



**RUDY
BRUNER
AWARD**
FOR URBAN EXCELLENCE

**2017
SILVER
MEDALIST**

Chicago Riverwalk Phase 2 & 3

Chicago, Illinois

Reclaimed waterfront that transforms the river
into Chicago's next great recreational park

Investing in Urban Infrastructure

The 2017 Rudy Bruner Award for Urban Excellence



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BRUNER
AWARD**
FOR URBAN EXCELLENCE

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Overview

Submitted by: Sasaki
Completed: 2016
Total Development Cost: \$114.5 million

The Chicago Riverwalk Phases 2 & 3 is the transformation of a series of barren concrete arcades along the Chicago River into a series of vibrant waterfront public spaces. First envisioned as part of Daniel Burnham's 1909 *Plan of Chicago* and completed in 2016 by the City of Chicago, the Riverwalk is part of Mayor Rahm Emanuel's *Building on Burnham* initiative to invest in natural and recreational opportunities for neighborhoods across the city. Located in the heart of downtown Chicago just northwest of Millennium Park (2009 RBA Silver Medalist), the Riverwalk is now referred to as the city's "second waterfront" and has become a popular place to walk, jog, bike, dine, and view Chicago's world-renowned architecture.

The design of the Riverwalk's 3.5-acre Phases 2 and 3 was a collaboration between Sasaki from Watertown, Massachusetts, and Chicago-based Ross Barney Architects, who also designed Phase 1, completed in 2009. Together, the three phases provide continuous pedestrian access along the south bank of the Chicago River from the confluence of its north and south branches to Michigan Avenue, where the trail continues on to Lake Michigan. The Riverwalk was created within a narrow 25-foot build-out area between

“CHICAGO RIVERWALK BUILDS UPON THE CITY’S CULTURE OF PLANNING AND TRADITION OF CIVIC INVESTMENT.”

– 2017 Selection Committee

Lower Wacker Drive and the river, negotiating complex marine and urban conditions including discontinuous access, fixed infrastructure, flooding, and substantial vertical grade changes. The design offers an experience of both continuity and variety. Reflective under-bridge passages link six distinct “rooms” between the bridges that cross the river every block, and each room—Marina Plaza, The Cove, River Theater, Water Plaza, The Jetty, and a sixth room at the western end awaiting development while options for its evolution are explored—offers a different way to experience the river.

The park integrates a variety of amenities including boat docking, kayak access, fishing piers, floating wetlands, restaurants, and water features, along with plenty of seating and access to Upper Wacker Drive. Local vendors offer food and beverages overlooking the water, along with boat rentals and water taxi transportation. Friends of the Chicago River and the Chicago Architecture Foundation provide educational programming and tours highlighting the city’s architecture and the river’s ecology.

The \$114.5 million project received innovative financing through a federal Transportation Infrastructure Finance Innovation Act (TIFIA) loan which will be paid back over 35 years with revenue from vendor contracts.

The Riverwalk is one of a series of recent additions to Chicago’s recreational network, which includes The 606 trail and park system and Maggie Daley Park adjacent to Millennium Park. It’s also part of broader planning initiatives including the Metropolitan Planning Council’s (MPC) *Our Great Rivers* vision and the Urban River Edges Ideas Lab, a partnership between the City of Chicago and MPC, which is engaging leading architectural firms in developing concepts for additional riverfront development.

Open since 2016, the Riverwalk has quickly become a source of pride for Chicagoans and a popular destination for office workers, residents, and tourists, and revenues have exceeded projections for food and beverage vendors. It is also creating a new cachet for riverfront addresses where current and proposed projects include a 51-story Bank of America tower and \$27 million Apple store. According to Mayor Emanuel, “We’re in the beginning stages of rediscovering the Chicago River.”



Chicago Riverwalk transformed the river into a waterfront destination for walking, dining (opposite), and boating (above).



TINY

TAPP

TINY TAPP
crafted cocktails
proper proportions

TINY TAPP
EST. 2016
PROPER PROPORTIONS

TINY TAPP
EST. 2016
PROPER PROPORTIONS

77 WEST WALKER

Project at a Glance

- A new 3.5-acre outdoor public space that reorients downtown Chicago to the river where it was founded, creating a second waterfront on previously underleveraged real estate.
- A linear park for walking, biking, jogging, sitting, dining, and connecting to the river.
- A place for visitors, workers, and residents to escape the urban bustle while enjoying the city's skyline and amenities.
- An east-west pedestrian, bike, and water transit corridor through downtown built around existing bridge infrastructure.
- An opportunity to educate visitors about river ecology while helping restore healthy aquatic life.
- An innovative financing plan that makes construction and maintenance self-supporting.
- A "coming together place" that has attracted new retail and high-rise housing and office construction.

Project Goals

- Reclaim the Chicago River for the ecological, recreational, and economic benefit of the city.
- Create diverse programming opportunities that respond to different portions of the river, exploring urban river typologies and integrating restaurants, boating, water features, floating wetlands, and ample seating.
- Enhance the downtown Chicago experience by giving visitors and residents an accessible riverfront destination for outdoor recreation and leisure in the heart of the city.
- Creatively adapt underutilized waterfront infrastructure into a highly integrated, sustainable, flood-resilient downtown amenity.
- Provide critical new linkages to the city's existing open space system and allow seamless pedestrian movement along the river from the city's core to the lakefront.
- Offer a continuous car-free environment that connects a series of distinct community spaces at the river's edge.

Chronology

1770

Early settler Jean Baptiste Point du Sable builds his house on the northeast side of Chicago River near its mouth at Lake Michigan.

1900

Chicago River flow is reversed so that sewage and industrial pollution does not affect drinking water pumped from Lake Michigan.

1926

South Water Street Market is relocated from the riverfront to create a multi-level grand boulevard along the riverbank per the 1909 *Plan of Chicago*; Wacker Drive quickly becomes a heavily used arterial carrying up to 60,000 vehicles daily.

1990s

A series of studies, plans, and guidelines are generated addressing ways to bring pedestrian access and real estate development to the banks of the river.

Deterioration of Wacker Drive, crumbling after years of heavy use and deferred maintenance, makes restoration and repair an immediate concern.

1998

The City of Chicago, working with Skidmore, Owings and Merrill, develops a path from the mouth of the Chicago River at Lake Shore Drive to Michigan Avenue.

1800

1803

Fort Dearborn is built on the south bank of the main stem of the river.

Thirty years later, the town of Chicago is incorporated.

1900

1909

Burnham and Bennett's *Plan of Chicago* is published. It includes proposals for a multi-level roadway along the river as well as a river promenade.

1979

Friends of the Chicago River is established to support restoration and maintenance of water quality and aquatic life in the river.

1992

Chicago Riverwalk Feasibility Study is completed.

2000

2001 - 2002

The east-west section of Wacker Drive is redesigned and reconstruction begins between Michigan Avenue and Randolph Street, including moving westbound lanes 50 feet south to create space for a plaza at river level.

2001

Ross Barney Architects begins collaborating with the Chicago Department of Transportation, Collins Engineering, and Jacobs/Ryan Associates on Phase 1 of Riverwalk.

Chicago's Department of Transportation submits a plan to the US Department of Transportation that includes building an extension into the river for the walkway.

2005

The first segment of Riverwalk Phase 1 is completed between Michigan Avenue and Wabash Street, including the Vietnam Veterans Memorial Plaza.

2011

Sasaki and Ross Barney Architects are awarded a contract to design Phases 2 and 3 of Riverwalk.

2014

Construction of Phase 2 begins.

2016

Construction of the final three rooms of Phase 3 is completed and open for summer.

2002

Chicago Park District completes a *Chicago River Master Plan* that includes a riverwalk along the main stem of the Chicago River.

2009

The second segment of Riverwalk Phase 1 is completed, from Wabash Street to State Street, including the McCormick Bridgehouse Museum.

2013

The City of Chicago is approved for a Transportation Infrastructure Finance and Innovation Act loan of \$98,660,000 for construction of Phases 2 and 3.

2015

Construction of the first three "rooms" of Phase 2 is completed.

2017

RFP for the new vendors for 2018 season receives 25 submissions.

The official opening is held on May 20.



- ### POINTS OF INTEREST
- | | |
|---|---------------------|
| 1. Chicago Riverwalk Phases II & III | 6. Marina Towers |
| 2. Chicago Riverwalk Phase I | 7. Wrigley Building |
| 3. McCormick Bridgehouse & Chicago River Museum | 8. Navy Pier |
| 4. Millennium Park | 9. New Apple Store |
| 5. Merchandise Mart | 10. Wolf Point |



Project Description

INTRODUCTION

The Chicago Riverwalk is designed to return access to the Chicago River to its populace after many decades of industrial and waste water use rendered it polluted, unsightly, and often unpleasant to be near. With industry along the river largely gone and waste significantly reduced, the river is again approachable, and the Riverwalk has taken advantage of that to bring people back to the water for recreation and transit.

The Riverwalk is a \$114.5 million project that expanded existing arcades and a narrow pathway between Wacker Drive and the water by building out 25 feet into the river to create, for the first time, a continuous walkway along the length of the main stem of the Chicago River. Phase 1 of the Riverwalk, completed in 2009, created a walkway along the easternmost section from Michigan Avenue to State Street. Phases 2 and 3 complete the Riverwalk with six additional blocks extending to the confluence where the main stem of the river joins the north and south branches. In so doing, it provides a path and waterway that connects the lakeshore to the heart of downtown and the West Loop, with plans to extend the path along the north and south branches to many other neighborhoods.

