

The Blue/Green Corridor: Establishing the Intersection between Economic Growth and Environmental Design

Prepared for Friends of the Chicago River



UNIVERSITY OF WISCONSIN
WHITEWATER

Fiscal and Economic Research Center



A blue/green corridor is a sustainable design solution that uses a river and adjacent lands to establish an interconnected passageway between natural habitats. Blue/green corridors provide people with a place to play, allow for the natural movement of wildlife, and include open space to absorb and filter rainwater through nature-based solutions. Since a blue/green corridor is public open space and the river belongs to everyone, it benefits everyone in the region with its implementation. In the face of climate change and pressure from urban development, it is essential that a blue/green corridor is established along the Chicago River system because we are at a critical crossroads: Generations will have to live with the impact of decisions made today about how sensitively those changes and pressures are incorporated into our natural world.

Forty years ago Robert Cassidy wrote “Our Friendless River” published as the cover story of *Chicago* magazine excoriating the Chicago River’s treatment and calling for action to improve it. “The Chicago River is the city’s most neglected resource,” Cassidy wrote. “It is overshadowed by Lake Michigan, disdained by environmentalists and outdoorsmen alike, neglected, fouled, and abused by industry and by all the rest of us. Nonetheless, it is the second greatest gift that nature has bestowed on this city.” Those words launched a movement to improve and protect the Chicago River and, bolstered by the power of the Clean Water Act, investments in clean water technologies followed. As a result, today the river which flows 156 miles through Cook and Lake Counties has become the center of development with riverwalks, restaurants, world headquarters and a once unimaginable amount of activity in, on, and along the water.

Yet the Chicago River system is not just a place for people and commerce. It is a critical natural resource alive with fish, turtles, birds, beavers, mink, and muskrats and it plays an invaluable role in improving health and quality of life for the people of the region. And as pressure to develop along its banks mounts, the river corridor needs to be protected, connected, and its value understood. There is only one opportunity to get it right.

Across the country other cities have realized the value of the blue/green corridor and have transformed decaying urban and industrial waterfronts

into miles-long healthy parks and preserve systems of open natural space.

The findings of this study show developing the Chicago River system as a blue/green corridor would not only create ecological sustainability for the river as a habitat and natural resource, but it would also generate substantial economic returns to the region. The results of this study indicate that investing in riverfront development as a blue/green corridor will:

- Provide \$1.77 in additional economic output for every dollar spent on blue/green corridor projects
- Create over \$192 million in total economic benefits annually over a 15-year timespan
- Support over 1,614 full-time equivalent jobs annually
- Improve the water quality of the Chicago River, biodiversity, recreational opportunities, and public health, while decreasing flood damage, pollution, and the urban heat island effect, as well as making the Chicago region more resilient in the face of climate change

Many large, urban cities throughout the United States (and the rest of the world) have undertaken similar restoration and redevelopment efforts. Such transformations are not only beneficial ecologically and environmentally, but also economically as they create investment and drive economic growth.

This and cover photo by Patrick Bray, U.S. Army Corps of Engineers



Economic Impact

To determine the total economic impact developing the Chicago River system's waterfront as a blue/green corridor would have on Chicago's regional economy, the team from the University of Wisconsin–Whitewater's Fiscal and Economic Research Center (FERC) used an input-output model using IMPLAN. The IMPLAN model makes it possible to create economic models based on the region rather than national averages and determine the complete economic impact that initial spending, meaning the investment in change, would have on the local economy. IMPLAN is able to estimate to what extent different spending categories can affect the local economy in terms of direct and indirect spending. Determining the extent of each of the spending categories is critical to measuring the total economic impact the development would have on the local economy.

