and J. Mark Souther, New Orleans on Parade: Tourism and the Transformation of the Crescent City (Baton Rouge: Louisiana State University, 2006).

The park is named for businessman and philanthropist Malcolm Woldenberg (1896–1982), whose foundation contributed substantially to its construction.

35 See National Endowment for the Arts, National Council on the Arts, “Annual Report, Fiscal Year 1973” (Washington, D.C.: Government Printing Office, 1973), 14: ‘City Edges’ was designated as a bicentennial program on recommendation of the National Council on the Arts. The program examined waterways, rooftops, highway corridors, railroads, and housing projects. Ada Louise Huxtable in The New York Times (May 27, 1973) described ‘City Edges’ as ‘those places of conjunction and transition, often awkward, frequently ugly, too commonly misused or under-utilized, that can blight or deform a city.’ Mrs. Huxtable praised the activities of the Architecture + Environmental Arts Program as ‘unusual . . . under any auspices or conditions, but under the weighty bureaucracy of administrative Washington . . . nothing less than miraculous for their creative and pertinent professionalism.’”

36 School of Architecture, Tulane University, “New Orleans and the River—Booklet” (New Orleans, 1974), 4. See also the additional products of the study, all published by the School of Architecture,

38 Ibid., 10.
39 Ibid., 21.

41 Extensive data on demography, population trends, economic indicators, poverty, vacancy, and so on, can be found on the website of the Data Center, [http://www.datacenterresearch.org/](http://www.datacenterresearch.org/).

42 Richard Campanella has written a number of articles about the waves of gentrification in the city, most notably “Gentrification and Its Discontents: Notes from New Orleans,” *New Geography* (March 1, 2013); all are collected at “Articles, Studies, Reviews & More,” Richard Campanella, accessed February 1, 2016, [http://www.richcampanella.com/?page=articles](http://www.richcampanella.com/?page=articles).


44 The Coastal Protection and Restoration Authority is described at “About CPRA,” accessed February 1, 2016, [http://coastal.la.gov/about/](http://coastal.la.gov/about/).


48 Major design collaborators were Alex Krieger, George Hargreaves, and Enrique Norton.

49 All of the documents that make up the Greater New Orleans Urban Water Plan can be found at “Reports,” Greater New Orleans Urban Water Plan, accessed February 1, 2016, [http://livingwithwater.com/blog/urban_water_plan/reports/](http://livingwithwater.com/blog/urban_water_plan/reports/).