More promenade than park, the Riverwalk is located 20 feet below surface streets, providing the ability to escape urban bustle and noise while still embracing the city through spectacular views of the Chicago skyline. The design offers an experience of both continuity and variety. Within the unbroken flow of the walkway and consistent use of materials, the six blocks of Phases 2 and 3 are laid out as six distinct “rooms,” each defined by the bridges at either end and a unique design supporting its particular intended use. The sixth segment, at the western end near the river confluence, is defined mostly by temporary features, as its ultimate uses are still to be determined. The Riverwalk experience combines water amenities (docks, boating, fishing, and wetlands) and educational programming (provided by the Chicago Architectural Foundation) with restaurants, bars, and the opportunity to take an unimpeded stroll through the Chicago Loop.

CONTEXT

Chicago

The area in and around what is now Chicago had long been inhabited by a number of native tribes including the Algonquin, Mascouten, Miami, Sauk, Fox, and Potawatomi. The Chicago River is one of a series of rivers that is part of what is known as the Chicago Portage, an area that was important to the native tribes and later to European trappers and traders who first arrived in the 1670s. This portage connects the Great Lakes to the Mississippi Valley along the area of a continental divide within which water drains east to the Great Lakes or west to the Mississippi basin. This geographical feature made Chicago an important trading site and led to its growth as European explorers recognized that cutting a short canal there could connect Lake Michigan and the Chicago River to tributaries leading to the Mississippi, creating a water route all the way to the Gulf of Mexico. One hundred years after these explorers visited the area, Jean Baptiste Point du Sable founded his farm, the area’s first permanent European settlement, on the north bank of the Chicago River near its mouth at Lake Michigan. Fort Dearborn was built on the south side of the Chicago River as a US outpost in 1803.

The settlement of Chicago was incorporated in 1833 after being surveyed and mapped by order of the Illinois legislature in 1829. The Illinois and

Michigan Canal opened in 1848, connecting Lake Michigan to the Mississippi River, and shortly thereafter Chicago became the major rail hub of the Midwest. The city grew rapidly as an economic center, and the river served as an important source of water for industrial processes and animals in the stockyards and as a sewer where industrial and animal wastes were dumped.

The city's growth was perhaps too rapid for its infrastructure, which led to serious health and sanitary issues that were addressed by major civil engineering efforts. In 1856, the city's streets (and in some cases buildings) were elevated five feet to accommodate new sewer lines, which flowed into the river and contributed to fouling its waters. At the turn of the twentieth century, after many years of trying, the flow of the Chicago River was successfully reversed to eliminate the intrusion of sewage into Lake Michigan, protecting the source of Chicago's drinking water.

The direction of Chicago's development and growth was changed drastically by the Great Fire of 1871, which spread over several thousand acres and destroyed over 17,000 buildings, leaving more than 100,000 people homeless. Despite the devastation, in many ways the fire opened possibilities for a better city. In its wake, Chicago developed some of the strongest building and fire codes and one of the best-trained fire departments in the country, and it initiated planning for a dramatically different city.

The third largest city in the United States, Chicago has a population of 2.7 million people (over 9 million people in the broader metropolitan area) with a broad mix of racial, ethnic, and religious groups. The Riverwalk is in the heart of Chicago's downtown, known as "the Loop" for the area enclosed by the elevated train tracks of the city's mass transit system. The Loop contains government buildings, a range of commercial and retail spaces, arts and entertainment venues, dining, and, more recently, high-rise and high-end residential buildings.

The Plan of Chicago

In 1893, Chicago hosted the World's Columbian Exposition with Daniel Burnham as its chief planner and Charles Wacker as fair director. The fairgrounds, through its layout and buildings, presented an American

adaptation of European Beaux Arts design and helped launch the City Beautiful movement in the United States. It also inspired Chicago's leading businessmen and property owners, through the Commercial Club of Chicago (of which Wacker was a member), to create the Chicago Plan Commission, with Wacker as its head. Burnham was hired to develop the plan, based on the belief that thoughtful and comprehensive planning would make a better and more prosperous city.

Completed in 1909, the *Plan of Chicago* described a Beaux Arts style city with large parks and broad boulevards to keep people, goods, and services flowing. It included plans for a lakefront with 30 continuous miles of public access that would be protected forever from commercial development. The plan also proposed a double-deck bridge over Michigan Avenue merging into a multilevel drive along the Chicago River; a Parisian-like boulevard at the surface level would connect to the new bridges over the river, and fast freight and traffic would flow below with direct access to the basements of commercial buildings. Drawings in the Burnham plan, as it was popularly known, also included a promenade along the river where people could stroll, see, and be seen. The riverfront would be efficient for transportation and beautiful, lined with soaring skyscrapers. The Burnham plan was, to no small degree, a real estate development proposal through which a prized and beautiful riverfront would create significant new value for the property along its banks.

Wacker Drive

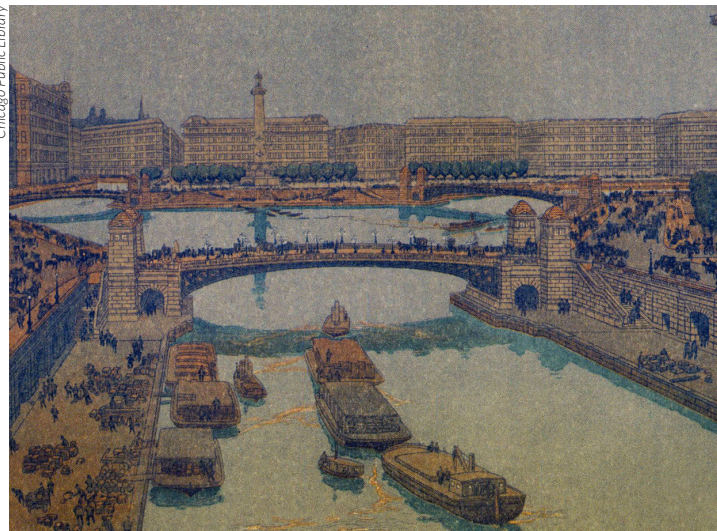
The plan was adopted in 1910, but it was not until 1924 that construction began on the new multilevel roadway, now named Wacker Drive. The plan included using assessments based on future real estate value to fund the development, which necessitated building new and bigger structures alongside the river.

Lower Wacker Drive was brightened by daylight that came through concrete arcades formed by chamfered columns with brackets and volutes, giving the impression of classical architecture. The river border at grade was created by a balustrade with regularly spaced pedestals. Historian A. D. Finstein commented that "Wacker Drive was not just an on-grade riverfront

cut-through. Rather, it offered a three-dimensional framework for transportation and architecture that specifically rejected past incarnations of both.” It quickly became a major artery for traffic going to and through downtown Chicago while the polluted river was essentially something to be passed over and ignored by most citizens, save for the traditional St. Patrick’s Day event for which a special dye was added to turn it green. Commercial shipping vessels continued to dock alongside the Wacker Drive. Over time, the original arcades were closed off to provide temporary amenities along the riverfront, but there was still little to do at the water’s edge. Burnham’s vision of the city’s relationship with the river was not fully realized until the completion of Riverwalk more than 100 years after the plan was adopted.

The Chicago River

In the last 30 years, the river’s water quality has significantly improved. In the post-industrial economy, many of the waste-producing businesses and industries have moved or closed. The last two coal-fired plants were shut down in 2012. Storm water overflows regularly caused raw sewage



The idea for a riverfront promenade was first proposed in the 1909 Plan of Chicago.

to pour into the river, and in the mid-twentieth century, this occurred an average of every three days. Water management improvements following the 1972 Federal Clean Water Act led to a decline of such pollution. Massive new tunnels are being built to hold storm water overflows, and when the last such tunnel is finished in a few years, officials say it will be the end of sewage leaking into the river. Whereas the Friends of the Chicago River counted only seven species of fish in the river when the organization was founded in 1979, the most recent count found more than 70, an indicator of a cleaner and more habitable river.

LEADERSHIP AND COMMUNITY PARTNERS

The leadership that led to development of the Riverwalk came from city government and partnerships with nonprofit organizations, in particular the Friends of the Chicago River (FOCR) and the Chicago Loop Alliance. Mayors Richard M. Daley (1989-2011) and Rahm Emanuel (2011-present) both took an active interest in supporting, promoting, and securing funding for the project. At their behest, numerous city agencies—including the Chicago Department of Transportation (CDOT), the Chicago Park District,



Wacker Drive, a multi-level roadway, was constructed along the river in the 1920s.



Ted Nelson

Friends of the Chicago River offers educational events and programs that promote the river's ecological restoration.

the Department of Fleet and Facility Management (2FM), and the Department of Cultural Affairs and Special Events (DCASE)—joined in planning the project and supported its construction and operation.

FOCR was founded in 1979 by Robert Cassidy after an outpouring of positive response to “Our Friendless River,” an article he wrote for *Chicago Magazine* to protest deterioration of the river. The article recounted a canoe tour of the river and noted that even though water is a magnet for people and some developers were beginning to build along the river, serious development wouldn’t happen until the water was cleaned up. FOCR has since been involved in planning and staging events aimed at increasing interest in and educating visitors about the river, including building a “fish hotel” (submerged islands attached to the south bank of the river with vegetation that provides shelter and attracts insects the fish eat) off the south bank to demonstrate that aquatic life persisted in spite of the pollution.

Founded in 2005 from the merger of two downtown business associations, the Chicago Loop Alliance represents for-profit and nonprofit entities and has the Chicago River as the north and west boundaries of its catchment area. According to the alliance, it “develops, supports and promotes artistic, cultural and public events that benefit businesses, individuals and stakeholders” and has been involved in numerous planning activities related to capital improvements in the central core of the city. Its members have been among the primary supporters of the Riverwalk and stand to benefit from its success in bringing more people downtown.