Data

To determine the impacts on property values, a data set containing the total number of properties in Cook County and their assessed values was employed. In accordance with the literature, the data set included all properties within 1,500 feet of the Chicago River system (which is considered adjacent), for a total of 123,376 residential properties. Changes in the value of commercial properties were excluded from this analysis. The reasons for this are that commercial properties' value is primarily (although not exclusively) based on its revenue generating potential and the literature estimates used to figure out the Return on

Investment (ROI) on blue/green corridor installation for river-adjacent properties were based on residential properties. The average value of these properties was about \$263,370. This data was then used as input in IMPLAN to assess the total economic impact of creating a blue/green corridor along the waterfront.

Results

In order to calculate the value of a blue/green corridor, existing scientific studies on the economic impact experienced by properties located adjacent to green infrastructure were reviewed. Only studies examining "natural" green infrastructure (excluding things like permeable pavement) were included in the analysis, because while a blue/green corridor may incorporate things like permeable pavement, it is mainly comprised of green infrastructure which mimics the natural landscape. It was found that, on average, these types of environmental efforts lead to increases in property value around 5% (depending on type of infrastructure, location, etc. and after trimming for outliers). This is the increase in property value solely attributable to being located adjacent to green infrastructure. This effect is analyzed for properties in Cook County which are adjacent to the river, assuming similar green infrastructure in the form of a blue/green corridor were developed along the riverfront. The corresponding economic impacts were analyzed over a 15-year period, as an approximation for the time over which development of a blue/green corridor may occur.

Blue/Green Corridors Increase Residential Properties Values

For each adjacent residence along the Chicago River system, investing in the blue/green corridor would increase the property value by an average of \$13,185. This would ultimately create over \$1.6 billion in total wealth across all properties over the entire 15-year time horizon. This wealth creation would not be instantaneous; when spreading the total cumulative effect over a period of 15 years, the direct economic impact per year would be around \$108.5 million. These values are summarized in [Table 1](#). The estimated impact on the properties themselves increases their assessed valuation and potential sale price, which may

not be financially realized by the homeowners until the sale of the properties. But because of the perceived change in wealth attributable to their increased home value, the model assumes owners will save less than they otherwise would have (e.g., for retirement) and spend what would have been saved. It is this spending which then generates indirect economic “ripple” effects in the economy.

Blue/Green Corridors Also Bring Jobs

[Table 2](#) shows the IMPLAN results for the total annual economic impact of creating a blue/green corridor on the Chicago River system

TABLE 1: Summary of the economic impacts over 15 years

216,321 Properties in Cook County within 1/2 mile of the Chicago River	123,376 Estimated number of properties within 1,500 feet	\$263,370 Average assessed value of the properties
\$13,185 Estimated increase in assessed value	\$1,626,735,078 Aggregate of increased property value for all houses in region over 15 years	\$192,171,718 Total wealth created annually for 15 years

TABLE 2: Total annual economic impact over 15 years

IMPACT TYPE	EMPLOYMENT	LABOR INCOME	OUTPUT
Direct Effect	1,020	\$50,260,733	\$108,448,339
Indirect Effect	213	\$10,095,644	\$32,619,627
Induced Effect	380	\$16,166,153	\$51,103,752
Total Effect	1,614	\$76,522,529	\$192,171,718

over a 15-year period. 1,614 jobs would be supported as a result of the corridor, generating a total labor income over \$76.5 million, and a total economic effect of over \$192.1 million. Given that the number of jobs and economic spending are estimated from the effects created from installation of a blue/green corridor, the direct impact for jobs created can be directly related to the development of the blue/green corridor.

Taking the Long View

For sensitivity analysis and to create a bounded impact, we scaled the timespan analyzed from a period as short as 10 years, to as long as 20 years (where the previous 15-year estimate serves as a midpoint). For a 10-year time horizon, this would annually support over 2,400 jobs, generate a total labor income of over \$114.7 million, and create a total economic impact over \$288.2 million. For a 20-year time horizon, this would annually support 1,210 jobs, generate \$57.3 million in labor income, and create \$144.1 million in total economic output.

