FS-016 - Walking the Riverwalk: Connecting People to the Chicago River
Friday, November 06, 2015, 1:30 PM – 4:45 PM; Room: Gate 33, Level 2

Speakers
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Learning Objectives
- Learn about the history of the site, the projects, reclaiming unused space, and uncover how the Riverwalk came to be a reality.
- Learn how the city connects with the river as a result of the Riverwalk and understand accessibility challenges and solutions.
- Understand the design constraints and challenges faced by the team, identify the projects’ sustainable and environmental aspects and discover lessons learned from the construction of the built segments.
- Hear about the Riverwalk’s unusual financing and commercial sources of income.

Introduction
The Main Branch of the Chicago River has a long and storied history. Following the famed reversal of the river to improve sanitation, architect and urban planner Daniel Burnham introduced a new civic vision of riverside promenades with the addition of the Wacker Drive viaduct. Over the last decade, the role of the river has been evolving with the Chicago Riverwalk project—an initiative to reclaim the Chicago River for the ecological, recreational and economic benefit of the city.

History
The Chicago River is one of Chicago’s most valuable natural resources. In fact, Chicago’s development and growth can be seen as a direct result of its geography, from its start as a trade route in the 1600s, through the industrial and transportation development of the 1800s and 1900s to the present day lakefront lifestyle enjoyed by its citizens.
As early as the founding of Chicago as a city in 1836, there were meat packing operations and a lumber mill located on the river at Wolf Point. However, like many urban rivers, the Chicago River became a contamination sink for industrial pollution and a sewage outlet. In 1848, while the Illinois and Michigan Canal linked Lake Michigan to the Mississippi River, the Chicago River was dumping its polluted waters into Lake Michigan, the source of drinking water for the city. The consequence was disease which plagued the city for some time. Finally, from 1890 to 1900, the Sanitary and Ship Canal was built and opened, reversing the flow of the Chicago River, sending its sewage down to the Mississippi River. Reversal protected Lake Michigan, but the River remained a sewage channel.

From the time of Daniel Burnham on, dreamers have had various visions of what the River could mean to Chicagoans. However, the river experienced years of contamination. It wasn’t until the environmental movement of the 1960s and 70s that renewed interest reached a tipping point. Chicago has a combined storm and sewer system, which in major storm events still sends water into the river. In 1971, the Metropolitan Water Reclamation District started work on the Deep Tunnel, a project designed to capture storm overflows. Billions of dollars have been invested to clean the river up, and consequently fish, animals and humans have been returning to it. Renewed interest resulted in new residential and commercial developments replacing former industrial sites. Then, in 1979, Friends of the Chicago River formed to advocate for better environmental and people friendly policies.

In the 1990s, a series of studies, plans, and guidelines were introduced and in 2001 Chicago’s Department of Transportation submitted a plan for the south bank to the US Department of Transportation’s Volpe National Transportation Center, a plan which included a 25 foot extension into the river for the construction of under-bridges making it possible for pedestrians to continuously traverse the riverside, without coming up to Wacker Drive. With Mayor Daley’s sponsorship, the first project was started in 2005.
Chicago Riverwalk 2006-2016
Phase 1

Prior to the current rebuilding of the Chicago Riverwalk, a path extended between Lake Michigan and Michigan Avenue. The path just east of Michigan Avenue was redesigned and rebuilt as part of the phase 1 expansion of the Chicago Riverwalk (image to right of the 2009 addition of a crossing under Michigan Avenue, and, below, looking eastward from the Michigan Avenue bridge). The phases of the Riverwalk expansion are shown in the diagram at bottom.
Chicago Riverwalk 2006-2016
Phase 1

Starting with the opening of the Chicago Vietnam Veterans’ Memorial Plaza in 2006 (see images, middle right and below), the vision of a civic water’s edge public space began to be realized. The plaza, located between Wabash Avenue and State Street, commemorates the sacrifices of Illinois’ fallen soldiers and connects people to the riverfront.

In 2009, the first phase of the rebuilt Riverwalk was opened (see image at bottom). Two essential improvements over the prior incarnation are increased width and “underbridges” (see image to right). These allow one to travel between blocks at river level, without having to climb, cross a street, and descend on the other side.
Chicago Riverwalk 2006-2016
Phase 2

Phases two and three continue the use of the underbridges, and stone, concrete, and stainless steel detailing from phase one, with a few changes. By act of the US Congress, the City of Chicago was allowed to build into the Chicago River an extra 25 feet beyond the width of the prior Riverwalk. The Riverwalk is also largely lower than in the first phase, bringing people within touching distance of the water. Each block is also conceived of as a “room”, a space that embodies and encourages a particular kind of use, but without being prescriptive (see plan below).

From east to west in phase two, the “rooms” are the Marina, the Cove, and the River Theater. The Marina (top right image), positioned opposite Marina City, is designed for lounging and allows docking. The Cove (middle right images) is designed for easy “put in” of kayaks and canoes. The River Theater (bottom) is a block-wide set of monumental and climbing stairs (with a path integrated into it) that serves as an invitation to the city to enjoy the theater of the river.
The Arcade District: Challenges

In 2012, the team of Sasaki, Ross Barney Architects, Alfred Benesch Engineers, and Jacobs/Ryan Associates, supported by technical consultants, was tasked with completing the vision for Phases Two and Three: six blocks between State Street and Lake Street. Building off the previous studies of the river, the team’s plans provide a pedestrian connection along the river between the lake and the river’s confluence.