In 2016, Mayor Emanuel released the *Building on Burnham* plan, which outlines a series of projects intended to leverage the impact of recent park building in Chicago—including the Riverwalk, Millennium Park, Maggie Daley Park and The 606 (an elevated and surface linear park that connects several neighborhoods and is named after Chicago’s zip code)—and work toward the vision of “a city in a garden.” The plan proposes adding a number of neighborhood parks connected to schools and adding to bicycle amenities with new trails and pedestrian bridges. The plan also proposes a new rails-to-trails program along the Chicago River in the Pilsen and Little Village neighborhoods and extending the Riverwalk to the South Loop between Harrison and Congress Streets.

Building on Burnham also connects to the “Our Great Rivers” project initiated by the Metropolitan Planning Council and FOCR. The project aims to make the Chicago, Calumet, and Des Plaines Rivers places that are “inviting, productive and living” by 2040.

DESIGN AND DEVELOPMENT

The notion of creating a pedestrian walk along the Chicago River—taking what had been a barrier and making it a “zipper” to bring places and people together, as local architecture critic Blair Kamin described it—was something that had been on the city’s wish list for a generation as a way to create what was hoped would become Chicago’s “second coast.” The concept was proposed in the 1909 Burnham plan in a more limited fashion and was the focus in whole or part of broader development plans in 12 planning documents prepared for the city between 1992 and 2009. These ranged

Chris Bay



The Riverwalk is part of Mayor Rahm Emanuel's vision to connect city neighborhoods with the river.



Extensive programming is offered through partnerships with vendors and nonprofit organizations.

from the 1992 *Chicago Riverwalk Feasibility Study* and 1999 *Chicago River Corridor Development Guidelines* to the 2002 *Chicago River Master Plan*, 2007 *Action Plan for the River*, and 2009 *Riverwalk Framework Plan*.

It was never clear, however, exactly what this new linear public space would be or how the city would pay for it, although both Mayors Richard J. Daley (1955-1976) and Richard M. Daley had expressed interest in making the river useable again for recreation. Initial planning and development by Mayor Richard M. Daley on Phase 1, coordinated in conjunction with the reconstruction of Wacker Drive, provided the opportunity to present newly-elected Mayor Emanuel with plans to implement Phases 2 and 3, which Emanuel quickly championed. The most immediate precursor to the Riverwalk was developed in 1998 when the city engaged the architecture firm of Skidmore, Owings & Merrill to design a path from the mouth of the Chicago River at Lake Shore Drive to Michigan Avenue. This Riverwalk Gateway, made of steel and cast concrete, connects to the existing 18.5-mile lakefront bicycle path. The portion that runs under Lake Shore Drive was enhanced with lighting and murals depicting the history of Chicago.

Efforts to realize the full vision of the Riverwalk took advantage of the need to reconstruct and reinforce the multilevel Wacker Drive. In spite of repairs during the 1970s, the upper and lower decks of the structure were showing the wear of 75 years of heavy use, frequent de-icing with salt in freeze-thaw cycles, and years of deferred maintenance. Mayor Richard M. Daley created a Tax Increment Financing (TIF) district to fund reconstruction of Wacker Drive, and work started in 2001 on the east-west portion, which runs parallel to the main stem of the river. By the time these repairs began, there was agreement among city agencies about the benefits of creating a river walk, which became linked to the Wacker Drive reconstruction.

Developing a river walk, as suggested by the various plans of the 1990s, was not possible without adding to the narrow strip of land between the river and the walls and arcades of Lower Wacker Drive. In 2001, Ross Barney Architects began collaborating with CDOT, Collins Engineering, and Jacobs/Ryan Associates on initial segments of the Riverwalk (later to

	ECONOMIC				RECREATIONAL				CULTURAL				ENVIRONMENTAL			
	Maximize Leasable Opportunities	Activate Space along the River	Improve Perception of Safety	Support Commercial Boating Activity	Create a Continuous Public Walkway	Improve vertical circulation	Increase recreational boat activity	Provide more public river uses	Create Diverse Gathering Spaces	Celebrate the River's Uniqueness	Embrace the Site's History	Enhance Community Life	Restore Aquatic Habitat	Cultivate Terrestrial Habitat	Improve the water quality	Use sustainable building strategies
Chicago Riverwalk Feasibility CDOT, 1992			●		●	●				●		●				
Main Branch Guidelines 1995					●	●							●	●	●	
Chicago River Development Plan Planning, 1999												●	●	●		
Chicago Riverwalk Program and Development, MRA, 1999	●	●	●	●	●	●	●		●	●	●	●				
Volpe Analysis US ACOE, 2001			●	●												
Chicago River Master Plan Chicago Parks District, 2002					●	●	●	●		●	●	●	●	●	●	●
Chicago Riverwalk Agenda Mayor's Office, 2005	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
Chicago RiverMarket Planning (w/ VOA), 2006	●	●		●	●		●	●								
Action Plan for the River Friends of the River, 2007					●		●	●			●		●	●	●	●
OWPP Riverwalk Study Mayor's Office, 2008					●		●		●		●					
Central Area Action Plan Planning, 2009		●		●	●	●			●		●					
Chicago Riverwalk Framework Plan Planning (w/ SOM), 2009	●	●		●	●	●	●	●	●	●	●					

Numerous studies were conducted between 1992 and 2009 leading to the creation of the Riverwalk.

be called Phase 1). They were hesitant to propose building out into the river because it is a navigable waterway under Coast Guard and Army Corps of Engineers jurisdiction, and any attempt to intervene in the channel would trigger review and require permission from federal agencies. Initially, they considered creating a floating platform for the walkway that, as a temporary structure, would require less stringent review. This idea was dropped, however, when their analysis found that it would be difficult and expensive to create seamless and ADA accessible connections between such floating structures and the land due to dramatic fluctuations of the water level. In addition, a Coast Guard survey determined that river traffic would not be significantly impeded by a limited incursion, making it feasible to build out into the river.

In 2001, therefore, CDOT submitted a plan to the US Department of Transportation's Volpe National Transportation Center, requesting permission to extend the river bank 25 feet into the river between Wabash and Franklin Streets. Permission was granted by an act of Congress as a modification of the River and Harbors Act of 1899. The modification allowed building up to 50 feet into the river where it was wider at the confluence, 25 feet along the rest of the main stem, but only 20 feet at the bridges, whose abutments already restricted the navigable width.

The initial steps toward implementing this plan were included in the restoration of the east-west section of Wacker Drive. The east- and westbound lanes between Wabash and State Streets, which separated as they curved

around a Vietnam War Memorial, were brought together by moving the westbound lanes 50 feet to the south. This created space to move the memorial from the hard-to-reach “glorified traffic island” down to an easier-to-reach spot at Wabash Plaza, on the river level at the foot of the stairs leading from Wabash Street.

The space created by this shift of the streets established the foundation for the first segment of Phase 1 of the Riverwalk, designed by Chicago-based Ross Barney Architects and Collins Engineering, who had also developed the plan for Wabash Plaza. This segment, completed in 2005, included the plaza and the memorial, which features a plaque with names of local service men and women who died in the war; a waterfall; a fountain with 14 water jets; and engraved granite pavers from the city’s original memorial. The relocation of the memorial below street level was at first resisted by veterans’ groups because of the negative view they and most Chicagoans had about being on the river (“You’re moving us to the basement!”), but it has since has been embraced as a success and has become heavily used. The second segment of Phase 1, the block between Michigan Avenue and Wabash Street, included the McCormick Bridge House Museum and was completed in 2009.

In 2011, a request for proposals was issued for the design of Phases 2 and 3 of the Riverwalk, from State Street to Lake Street. The project was awarded to Sasaki, a Boston-based firm with considerable experience in open space planning and marine engineering, in association with Ross Barney Architects. Early in the design process, after visiting river walks in other cities including San Antonio, the clear feeling emerged among members of the design team that this project had to be authentic to Chicago—a densely urban city—and take advantage of the views of the distinctive buildings that defined the downtown. Moreover, the city needed, as Mayor Emanuel said, “a coming together place.”

There was not a great deal of formal community engagement during the development of Phases 2 and 3 because of the number of existing plans, the extensive community work related to them in previous years, and the relative clarity about the direction the design should take. Much of the

concept for the Riverwalk had already been described and agreed upon in terms of programming and activating the space, some of which was addressed in Phase 1. Because the river and development along its banks touched so many jurisdictions and agencies, there were many meetings with representatives from city agencies including CDOT, 2FM, Parks, and DCASE; FOCCR; the Coast Guard and Army Corps of Engineers; and the Mayor’s Office. Most of the meetings took place with Michelle Woods of CDOT (and later 2FM), who served as point person. Although there were no public charrettes during this phase, there were presentations open to the public at the Chicago Architecture Foundation, trips with tour guides and on boats, and many meetings in which the designers served as ambassadors for the project.