Altogether, creating a blue/green corridor would not only support important ecological functions of the river ecosystem and lead to quality-of-life improvements for residents living adjacent to and around the river, yet it would also create substantial economic gains in adjacent housing values and generate significant increases in spending in the regional economy. By focusing on sustainable development and restoration of the river and avoiding outdated, historical development practices, river adjacent homes are projected to gain \$13,185 in property value (attributable solely to blue/green corridor riverfront

development) and it will also generate a total economic output of at least \$192.1 million annually over a 15-year time horizon. These are impressive economic numbers, especially considering that environmental and ecological outcomes are not being sacrificed to achieve them.

Additional Benefits

The impacts estimated in the economic analysis described above include the change in residential property values associated with investment in a blue/green corridor. But, those estimates don't include improvements such as those described in [Table 3](#). These types of impacts are often described collectively as urban ecosystem services and although the value they generate for the region is not included in the estimates above, they do provide significant value. As indicated in the table, other studies have demonstrated this and even estimated dollar values for these impacts in different urban contexts. As such, the value of the economic estimates provided above should be seen as a conservative, lower-bound estimate of the overall value investment in a blue/green corridor would provide to Cook County. In addition, the numbers should extrapolate to other locations along the river outside of Cook County (such as those in Lake County).

TABLE 3: Blue/green corridor benefits not estimated in this study's economic impacts

ANCILLARY BENEFITS	BENEFIT DESCRIPTION/VALUE
Avoided runoff	Estimated savings from installing permeable surfaces that reduce runoff and avoid infrastructure costs have been valued at \$0.59 per cubic meter annually. (<i>Van Steenwinkel et al. 2008</i>)
Air filtration and ventilation (air pollution reduction)	Estimated savings from installing plants and trees which absorb toxic air pollutants (e.g., particulate matter) and improve healthcare and labor productivity have been valued at \$82 per kilogram of particulate matter reduced annually. (<i>Michiels et al. 2012</i>)
Climate regulation (the urban heat island effect)	Vegetation has a moderating effect on local climate, particularly in urban areas which are prone to the urban heat island effect. A 0.8°C decrease in the urban heat island effect could save up to \$90 million annually from lower energy use and reduced ozone levels. (<i>Claus and Rousseau 2012, Wang et al. 2014, Center for Clean Air Policy 2011</i>)
Carbon sequestration	Using urban green infrastructure to help sequester atmospheric carbon in order to address the negative effects of climate change has been valued at \$265.33 per ton of carbon sequestered annually. (<i>Aertsens et al. 2013</i>)
Recreation and health	Providing a cultural service which delivers non-material benefits (e.g., leisure) to people through the enjoyment of ecosystems has been valued at \$5.12 per visitor annually from utilizing parks and trails contained within urban green infrastructure. (<i>Sen et al. 2014; Broekx et al. 2013</i>)
Wetland restoration	Estimated savings from flood damage to properties near wetlands have been valued at approximately \$2,000 per acre . (<i>Thibodeau and Ostro, 1981</i>)
Noise regulation and aesthetic appreciation	Reductions to ambient noise from traffic, as well as improving the aesthetics of the urban environment with green space have been valued at \$20-\$25 per person annually . (<i>Wang et al. 2014</i>)

CASE STUDY

Washington, D.C.

Desolate to Desirable

“A clean river is the foundation for the Anacostia River revitalization and makes all other objectives and investments in the waterfront possible.”

—*Anacostia Waterfront
Interagency Working Group*

The river is home to numerous species of birds, including great blue herons, bald eagles, ospreys, and red-tailed hawks, as well as a variety of fish, from white perch to largemouth bass. Kingman and Heritage islands, both man-made from dredging the river over 100 years ago, are home to more than 100 different species of birds, mammals, and other wildlife.

Washington, D.C.’s Anacostia Waterfront Initiative (AWI) is a 30-year project that is transforming the Anacostia River, positively affecting the environment, transportation, recreation, the economy, and community health and development.