The task at hand was technically challenging. The design team, for instance, needed to work within a tight permit-mandated 25-foot-wide build-out area to expand the pedestrian program spaces and negotiate a series of under-bridge connections between blocks. Further, the design had to account for the river’s annual flood dynamics of nearly seven vertical feet.

Vision: Phase Two and Three

Turning these challenges into opportunities, the team imagined new ways of thinking about this linear park. Rather than a path composed of 90-degree turns, the team reconceived of the path as a more independent system—one that, through changes in its shape and form, would drive a series of new programmatic connections to the river.

With new connections that enrich and diversity life along the river, each block takes on the form and program of a different river-based typology.
Implementation: Phase Two

Construction of Phase 2 began in the Spring of 2014 and opened in the Summer of 2015. Phase 2 included the following spaces:

The Marina Plaza: Restaurants and outdoor seating provide views of vibrant life on the water, including passing barges, patrols, water taxis, and sightseeing boats.

The Cove: Kayak rentals and docking for human-powered crafts provide physical connections to the water through recreation.
The River Theater: A sculptural staircase linking Upper Wacker and the Riverwalk offers pedestrian connectivity to the water’s edge and seating, while trees provide greenery and shade.

**Phase Three Implementation**

The construction of the next three blocks is underway and will be completed in 2016. This phase includes:

- **The Water Plaza**: A water feature offers an opportunity for children and families to engage with water at the river’s edge.
- **The Jetty**: A series of piers and floating wetland gardens offers an interactive learning environment about the ecology of the river, including opportunities for fishing and identifying native plants.
- **The Boardwalk**: An accessible walkway and new marine edge creates continuous access to Lake Street and sets the scene for future development in this critical space at the confluence.

As a new connected path system, the Chicago Riverwalk design provides both continuity and variety for a park visitor. The distinct programs and forms of each typological space allow for diverse experiences on the river ranging from dining opportunities to expansive public event programming to new amenities for human-powered craft. At the same time, design materials, details, and repeated forms provide visual cohesion along the entire length of the project. Paving, for instance, mirrors the contrasts of the existing context: A refined cut stone follows the elegant Beaux-Arts Wacker viaduct and bridgehouse architecture, while a more rugged precast plank flanks the lower elevations and underside of the exposed steel bridges.
Regulatory and Permitting Process

One of the biggest hurdles in the initial stages of the project was permitting. The Chicago River is designated as “Waters of the United States” and is protected by federal law. Therefore, the City was required to obtain permission from Congress to construct the Riverwalk into the river. On September 24, 2003, the U.S. House of Representatives passed Water Resources Development Act H.R. 2557 allowing the City to build out 20 feet into the river beneath each bascule bridge (six total) and 25 feet between the bascule bridges. A 50-foot build-out was allowed on the block between Franklin and Lake Streets where the river widens at the confluence of the three branches of the Chicago River. Below is a list of federal, state and city agencies and departments requiring regulatory and permitting involvement for the project:

Federal
- U.S. Army Corps of Engineers (USACE)
- U.S. Coast Guard (USCG)
- U.S. Fish & Wildlife Service (USFWS)
- Federal Highway Administration (FHWA)

State
- Illinois Environmental Protection Agency (IEPA)
- Illinois Department of Natural Resources (IDNR)
- Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)
- Illinois Historical Preservation Agency – State Historic Preservation Office (SHPO)

City of Chicago
- Chicago Department of Transportation (CDOT)
- Department of Water Management (DWM)
- Office of Underground Coordination (OUC)
- Department of Electrical Operations (DEO)
- Mayor’s Office for People with Disabilities (MOPD)
- Department of Housing and Economic Development (HED)

Other
- Wacker Drive Building Owners/Managers
- Chicago Transit Authority (CTA)
Marine Structural Considerations

Primary Structural Design Challenges

Expand the Riverfront
- Consider and incorporate the existing dock wall system
- Provide redundancy in the structural systems where required
- Consider river muck and impact on design forces and settlement
- Accommodate the various “stages” of construction

Crossing the Bascule Bridges (“Underbridges”)
- Meet U.S. Coast Guard design criteria for Vessel Collision
- Consider methods of construction beneath/adjacent to the bascule bridges
- Miss submarine cables connecting the bridge houses
- Straddle existing tunnels beneath the River

Constructability
- Minimize impact to existing Wacker Drive structure and bridge houses
- Work around and incorporate existing dock wall system
- Construct piling and concrete structures below the River water elevation
- Accommodate pipe outfalls, utilities and drainage structures within and through the marine structure
- Underbridge shafts had to be drilled adjacent to and beneath the bascule bridges
- Constructing interior underbridge shafts requires bridges to be open for extended periods of time
- Underbridge drilled shaft caps are halfway underwater, yet must be placed in the dry