Existing Conditions and Challenges

The primary task for the designers of Phases 2 and 3 was to create a unique plan for each of the remaining six east-west blocks of river frontage and to address the significant engineering challenges and costs their develop-



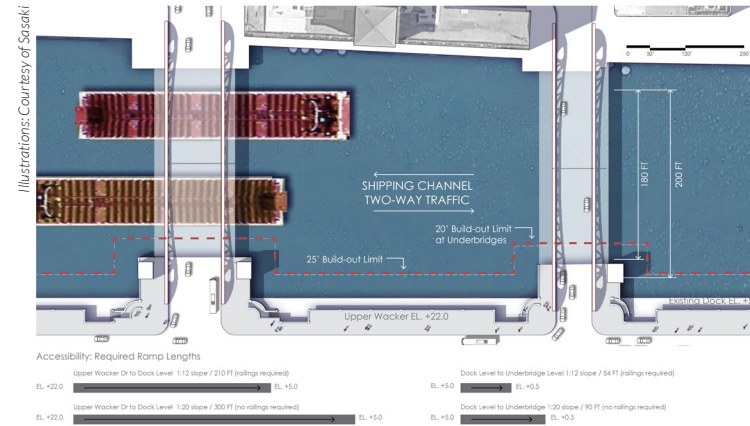
The first phase of the Riverwalk included the creation of Wabash Plaza and relocation of the Vietnam War Memorial.

ment would entail. The Riverwalk presented an intriguing but tight and challenging site: a small interstitial space, 20 feet below street level, running along the outer wall of a heavily-trafficked underground roadway. It offered just a narrow strip of land between the highway arcade wall and the water, at the time too high above the river for passersby to safely touch it or for anyone falling in to have a way to climb out. Moreover, the path along the river was discontinuous. Each city block of the riverfront ended at the base of a bridge abutment, where the next north-south street crossed the river. Anyone trying to traverse multiple blocks along the river would have the walk interrupted every block by the physically demanding experience of having to climb the original stairways to Upper Wacker Drive, cross the street, and go down stairs again to the lower level. In addition to searching for solutions that achieved continuity, the design team studied shade, sun, and wind conditions on the river and in surrounding neighborhoods to better understand and mitigate the conditions pedestrians would experience on the Riverwalk.

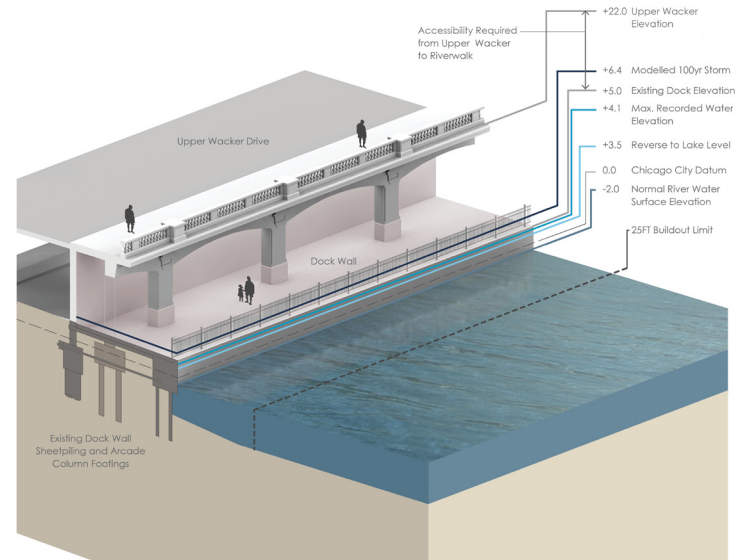
Among the challenges for the design were the significant changes in grade of 17 feet from street to dock and 22 feet to typical river level for passage under bridges, as well as regular river level fluctuations and occasional flooding up to seven feet above normal level. There was also the need to provide safe havens on each block for river traffic requiring rest stops or emergency pull-over. Further, because of Chicago's combined sewer system, sewage and storm water may overflow into the river after heavy storms, causing unsanitary and foul-smelling conditions that would be unacceptable to most visitors.

The site also presented difficulties for construction. There was little space on the street or on the lower level for construction staging, access for delivery of material and equipment, or removal of debris from demolition. The solution was to make use of the river itself, much as it had been in its industrial past, using barges for staging, delivery, carting, and as construction platforms.

The bed and subsurface of the slow-moving waterway posed the biggest problem for construction. Digging into and through the riverbed for



An Act of Congress was required to extend the river bank 25 feet into the channel.



The extension created space for a continuous walkway along the water.



Images: Ross Barney Architects

Building out into the river allowed designers to enhance access to the water.

foundations and footings meant identifying, precisely locating, and avoiding the many different services and utilities that crossed under the river including electrical cables; gas and water mains; building chiller pipes; bridge power cables; sewer outfalls; and active and inactive Chicago Transit Authority, freight, and trolley tunnels. Planners and engineers were acutely aware of an accidental breach of an abandoned tunnel during a bridge repair project in 1992 that sent hundreds of millions of gallons of water pouring into the basements of Loop buildings. Debris such as sunken cars also posed potential problems for drilling piers. In addition to using existing maps, divers spent many hours on the river bottom sounding and probing for locations of these elements in order to avoid such accidents.

Winter also brings many hazards for construction projects in Chicago. Digging the foundation was delayed for several weeks in the winter of 2014-15 because of the severe weather that froze the river over.

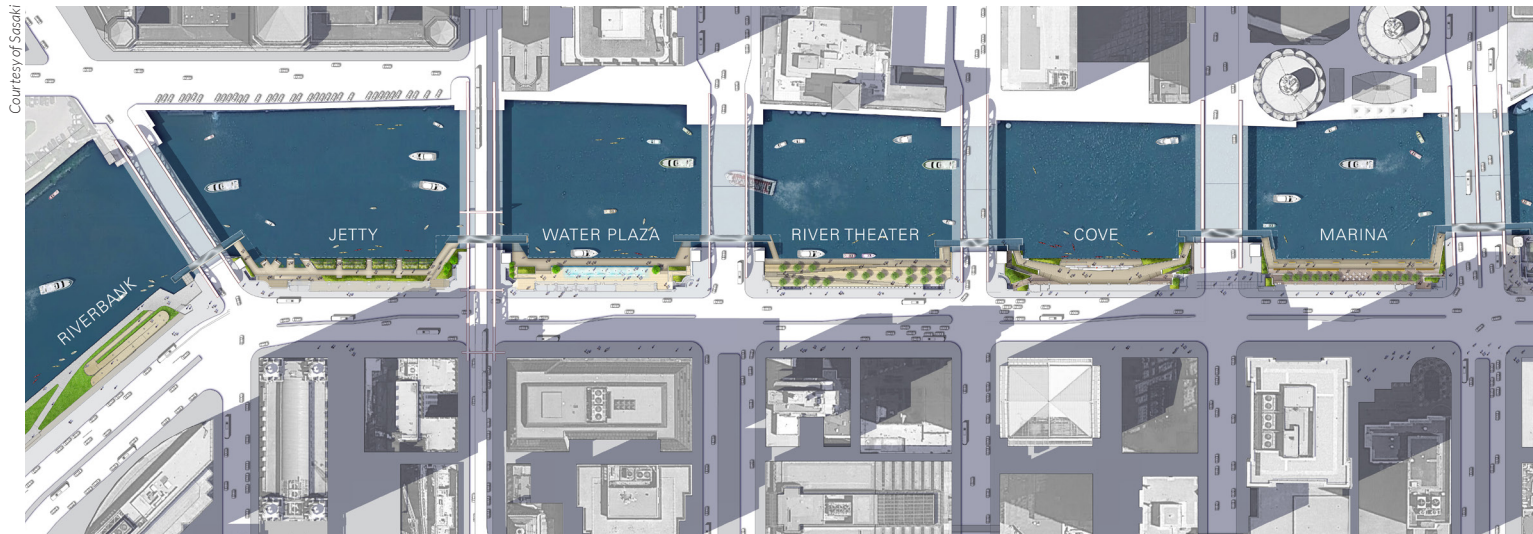


Construction required difficult engineering within complex marine and urban conditions.

Design Concepts

The key organizing concept for the design was to make use of the natural division of city blocks that run from one bridge to the next, creating a series of individually defined “rooms”—as the design team called them—connected by a continuous path. The approach was similar in Phase 1 (“when you are down there, they almost feel like rooms,” said one of the designers). The novel aspect for Phases 2 and 3 was for each room to showcase a different aspect of the urban river-based experience. Along the way, people encounter a variety of experiences including dockside eating and drinking; views of the river traffic, other users, and the city’s architecture; river ecology education; and opportunities to boat, fish, kayak, and play in a children’s fountain. While each room is defined by its unique layout, furniture, vendors, and relationship to the water’s edge, they are unified by a consistent vocabulary of materials.

The passages under each bridge were critical to making the walkway continuous, but these dark narrow spaces were tricky for designers to negotiate and posed several technical and permitting issues. The walkways



The Riverwalk is organized as a series of distinct "rooms" offering different experiences.

had to be "bent" around the bridge base structures and mechanisms (all are bascule bridges, using counterweights so they can be raised for passing ships). For this to work, foundations had to be extended into the river to the maximum extent allowed: 20 feet under the bridges and 25 feet elsewhere.

Additionally, people passing under the bridges had to be protected from debris falling through the perforated bridge decks. The solution was to provide a stainless-steel canopy above the walkway under every bridge. A prototype had been constructed in Phase 1, but the new design team modified it to have more visual impact. Kamin calls the canopies "spectacular" and the designers' "best stroke" as they "create a mirror effect, brilliantly reflecting the waters of the river, the people beneath it, even boats going by. Instead of under-bridge fear, you get under-bridge delight." The mirror quality and the way it reflects the surroundings is somewhat reminiscent of the Cloud Gate sculpture in Millennium Park.

The concept for Phases 2 and 3 of the Riverwalk was initially presented to newly-elected Mayor Rahm Emanuel in 2011 as a preliminary design

plan. Emanuel quickly endorsed the proposal and was able to identify sources and secure federal financing for its construction.

The design concept addresses a series of dichotomies for the Riverwalk, including as a place to:

- escape the city's bustle and noise and embrace its essential urban character, particularly as experienced in its spectacular views of downtown architecture;
- provide continuity of experience, keeping materials, colors, and textures consistent throughout the linear park, as well as diversity, with changes in specific features, furniture, vendors, and program for each area between bridges;
- offer a connection to Burnham's original plan, the historical Beaux Arts elements of Wacker Drive, and the striking steel of the bridges through kinds and color of materials, while also providing change by creating new spaces along the river that are distinctly modern in design.