By the project’s 15th year, successes include nearly 20 miles of continuous riverwalk, improved water quality and river health through wetland and stream restoration, an 1,800-acre interconnected open space corridor, and increased tourism. This once-desolate corridor now has attracted some 13 million square feet of commercial, retail and service-oriented space while existing neighborhoods have benefited from public investment in schools, libraries and parks.

- **Who:** Anacostia Waterfront Initiative (AWI), local government, federal government, neighborhood community stakeholders, Anacostia Waterfront Corporation (AWC)
- **What:** Regeneration of the Anacostia Waterfront
- **When:** 2003 - Ongoing
- **Why:** Restore Anacostia riverfront, spur investments in downtown area, create new affordable housing, and increase tourism in the area
- **Investment:** \$100 million in tax increment financing, \$1.2 billion in district and federal investments, and \$1.8 billion in private investment
- **Relevance to Chicago:** Required coordination of a large, diverse set of stakeholders

Benefits: Approximately 2.5 million visitors to the Capitol waterfront neighborhood; increases recreation along the river; affordable housing improvements; annual real property tax increases from \$35 million (2005) to \$109 million (2009), as well as general fund revenues of \$287 million to the District in 2018 generated from within the Capitol Riverfront Business Improvement District.

The Cleveland 2020 Citywide Plan envisions great neighborhoods by creating “connections” building on the city’s unique assets, including the waterfront and river. The blue/green corridor is an important development tool as Cleveland identifies “opportunity zones” throughout the city to create new offices, industrial parks, and shopping centers, engineer and improve bike routes and greenways to connect residents with city waterfront and other locations, and improve city transportation and industrial markets. The city will also strive to significantly improve sustainability and provide healthy living opportunities to all citizens.

- **Who:** Chemed Foundation, American Family Foundation, First Energy Corporation, National City Bank Corporation Contributions Program, The Jeld-Wen Foundation, Bank One Foundation, The Louise H. and David S. Ingalls Foundation, Robert & Paula Boykin Family Foundation, Haskell Fund, Foster Family Foundation, O’Neill Brother Foundation, and The Cyrus Eaton Foundation
- **What:** Citywide development plan for six districts and 36 neighborhoods with an emphasis on utilizing green building technology
- **When:** Set to start in 2020
- **Why:** Boost economic development and increase public health and recreation
- **Relevance to Chicago:** Planned development of public health and recreational opportunities

Benefits: Promote travel by transit, walking, and bicycling as well as design of safe routes accessible to all residents; amendment of building and zoning codes and added incentives to encourage green building; reduction in use of energy and water in City facilities and vehicles; clean contaminated “brownfield” sites and promote re-use.

CASE STUDY

Cleveland

Connective Zoning

“Creating connections means more than developing buildings. It means developing people and developing communities as well. It means linking the “physical” and the “social” in order to create a community that is truly viable and sustainable”

—Cleveland 2020 City Wide Plan

Today there are more than 60 fish species, and beavers and bald eagles nest along the river’s banks. New habitat structures in the Cuyahoga River’s upper ship channel provide rest areas and habitat for young and small fish while a new fish habitat project at the Scranton Flats area of the Metropark is attracting heron.

Single-family homes within a ten-minute walk of Buffalo Bayou (both the park and the wilder upriver stretches) were worth 16 percent more than houses within a 20-minute walk in 2015, according to the Urban Land Institute.

Famous for its bats—an estimated 250,000 live there. In the water, there are snapping turtles and alligator gars. Other wildlife spotted there include Swainson's hawks, coral snakes, cliff swallows, beavers, snowy egrets and cormorants. Cypress, hackberry and mulberry trees line its banks, providing food and habitat for chickadees, Carolina wrens and red-bellied woodpeckers.

Houston's Buffalo Bayou Park, a 160-acre, 2.3-mile long corridor, was built not only to give residents access to the Buffalo Bayou waterway and to spark tourism but also for flood control. The bayou was once considered a drainage ditch by Houstonians. Today, the park's ten acres of trails connect thousands of hikers and bicyclists to downtown riverwalks, a decommissioned enclosed drinking water reservoir serves as an art gallery and public meeting space, and an estimated 250,000 bats call it home.