There were risks involved in the design of the Riverwalk. Could the public's long-standing perception of the river as unattractive and unusable be turned around? Could people be given unimpeded access to walk along or dangle their feet in the river, omitting railings in many areas, and still be safe? To accomplish this, the public agencies had to overcome understandable pressures to reduce potential liability in favor of the designers' vision. These risks appear to have been successfully overcome.

The "Rooms"

The six rooms in Phases 2 and 3 correspond to the six blocks along the river from State Street to Lake Street. They are described below moving from east to west.

Marina Plaza (State Street to Dearborn Street), across the river from Marina Towers, connects the new blocks to the Vietnam Memorial of Phase 1 farther east. It includes a promenade, gathering space, drinking and dining (City Winery), seating, and boat docks. Marina Plaza is one of the two dining locations along the Riverwalk, with an upper dining terrace and built-in bar which forms the edge of the high-backed teak benches facing the river. The pathway runs through the lower level, which has a seating wall leading down to the river's edge. The straight edge at the bottom of the seating wall runs the entire length of the block and provides a space where people can sit and boats can dock.

The Cove (Dearborn Street to Clark Street) provides space for human-powered craft including kayaks and canoes to launch, maneuver, and dock. It includes broad concrete benches on the dock and offers an enclosed, protected area for the small boats to stop. There are concrete box planters at either end.

The River Theater (Clark Street to LaSalle Street) provides a broad expanse of steps serving as theater seating, crossed on a long diagonal by a gradual ramp (1:20 grade so as not to require a railing) from street level to the river pathway. The steps are dotted with a dozen trees that appear to emerge from the concrete steps, but whose roots are buried in six feet of soil below. The new trees provide some summer shade and will provide

more as they grow. LED lighting is built in under the stair ledges. A landing along the long dock serves as a water taxi stop.

Water Plaza (LaSalle Street to Wells Street) brings water into the space as a children's play area with a zero-depth fountain on a plaza raised about four feet above the pathway. Water from the fountain runs continuously under the railing and over the edge down to the pathway level, forming a water wall and creating a mist for cooling in the hottest weather. The water wall runs all year round and is meant to provide an ice feature in the winter (although it did not freeze in the mild winter of 2016-17).

The Jetty (Wells Street to Franklin Street) is dedicated to education and ecological experimentation, inspired by the "fish hotel" that attracted and provided habitat for river species before the Riverwalk was built. In contrast to the straight edges of docks in the other rooms, here the pathway leads to seven piers jutting into the water, some at irregular angles, providing a varied visual experience and multiple opportunities to stand at the water's edge and fish or enjoy the scenery. Along the balance of the dock there are floating wetlands and water gardens for vegetation and fish habitat, planted with a number of water-tolerant species, including sedges (grass-like perennials), irises, cardinal flowers, swamp milk weed, and others.

The space is intended to serve as an outdoor river life classroom and embodies a philosophy that sustainability addresses more than just human needs in the environment. Working with fish ecologists and the FOCR, designers included habitats that support aquatic life in this room, including a habitat curtain (a gridded column of nylon ropes hanging down into the water and attached to steel mesh screens to provide an artificial filamentous substrate for colonizing sessile organisms such as barnacles), pole "hulas" (nylon ropes where algae grow), and caisson-mounted "lunkers" (perforated steel cylinders that offer a place where fish are protected from the current and can hide from predators).

The Riverbank (Franklin Street to Lake Street) runs west from the last bridge and continues around to the confluence of the main stem with the north and south branches of the river. It is the least well-defined of the



The rooms (left, top to bottom and right, top to bottom): Marina Plaza, the Cove, River Theater, Water Plaza, the Jetty, and the Riverbank.

rooms and is essentially being land-banked until plans are completed for its future development. It has a permanent ramp connecting it to Upper Wacker Drive, but the balance of the development is provisional, with inexpensive concrete pathways and a large lawn that will be replaced when a development option is selected. Among the proposals are to use it as an outdoor sculpture and art park, to keep it wild and vegetative as a landing place for birds on the north-south flyway, or to build a restaurant to provide additional income for maintenance and debt service.

Sustainability

Sustainable aspects of the design of the Riverwalk include LED lighting; materials such as reclaimed teak; features that support water quality and the health of aquatic vegetation and fish; education about local ecological issues; and features that contribute to resilience in the face of regular flooding, including materials that can be cleaned of debris with a quick power wash after a flood. Paving that incorporates irrigation using reclaimed stormwater and provides space for generous volumes of soil contribute to maintaining the long-term health and viability of trees planted along the Riverwalk.

Materials

The consistency of materials used in all the segments contributes to the continuity of the experience for pedestrians and is intended to reflect both the appearance of nearby skyscrapers and the original Burnham design of Wacker Drive. The project's unifying material palette is inspired by the Beaux-Arts bridge house architecture and the striking steel superstructure of the bascule bridges. These include cut granite in the upper spaces, precast concrete planks for the walkway, and rough precast and stainless steel grating for the flood-prone edges. The upper section matches the limestone and granite of the Wacker Drive Viaduct and bridge houses. Reclaimed teak is used for seating. All the rooms have at least some vegetation, such as shade trees, shrubs, ornamental grasses, or inundation-tolerant plantings nearer to the docks to soften the spaces, as well as a lawn on the Riverbank that may be replaced once that room's final concept is determined. The materials were chosen and detailed for easy maintenance and cleaning after flooding.

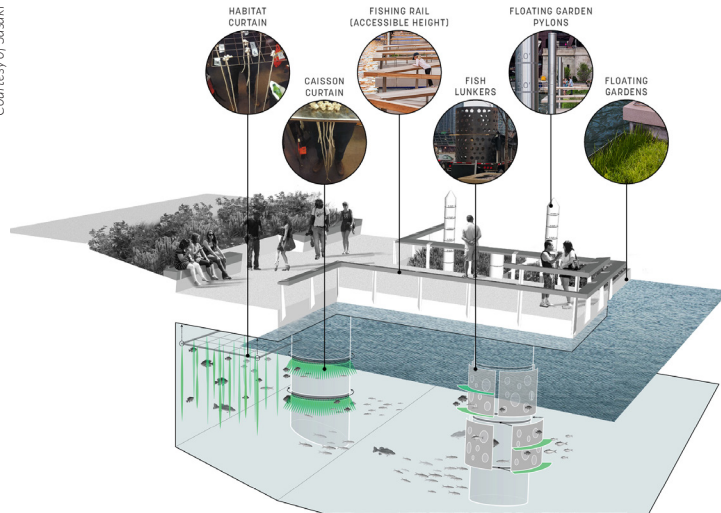


Reflective passages under the bridges connect the rooms and protect pedestrians.

Engineering

The biggest engineering challenge of the project, according to the designers and builders, was constructing on soil made up of “a layer of river muck up to 10 feet deep over soft to very stiff clays” with “negligible internal stability” requiring deep foundations. Support for the walkway was provided by tieback walls with a structural slab supported on deep concrete caissons. Matthew Hellenberger, project engineer for Alfred Benesch and Company, noted in a February 2016 *Civil Engineering* article that the sections between bridges “are supported by a structural slab that spans from a row of ‘H’ piles on the land side to a sheet pile wall along the river.” The strength of the foundations for the walkway at the base of bridges was determined in part by Coast Guard guidelines that required that it to be able to withstand impact from large barges traveling at 30 miles per hour. Oswaldo Chaves, the CDOT engineer who served as project manager for the Riverwalk, explained in the same article that this was achieved by a series of caissons six to eight feet in diameter dug into the riverbed to depths of over 70 feet, “capped with a reinforced, precast-concrete tub that is 10 feet wide by four feet deep.”

Courtesy of Sasaki



Specially designed underwater habitats attract and support aquatic life.

©Christian Phillips Photography



Floating wetlands and water gardens are planted with water-tolerant plants.

In addition to the stringent Coast Guard requirements and technical issues, working on a busy, navigable waterway created significant logistical challenges. One of these included floating in a crane mounted on a barge. Its height, even when lowered, required special opening of the bridges to allow it to be put in place and moved between the “rooms.”

ACTIVITIES AND PROGRAMS

There has been a conscious effort by those who manage the schedule for the Riverwalk, including 2FM, the Park Districts, and DCASE, not to over-program it. It is, after all, located in the heart of downtown Chicago, within easy reach of theaters, restaurants, and shopping, and does not require much beyond the views and river-related activities to attract large crowds of downtown workers, residents, and tourists. People, river, skyline, and vendors are seen as significant programming on their own. The planned events that do take place on the Riverwalk are often for educational or fund-raising purposes, special festivities, or part of attempts to broaden use into cooler weather seasons.

Vendors

Vendors are a major part of the Riverwalk activities and add significant value. Their services, such as food, drink, and boating, provide reasons to repeatedly return to the Riverwalk and add to its busy and welcoming atmosphere. They also generate revenue for the city to repay the federal loans that financed the project.

Tiny Tapp and City Winery, two of the five food and drink vendors, appear to be doing very well. Both have other outlets in Chicago (which satisfied the city’s objective of fostering local businesses), and both are earning more money on Riverwalk than at their other sites, in spite of the smaller facilities and shorter operating season. They seem to be mutually reinforcing: City Winery said that its business doubled after Tiny Tapp opened.

Tiny Tapp’s owners, when interviewed for the original Request for Proposal process, estimated that they might be able to generate \$400,000 in annual receipts on the Riverwalk but were asked if they could handle \$1 million in business—clearly Michelle Woods, who was project manager, had larger



A simple palette of materials was inspired by Wacker Drive and surrounding buildings.



Reclaimed teak benches and trees, bushes, and ornamental grasses soften the spaces.

goals in mind. They, in fact, earned \$1.3 million in the first 90 days they were open in 2016, even though operations were not always easy at first. For instance, they operated without Internet and gas in the kitchen through the first season. Sales in 2017 were expected to be higher.

City Winery opened earlier, in 2015. It spent \$200,000 to fit-out the facility and earned \$1.5 million in its first year. After adding \$200,000 in further improvements, the restaurant and music venue earned \$3 million in its second year.

Both have done significant hiring—City Winery had 80 staff for 2017—and both work with the city on high school-based culinary job training and employment programs. Both have leases that are about to run out and have submitted proposals for the next round of leasing, but neither are assured of continuing operation.

Other vendors who use the space and attract visitors include:

Boat-related

- Urban Kayaks – rentals
- Chicago Water Taxi and Wendella Sightseeing Boats
- Chicago Electric Boat Company – small boat rentals
- Friends of the Chicago River canoe excursions
- Mercury, Chicago’s Skyline Cruiseline & Chicago’s First Lady Cruises including the Chicago Architecture Foundation River Cruise
- Downtown Docks – rental of dock space

Food and drink

- City Winery
- Tiny Tapp Restaurant
- O’Brien’s Restaurant
- Island Party Hut
- Cyrano Cafe on the Riverwalk

Activities on the Riverwalk

The Chicago Architectural Foundation, in addition to its architectural boat tours, runs free weekly “Riverwalk Talks” at the River Theater during the summer.



The Riverwalk offers places for sitting and boat docking (top), piers for fishing (middle), and kayaking (bottom).

The Friends of the Chicago River also run a series of events and programs along the Riverwalk, including:

- The Big Fish Ball, an annual fundraising dance, now in its twelfth year;
- Friends' Summer Cruise benefiting the McCormick Bridgehouse Museum;
- Chicago River Evening Paddle summer river canoe ride.

In addition, the FOCR has organized the Chicago River Schools Network, which provides training and assistance to school teachers for the study of the river, its history, and ecology.

The May 20, 2017 season opening day festivities attracted large crowds in spite of poor weather, with several dozen events from 9:00 a.m. to the closing fireworks, including free river cruises, walking tours, face painting, kayaking, music, and a "Fish Parade."

Use of the Riverwalk is very high during warmer weather, when it is filled with crowds moving along the walkway or sitting on steps, benches, and docks. The city is attempting to broaden use of the Riverwalk beyond spring and summer. In October 2016, the city presented a Riverwalk Fall Festival with activities including pumpkin carving and a bounce house. Several vendors, such as the Island Party Hut and Wheel Fun Rentals, were selected in part because of their intention to offer activities into fall and winter. In 2016, the Island Party Hut's tree farm was open until December 21. City Winery installed heated, plastic-domed seating spaces to keep its season running into cooler months.

The activities are still evolving; 2017 was the first summer when the full Riverwalk was open to the public. While current vendors have two-year leases, reflecting the uncertainty of a new retail environment, the most recent request for proposals for vendors identified two kinds of leases for an anticipated 14 sites: anchor tenants will get ten-year leases while "pop-up" tenants will get three-year leases with one-year renewal options. Twenty-five responses, all from local business, were received, and operations are expected to begin in the 2018 season.



Water access is provided by boat rentals, sightseeing excursions, and water taxis.



Food and beverage vendors offer opportunities for outdoor dining.

FINANCING

While the relatively modest funding needed for Phase 1 was drawn from local sources, the more significant \$114.5 million development cost of Phases 2 and 3 required external sources and was largely found in the innovative use of loans through the federal Transportation Infrastructure Finance Innovation Act (TIFIA) program. The Riverwalk’s long-term financial sustainability comes from its ability to fund debt service and maintenance (after the loan is paid off) through revenue generated by on-site vendors.

Construction

Construction of the Riverwalk was considered the final phase of the larger Wacker Drive Reconstruction Project, which, in total, involved spending more than \$600 million over a 10-year span. Reconstruction of the east-west span of Wacker Drive was completed in 2002, and the rebuilding of the upper and lower levels of the section was completed in 2012.

Phase 1 of the Riverwalk from Lake Shore Drive to State Street was completed in 2009. Phases 2 and 3 of the Riverwalk were largely completed and opened in 2016, with remaining construction of Phase 3 completed in 2017. As of early 2018, the City of Chicago was still in the process of closing out the project financing.

Funding for Phases 2 and 3 came from seven sources. The largest source of the funding came from a TIFIA loan from the US Department of Transportation. TIFIA loans are intended to provide “credit assistance for qualified projects of regional and national significance.” They are meant for significant transportation infrastructure projects with broad public benefit where private financing may not be available. Many people associated with the project felt that the use of this funding was among its most innovative aspects. The Riverwalk was not a typical use of TIFIA funds, in part because of the kind of project (a pedestrian walkway instead of a highway or bridge) and also because of the way the loan structure assumes that debt service would be repaid through revenue. This includes income from businesses operating on and in support of the Riverwalk, including water tour boats, retail (eating and drinking establishments, kayak rentals, etc.), and proposed

way-finding kiosk advertising. City officials who spent years on Riverwalk plans credit Mayor Emanuel’s personal relationship with Secretary of Transportation Ray LaHood for opening discussions that led to this funding, which was approved in August 2013.

The City of Chicago committed to the use of its Motor Fuel Tax as a backstop if business revenues are insufficient to cover debt service. However, as of May 2017, revenues exceeded expectations, so it appears unlikely that fuel tax funds will need to be tapped.

Other development sources included State of Illinois funds (a State Only Chicago Commitment or SOCC); City of Chicago funds; Wacker Drive Reconstruction funding, a federal earmark from the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users; a National Fish and Wildlife Foundation grant; and a local match for the TIFIA grant.

Estimated construction costs for Phase 3 were cut by \$9.8 million to keep them within the available funds. These cuts included eliminating an elevator and reducing improvements in the sixth room, leaving its final design for a later date.

Operating Costs and Income

Operating costs and income for the fully operational site are not yet available since, as of early 2017, vendor operations were still scaling up and there has not yet been a full season of maintenance for the entire park. Estimates of likely revenue from vendors were based on previous experience, such as years of revenue from boat tours (\$6 to \$8 million per season) and estimates for the value of spaces to be leased. This included 25,000 to 36,000 square feet of indoor space at \$12 to \$16 per square foot, plus kiosk advertising. Retail vendors pay a fixed rent plus 13% of gross receipts, which is said to be competitive with rental rates in nearby buildings.

The Riverwalk financial plan projected revenue of \$1.38 million in 2014, rising to \$3.27 million in 2017 and, over the life of the TIFIA loan, to \$12.51 million in 2048. Actual revenues for 2015 were almost \$50,000 higher than projections, reflecting strong performance by the first Riverwalk vendors.

TABLE 1: DEVELOPMENT SOURCES AND USES

SOURCES

US Department of Transportation - Transportation Infrastructure Finance and Innovation Act loan*	\$98,660,000
Illinois State Only Chicago Commitment	\$10,000,000
City of Chicago	\$4,284,843
Wacker Drive reconstruction project funding*	\$2,100,000
Federal earmark - Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users	\$433,529
Federal Fish and Wildlife Foundation grant	\$136,865
Local match for federal earmark	\$119,579
Total	17,048,363

USES

Construction	\$98,811,653
Construction management	\$8,113,663
Design and engineering	\$6,812,893
Mitigation	\$796,000
Total	17,048,363

*Allocated funding.

The TIFIA debt service reserve requirement totals \$6,572,682 and will be fully funded no later than December 31, 2019 in accordance with the provisions of the loan agreement. This helps the city assure its ability to make the required loan payments if revenue falls short.

TABLE 2: 2017 OPERATING BUDGET		
REVENUE		
City of Chicago General Fund		\$816,980
	Total	\$816,980
EXPENSES		
Janitorial services		\$297,737
Security		\$273,622
Landscaping		\$110,854
Snow removal		\$83,683
Fountain technologies		\$36,265
Power washing		\$10,336
Waste management		\$4,483
	Total	\$816,980

PROJECT EVALUATION

The striking success of Riverwalk is both completely obvious and something of a surprise. It is obvious in that it has been a concept in the public realm since Burnham’s 1909 plan and the subject of a great deal of serious planning and consideration over the past 20 years. The ability to use this waterway to connect the lakeshore to the West Loop, once seen on paper, seemed like something that should be actualized. Moreover, the main stem of the Chicago River lies in the center of the thriving commercial heart of a major city, surrounded by the architecture for which Chicago is famous.

That it took so long to recapture the river might be surprising. Yet the river had been far from Chicagoans’ collective consciousness, and its success can be measured by the enthusiasm with which this new linear public space has been greeted by residents, tourists, and the real estate market. This enthusiasm is seen in the striking success of the vendors



The Riverwalk’s design reflects the bold architectural and engineering legacy of Chicago.



The Riverwalk is attracting new development, including a \$27 million Apple store (under construction).



City of Chicago

The Riverwalk transformed the formerly barren and inaccessible waterfront into a civic amenity.



© Christian Phillips Photography

The waterfront has become a popular gathering spot for residents, workers, and visitors.

along the Riverwalk, many of whose revenues far exceeded initial expectations. The Riverwalk reflects the way the city views itself in terms of its pride, its ambition, and its history of planning, architecture and public works. This effort was, as is frequently noted, “no small plan.” The City of Chicago used innovative financing, significant engineering efforts demanded by a difficult site, and thoughtful design to create an important new amenity in the heart of its downtown.