The park was designed to be submerged during flooding, with most structures built on higher ground. Hurricane Harvey left floodwaters measuring 39 feet in some locations and about 4,000 truckloads of silt and debris. Within weeks it reopened to the public.

- **Who:** A tri-party agreement between the Buffalo Bayou Partnership (BBP), the city and state government, and the Harris County Flood Control District (HCFCD), with substantial input from the Kinder Foundation
- **What:** Transformation of the Buffalo Bayou Park
- **When:** 2002 - 2022
- **Why:** Mitigate flood damage in the Buffalo Bayou Park area
- **Investment:** \$23.5 million from the BBP and \$30 million from the Kinder Foundation
- **Relevance to Chicago:** Improved stormwater management and flood mitigation

Benefits: Creates a regional amenity containing 14,000 native trees and 12 acres of prairies which attracted 14,000 people just to the visitors' centers in the first two years; attracts 150,000 visits to the trails per month; and manages flood waters.

The San Antonio River Walk, also known as Paseo del Rio, has been a major tourist attraction since the original portion opened in 1941. Most recently, major improvements and expansion of the River Walk were made through the \$358.3 million San Antonio Improvements Project. The older parts of the River Walk are famous for restaurants, bars and shops; the eight-mile extension known as Mission Reach included a focus on restoring native habitats and the natural meander of the river through a blue/green corridor. Tens of thousands of native plants and trees were installed, fish habitat was improved through the installation of riffles, and miles of hiking and biking trails were built.

- **Who:** Bexar County, City of San Antonio, San Antonio Water System, U.S. Army Corps of Engineers, San Antonio River Authority.
- **What:** San Antonio River Improvements Project (SARIP)
- **When:** 2007 - 2013
- **Why:** Increased economic opportunities, flood control, additional access to the river for residents and tourists; restoring wildlife habitat.
- **Investment:** \$358.3 million, funded by local government contributions, private donors, hotel and car rental tax
- **Relevance to Chicago:** Reduced water pollution and improved water quality

Benefits: Supports 21,000 direct jobs with an overall economic impact of about \$3 billion annually; the extensions have sparked new development and rejuvenation of existing properties; flooding has been lessened by reclaiming the river's natural meanders and planting native vegetation.

CASE STUDY

San Antonio

Bringing Nature Back

The San Antonio River Walk is over 15 miles long and contains 2,020 acres of public lands, making the linear park larger than Central Park in New York (843) and Golden Gate Park in San Francisco (1,017 acres.)

One hundred and eighty-six species of birds have been recorded using the restored habitats along the Mission Reach portion of the San Antonio River. The Mission Reach project has restored approximately 113 acres of aquatic habitat, including riffles to help support central stonerollers, red shiners, speckled chubs, channel catfish, orange throat darter and the Texas log perch; opossums and armadillos have also been spotted.

CASE STUDY

Pittsburgh

Riverfront Takes Center Stage

Pittsburgh has invested approximately \$130 million in Three Rivers Park which has catalyzed nearly \$2.6 billion in riverfront development activity and nearly \$4.1 billion in total riverfront and adjacent development.

In the 1950s, there was only one kind of fish recorded: bluegill. Today, there are more than 30, including smallmouth bass, largemouth bass, walleye and crappies; softshell turtles, muskrats and Great blue herons thrive along its banks.

The transformation of the **Pittsburgh riverfront** is a great example of burgeoning blue/green corridor practices. In many recovering post-industrial US cities, the pressure to attract and retain workers and create a better quality of life, coupled with the declining use of waterways for industrial purposes, has made riverfront revitalization a desirable strategy. The Pittsburgh waterfront—a convergence of three rivers: the Monongahela, Allegheny and Ohio—has undergone an incredible transformation in recent years. The Riverlife Task Force helped steer development off the river-edge to provide a whole new level of greenspace, access to the river, and connections between neighborhoods. They are poised to address environmental issues such as riverbank stabilization to restore habitat and integrating green infrastructure to address combined sewer overflows and stormwater runoff.

- **Who:** RiverLife Task Force
- **What:** Transformation of parks and rivers, 13 linear miles of park as a blue/green corridor
- **When:** 2001 - Ongoing
- **Why:** Discourage industrial use of the rivers and clean them to improve quality of life
- **Investment:** \$130 million invested from the city
- **Relevance to Chicago:** Increased urban biodiversity and ecosystem services

Benefits: Improves quality of life through: Transit - making Pittsburgh more walkable and bikable by including pedestrian bridges, continuous bike-pedestrian connections, riverfront trails, and comprehensive signage; and recreation - creating recreational and other attractions such as fishing piers and marinas, paddleboat and kayaking kiosks, shops, restaurants, and playgrounds.

Philadelphia's implementation of the "Green City, Clean Waters" project

dramatically reduced the city's reoccurring issues with stormwater runoff and combined sewer overflows. It is a strong example of blue/green corridor nature-based engineering, capturing 1.5 billion gallons of polluted water before it enters the Delaware and Schuylkill Rivers. Monitored by a single agency, the Department of Water Management manages both public and private land and has a forward thinking approach rather than addressing gray engineering issues. Philadelphia built subsurface storage projects, rain gardens, stormwater tree trenches, porous pavement projects, swales and green roofs that reuse stormwater or intercept it to let it absorb into the ground. Furthermore, Philadelphia provides financial incentives for development and landowners to install green infrastructure while enforcing strict requirements on new construction.

- **Who:** Delaware River Waterfront Corporation, Philadelphia Water Department
- **What:** Comprehensive green stormwater infrastructure to address combined sewer overflows and reduce runoff pollution.
- **When:** 2011 - Ongoing
- **Why:** To reduce stormwater runoff and combined sewer overflows
- **Investment:** \$770 million
- **Relevance to Chicago:** Reconnected residents to the waterfront as a local amenity

Benefits: Improves water quality, stormwater management and infrastructure management; reduces combined sewer overflows; increases economic equity, opportunity, and vitality, as well as safety and health.

CASE STUDY

Philadelphia

Green Stormwater Infrastructure

What is a combined sewer system? When it rains and the volume of combined stormwater and wastewater is larger than the combined sewer system's capacity, the mixed stormwater and wastewater is discharged into the city's streams at a combined sewer outfall (CSO) before it is treated.

An annual Philly Fun Fishing Fest regularly draws more than 100 participants, snagging more than 200 fish in about four hours. River otters and bog turtles are not uncommon.

CASE STUDY

Seoul, S. Korea

Daylights Its Stream

One very important accomplishment from this restoration was the reduction of the urban heat island effect. No other case study examined documented this effect with their restoration.

Officials say that by 2009, the number of bird species increased from six to 36, fish species from four to 25, insect species from 15 to 192, and mammals from two to four.

The blue/green implementation in Seoul was intense as planning and development of this project overlapped. It required the demolition of a large 18-lane overpass that ran above the Cheonggyecheon stream, ultimately uncovering the stream as the focal point of the project. From 1975 to 1995 Seoul experienced massive growth nearly doubling its land area from 13,747 hectares to 24,946 hectares. The population of Seoul grew by 44%. However, there was one neighborhood, Downtown Seoul, which saw population, area, and jobs decline during this boom. In an effort to sustain economic vitality, the city tried to promote residential and transit development, and felt it was important to preserve its unique historical landmarks while redeveloping. What became its greatest asset was the Cheonggyecheon stream which flows through this neighborhood.