IMPACT

Development

Downtown Chicago has been experiencing a building boom and is the fastest-growing neighborhood in the city for large office and residential towers, particularly in the area on or near the river. While there are no definitive studies relating this boom to the Riverwalk, older buildings along the water are being reoriented toward the river, and new buildings are connecting to the river and the Riverwalk as an amenity. At the start of 2017, 23 buildings with more than 8,000 new rental units were under construction downtown, up 150% from 2005. In the past year, construction started on several new buildings at Wolf’s Point (at the river confluence) and along Wacker Drive, including the recently announced Bank of America Tower. Smaller, but no less important, is the new \$27 million Apple store on the north bank of the river.

Ecology

The Riverwalk is both the result of and a contributor to the cleanup of the Chicago River. While the Riverwalk itself did not lead to the cleanup of the river, thinking about possible uses of and development along the river increased interest in improving water quality, and gradual improvements made the Riverwalk possible. The Riverwalk’s popularity has created a demand for further improving the river ecology among a new constituency made up of the many residents who are coming to see recreational use of the water as a right and developers looking to build upon the river’s attraction. The Riverwalk’s features, such as the fish hotel and water-tolerant plantings, help support a healthy river ecology and are resilient to climate-driven events like the fall 2017 flood.

User Experience

Mayor Emanuel noted that Chicago needed “a coming together place.” The Riverwalk serves people who work and live downtown as a place for food, drink, or respite; for visiting the museum or war memorial; for taking a stroll; and as a convenient shortcut along an east-west corridor by foot or water taxi, connecting workers to the nearby Ogilvie commuter rail station. With an array of walks, piers, docks, bars, food service, and water flora and fauna, it provides space that lets people be with a group or remain anonymous individuals as part of the larger urban crowd.

Down the stairs below street level, the city’s atmosphere changes. The sound of traffic diminishes and the river comes into full focus with the walkway ending at river’s edge. With the Chicago skyline above and the river at their feet, visitors can choose from a variety of riverside experiences. The scene changes in each block or “room” from restaurants and bars to a marina, an outdoor theater, a children’s water park, and a fishing dock.



The Riverwalk offers opportunities to view the river and the city’s distinctive architecture and bridges.

OBSERVATIONS AND LESSONS LEARNED

Innovative Financing

While mayors and planners had been considering the potential of the river for pedestrian access and development for decades, there was no obvious funding source, especially in an era of reduced expectations for major government infrastructure spending. The needed repair of Wacker Drive helped give impetus to this project, but available funds were only sufficient for planning and initial development.

The use of TIFIA funding was significant in several respects. This was an unusual and inventive use of this kind of loan and had several distinct advantages, even though it has to be paid back over 30 years. First, as a long-term loan, it avoided the political entanglements likely in a local, state, or federal budgeting process. As structured, the loan places no demands on city funds needed for other uses unless revenue generated on site falls short of debt service requirements, at which point the City of Chicago would draw on its Motor Fuel Tax. To the degree that debt service is paid



The design offers a variety of experiences through which to view and experience the city and the river.

from revenue (income from all Riverwalk sources, including tour boats, concessions, and fees, are dedicated to repayment of the loan), capital costs are covered by the project's success. Revenues over and above projections also go toward loan repayment. Once the loan is completely repaid, these fees will be available for maintenance of the park.

Authentic and Contextual Design

As realized, the design of the Riverwalk is uniquely Chicagoan, connecting and relating visually to Wacker Drive and the bridges through use of materials such as limestone and granite. It is both a viewing platform for the city and river and a place to engage with river functions and ecology. The planning team visited river walks in other cities, most notably San Antonio, where they were impressed by the river walk's success but felt it was Disneyesque. They wanted to create something that was integral to Chicago and its river and ultimately determined that the site itself, with its historic bridges and distinctive surroundings, had sufficient drawing power and that they didn't need to add novel attractions. Rather, making it accessible, taking advantage of the spectacular views of downtown buildings, and connecting people more intimately to the river and activity along it would be sufficient. It appears that they were correct.

Let the Place Be the Program

Places that are or have been considered to be out of the way, unsafe, or unattractive often need inventive programming to draw people to them. Riverwalk planners and managers, however, realized that the inherent qualities of the site could generate its own attraction. The connection to the river, the views of skyline and river activity, the functions allocated to each "room," and the other people who are drawn there to walk, jog, bike, or people-watch are enough to attract workers, residents, and tourists.

Seasonality, Sustainability, and Resilience

Weather conditions in Chicago can be extreme, and the Riverwalk, which is open during all four seasons, is designed to accept and respond to a variety of weather conditions and events. Design elements along the walk are zoned vertically, with more fragile ones placed above the seven-foot flood line while areas at the water's edge are meant to experience and recover

quickly from flooding, even when it carries noxious waste. The design team chose materials that can be cleaned by power washing after a flood, like the one that happened just a few days after the Riverwalk opened in 2015. One of the restaurants provides heated domes to allow service in colder weather, and the water wall in the Water Plaza is designed to become a shimmering wall of ice when temperatures dip below freezing.

The landscape architects made use of continuous planting trenches, which allow trees and shrubs to share a larger soil volume, as well as rainwater collectors for irrigation to support healthy and sustainable vegetation. Many of the plants are natives, including river birches, perennial and ornamental grasses, and other emergent and ephemeral plants. Inundation-tolerant plants are used in the lower levels near the bank, where splash and overflow are common.

Continuity and Variety in Design

One gift provided by the Riverwalk is the creation of a continuous walking experience along eight blocks of the Chicago River and linking the older portion east of Michigan Avenue. The result is a 1.25-mile-long path to the lake front with consistent materials, colors, and connection to the river and streetscape above, with changing themes and activities along the way. The achievement of variety within an overall unified experience contributes to holding people's interest and attention, making it feel like one place with a place for everyone.

Technical Ingenuity

Design, project management, and construction for this highly constrained site were challenging. The project team showed ingenuity in finding ways to lay out this variety of spaces along the river and in developing techniques to put them in place.

MEETING PROJECT GOALS

GOAL: Reclaim the Chicago River for the ecological, recreational, and economic benefit of the city.

The success of the Riverwalk in bringing people to the river's edge has gone hand-in-hand with cleaning the once highly polluted water of the

Chicago River. These new river users have expanded the constituency promoting further water-quality improvement. The Riverwalk uses its location to demonstrate and educate users about the history, current use, and ecology of the river, with installations that support aquatic life and fishing and boating in a variety of ways. Its popularity as a new route and venue for walking, jogging, biking, eating, drinking, and people-watching is striking, and it has very quickly become a prime location for development. The new Apple store on the north shore of the river may be the most iconic addition, but it is far from the biggest, as new high-rise residential and office towers multiply. These buildings face the river and older ones are being reoriented to embrace a river they had previously shunned.

GOAL: Create diverse programming opportunities that respond to different portions of the river, exploring urban river typologies and integrating restaurants, boating, water features, floating wetlands, and ample seating.

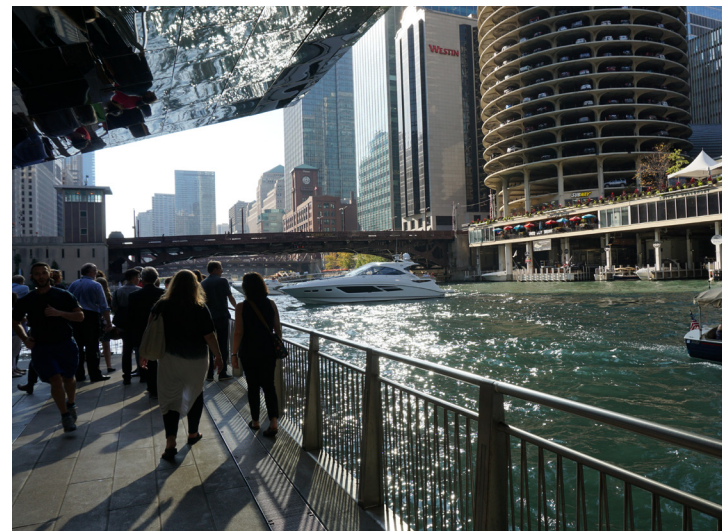
The Riverwalk hosts a variety of planned events from an opening day festival to weekly summer lectures, but the city has been careful not to over-program. Although the space is new, it appears to be successful in attracting users without heavy programming. The restaurants and bars have tripled or quadrupled expected gross receipts. The RFP for 2018 vendors greatly increased the number of retail locations and received responses from 25 local operators. Seating also appears to be heavily used. The floating wetlands are a work in progress, with maintenance staff learning how to deal with the impact of waves that wash out soil and deposit garbage floating in from the river. These features are expected to be part of efforts to involve school programs in environmental research, such as with the FOCR's Chicago River Schools Network.

GOAL: Enhance the downtown Chicago experience by giving visitors and residents an accessible riverfront destination for outdoor recreation and leisure in the heart of the city.

Tourists and locals alike use the Riverwalk, especially on weekends, in all kinds of weather, riding tour boats and walking or biking along the path. It provides a rare free place to stop and sit while experiencing Downtown Chicago and functions as an attraction in and of itself. Workers and



Revenues at waterfront restaurants and bars have exceeded projections.



The waterside promenade is used in all kinds of weather for transit and recreation.

residents use the space as a backyard, transit corridor, and relaxation and gathering space.

GOAL: Creatively adapt underutilized waterfront infrastructure into a highly integrated, sustainable, flood-resilient downtown amenity.

Abandoned arcades and a narrow path have become a series of interesting, varied, and highly popular public spaces. Its sustainable design addresses the river ecology while being resilient to the vagaries of Chicago weather. The design offers continuity in the use of materials and flow of the walkway under each bridge yet varies visually and functionally in how each room uses the riverfront. The project is widely seen as having been catalytic in expanding the real estate market, which appears to be booming along the Riverwalk corridor with many large new office, retail, and residential buildings apparently taking advantage of this new amenity, which converted a foul-smelling, unsightly, and underdeveloped piece of downtown into a highly attractive public open space.

GOAL: Provide critical new linkages to the city's existing open space system and allow seamless pedestrian movement along the river from the city's core to the lakefront.

The linkages have been created to facilitate movement between the lakeshore and the river and along the east-west corridor through the Loop, including the Ogilvie commuter station. Additional links are planned that will connect this project to other destinations, such as the new 606 park. Mayor Emanuel and the planners foresee the connections extending all along the north and south branches of the river with pedestrian access and water transport that will link many neighborhoods to downtown.

GOAL: Offer a continuous car-free environment that connects a series of distinct community spaces at the river's edge.

The Riverwalk is below the street grid, giving users respite from the noise, sight, and fumes of vehicular traffic. It provides a walkway at river level that is continuous and visually harmonious while also offering a series of distinctively different “rooms” that keep the walk interesting. Residents and tourists have been streaming to the site, attracted by the river, views, and amenities. Access is enhanced by ramps and an elevator as well as the

continuity among the sections. Downtown workers and residents use it as a way to get to and around downtown, which has become Chicago's fastest growing residential neighborhood.

SELECTION COMMITTEE DISCUSSION

The Selection Committee praised Chicago Riverwalk as a “marvelous example of a civic project that builds upon Chicago's culture of planning and tradition of civic investment in excellence in architecture and urban infrastructure.” It repositions the river as the city's second waterfront in the heart of downtown, linking the north and south sides of the river and offering a democratic and inclusive place that draws a diversity of people—downtown residents and workers, suburbanites, tourists, and kids—to the site.

The committee commended the City of Chicago for its ambitious vision and efforts to complete a project with an “off-the-charts level of complexity,” noting that projects of such scale and quality are “something that the Windy City does.” They highlighted the innovative use of TIFIA funding for public realm improvements as an important model for other cities. The committee observed that with its attention to revenue generation and river ecology, Chicago Riverwalk succeeds in not only realizing the early twentieth century Burnham vision for the river but also in integrating such twenty-first century placemaking practices as environmental and economic sustainability.

The committee reflected on Chicago's culture and history of investment in civic spaces and how they fit into a broader, city-wide economic investment strategy. The committee was encouraged by the idea of the Riverwalk being the first step in a broader vision for the river as a connector between downtown and neighborhoods. They raised concerns, however, about the tradeoff between big downtown projects like the Riverwalk and Millennium Park (2009 RBA Silver Medalist) and neighborhood investments that focus on making a big impact in a smaller area. They felt it was important for the city to maintain its commitment to equity and diversity by continuing to include programming options that are inexpensive or free to ensure that the waterfront is appealing and accessible to all.

WITH ITS ATTENTION TO REVENUE GENERATION AND RIVER ECOLOGY, CHICAGO RIVERWALK NOT ONLY REALIZES THE EARLY TWENTIETH CENTURY BURNHAM VISION FOR THE RIVER BUT ALSO INTEGRATES TWENTY-FIRST CENTURY PLACE-MAKING PRACTICES, INCLUDING ENVIRONMENTAL AND ECONOMIC SUSTAINABILITY.

©Christian Phillips Photography



The riverfront has become the city's second waterfront in the heart of downtown.

RELATED RBA WINNERS

Most older major American cities were founded on bodies of water that provided transportation, food, work, and power. Over time, industry and pollution led many to turn their backs on the water and expand in other directions. Like Chicago, cities of all sizes are now reclaiming and redeveloping waterfront land with projects that create valuable recreational and signature gathering spaces in the heart of their communities.



FALLS PARK ON THE REEDY in Greenville, South Carolina (2015 Silver Medalist) is the reclamation of a forgotten waterfall and river valley running through its heart into an urban oasis and centerpiece for the city. A striking pedestrian bridge offers views of the falls and a network of winding trails interspersed with open lawns and wooded valleys that connect the city with the river and surrounding neighborhoods.



BROOKLYN BRIDGE PARK in Brooklyn, New York (2011 Silver Medalist) is a new 85-acre environmentally sustainable park on former industrial land along the East River. Amenities include basketball courts, playgrounds, lawns and soccer fields, a greenway for walking and biking, and free classes, concerts, and movies. Pebbled beaches, a salt marsh, and boating ramp draw people to the water.



PROVIDENCE RIVER RELOCATION in Providence, Rhode Island (2003 Silver Medalist) is a large-scale urban infrastructure project that dramatically reshaped the center of the city and its relationship with the waterfront. Made possible with federal transportation funding, the project moved rivers, a highway, and a railroad to create a new riverfront park and gathering space in the heart of downtown.

Other winners that address riverfront access and development include: Louisville Waterfront Park in Louisville, Kentucky (2013 Silver Medalist); Hunts Point Riverside Park in Brooklyn (2009 Silver Medalist); and South Platte River Greenway in Denver (2001 Silver Medalist).

More information about these and other RBA winners can be found at www.rudybruneraward.org.

Resources

This case study was compiled from information gathered from the project application; an extensive site visit in May 2017 by Simeon Bruner, Jay Farbstein, Anne-Marie Lubenau, and Richard Wener (lead author); and research and interviews conducted during these processes and throughout the writing and editing of this report. Titles and positions of interviewees and URLs listed below were effective as of the site visit unless otherwise noted.

INTERVIEWS

City of Chicago

Rahm Emmanuel, Mayor

Carole Brown, Chief Financial Officer

Dan Burke, Deputy Commissioner / Chief Engineer, CDOT

Oswaldo Chaves, Project Manager, CDOT

Michael Claffey, Director of Public Affairs, CDOT

Mark Kelly, Commissioner, Department of Cultural Affairs and

David Reynolds, Commissioner, Department of Fleet and Facility Management

Rebekah Scheinfeld, Commissioner, CDOT

Kris Sorich, MLA, ASLA, Senior Landscaper, CDOT

Michelle Woods, Project Manager, 2FMDesign and Engineering Team

Design and Engineering Consultants

Carol Ross Barney, FAIA, Lead Design Architect, Ross Barney Architects

Kevin Becker, PE, Project Manager, Walsh Construction

Gina Ford, FASLA, PLA, Design Principal, Sasaki

Dan Gross, PE, Construction Manager, Alfred Benesch & Company

Kurt J. Naus, PE, SE, Project Manager, Alfred Benesch & Company

James Nutter, PE, Project Manager, Alfred Benesch & Company

Terry Warriner Ryan, FASLA, PLA, Landscape Architect, Jacobs/Ryan Associates

Local Organizations

David Broz, AIA, LEED AP, Past Chairman of the Board Chicago Loop Alliance

Margaret Frisbie, Executive Director, Friends of the Chicago River

Laura Jones, Associate Director, Chicago Loop Alliance

Blair Kamin, Architecture Critic, *Chicago Tribune*

Retail and Business Operators

Colleen Flaherty, Owner/Operator, Tiny Tapp

Nathan Holgate, Regional Director of Operations and General Manager, City Winery

Mark William Johnson, Owner/Operator, Tiny Tapp

Melanie Mapes, Director of Marketing, Chicago's First Lady Cruises

Constance Rajala, Co-Director, Chicago Architecture Foundation River Cruise

Ron Silvia, President, Chicago Electric Boat Company; Owner, Downtown Docks

Brooke Webster, General Manager, City Winery

Thomas Carmichael, Co-Director, Chicago Architecture Foundation River Cruise

Ellen Shubart, Tour Director, Chicago Architecture Foundation Riverwalk West Tour

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OTHER AWARDS

The project has been recognized with other design and construction awards including the following:

2016 American Institute of Architects, Chicago Chapter, Design Excellence Award, Phase 2

2016 Chicago Athenaeum American Architecture Award, Urban Planning/Landscape Architecture Category

2016 Chicago Building Congress Merit Awards, Honor Award for Infrastructure Construction, Phase 2

2016 Chicago River Blue Awards, Silver Ribbon, Phase 2

2016 Friends of the Chicago River, Blue Ribbon Award

2016 American Society of Landscape Architecture Illinois Chapter, Presidential Award, Phases 2 and 3

2016 Illuminating Engineering Society International Illumination Design Award of Excellence, Outdoor Lighting Design, Phase 2

2016 International Downtown Association, Pinnacle Award: Public Space Category, Phase 2

2016 The Architect's Newspaper, Best of Design Awards for Urban Design, Phase 2

2016 The Waterfront Center Excellence on the Waterfront Awards, Honor Award: Park/Walkway/Recreational Category, Phase 2

2017 Architectural Lighting Light & Architecture Design Awards, Outstanding Achievement in Exterior Lighting

2017 Architizer A+ Awards, Jury & Popular Choice Winner in Concepts: Architecture + Urban Transformation

2017 Chicago Urban Land Institute Vision Award, Program Category

2017 Fast Company Innovation by Design Awards, Finalist: Spaces, Places, and Cities Category, Phase 2

2017 International Association of Lighting Designers International Lighting Design Awards, Award of Merit

2017 World Landscape Architecture, Award of Excellence for Built Design, Phases 2 and 3

2017-18 Urban Land Institute's Global Awards for Excellence

2018 American Institute of Architects, Architecture Award

2018 American Institute of Architects, Regional & Urban Design Award