- **Who:** Cheonggyecheon Research Group, Cheonggyecheon Restoration Headquarters, Cheonggyecheon Citizens' Committee, local government
- **What:** Restoration of the Cheonggyecheon Stream in Seoul, South Korea
- **When:** July 2002 - September 2005
- **Why:** Stream was highly polluted; demolish an 18 lane overpass
- **Investment:** \$323 million
- **Relevance to Chicago:** Demonstrated reduction in the urban heat island effect

Benefits: Reduces urban heat island effect; increases public transportation usage; increases economic opportunities; increases cultural activities in the area; cleans water and mitigates flood damage; two new wastewater and rainwater treatment facilities installed; attracts 64,000 visitors each day.

Conclusion

Altogether, creating a blue/green corridor would not only support important ecological functions of the river ecosystem, lead to quality-of-life improvements for residents living adjacent to and around the river, and create a natural path for wildlife, but would also create substantial economic gains in adjacent housing values and generate significant increases in spending in the regional economy. It is also important to remember that a blue/green corridor is public open space and the river belongs to everyone, therefore installation of a blue/green corridor benefits everyone in the region, not just those living next to the river itself. As noted throughout the report, other post-industrial cities are already engaging in or planning this type of development, leading to healthier, more vibrant cities. Cities with these types of developments are places where people want to live and do business. Focusing on restoring the river and developing the riverfront in this fashion as a blue/green corridor will:

- Provide \$1.77 in additional economic output for every dollar spent on blue/green corridor projects
- Create over \$192 million in total economic benefits annually over a 15-year timespan
- Support over 1,614 full-time equivalent jobs annually
- Improve the water quality of the Chicago River, biodiversity, recreational opportunities, and public health, while decreasing flood damage, pollution, and the urban heat island effect, as well as making the Chicago region more resilient in the face of climate change” after effect



A black-crowned night heron perched by the Chicago River.

It is important to remember that projecting the future is always difficult and that there are inherent uncertainties when doing so. However, if the Chicago River system is restored and turned into a blue/green corridor, it is anticipated that similar projects along the river will have similar returns as those detailed in this report which will create a large impact on the local economy. With smart planning, the municipalities along the Chicago River system can begin their next stage of development, protecting their beautiful river asset, while also sustaining economic growth.

About the Fiscal and Economic Research Center

The University of Wisconsin-Whitewater Fiscal and Economic Research Center provides research services for area businesses, not-for-profits organizations and government entities, including:

- Economic analysis
- Land-use planning
- Geographic Information Systems (GIS) analysis
- Market research, marketing strategy and planning
- Statistical analysis
- Simulation analysis
- Ecological and biological analysis
- Government and public policy analysis
- Entrepreneurship

This study was commissioned by the Friends of the Chicago River.
Published March 2019

About the Authors

Russ Kashian is a Professor of economics at the University of Wisconsin-Whitewater. He is co-founder and director of the Fiscal and Economic Research Center at UW-Whitewater. Dr Kashian is also the Director of the Institute for Water Business. In the more than 15 years that he has taught at the university, his focus has been on conducting applied research projects that develop students, are of value to others and serve the region. Kashian's main areas of interest are financial intermediaries, tourism and economic development.

Russ Kashian
kashianr@uww.edu
(262) 472-5584

Matthew Winden is an Associate Professor of Economics at the University of Wisconsin – Whitewater. He also serves as the Assistant Director of the Fiscal and Economic Research Center and Institute for Water Business. His focus has been on conducting applied research projects, especially those issues involving allocation and valuation of natural and environmental resources with local, state, regional or national policy relevance.

Matthew Winden
windenm@uww.edu
(262)472-5579

Research Analysts:
Casey Russell and Ronald Tittle

For More Information: A full version of the Economic and Fiscal Impact of the Friends of the Chicago River Study, complete with methodology, documentation, footnotes and appendices, is available at www.uww.edu/ferc/completed.

Fiscal and Economic Research Center

University of Wisconsin-Whitewater
Hyland Hall
809 W. Starin Road
Whitewater, WI 53190



UNIVERSITY OF WISCONSIN
WHITEWATER

Fiscal and Economic Research Center