

# CHARLES RIVER CONSERVANCY SWIM PARK PROJECT

## Urban River Swimming: Six American Initiatives



# Executive Summary

For centuries, cities have looked to their rivers as means of transportation, sources of power, and wellsprings of commerce. During the Industrial Revolution, cities across the globe sought to harness the power of their urban rivers to fuel budding industrial operations and to generate rapid economic growth; but this growth came at a steep price. Severe pollution and freshwater contamination became the trademarks of industry, and many rivers throughout the United States and abroad became so polluted that they were considered public health hazards.

Recent urban planning movements in cities around the world have sought to reclaim these once polluted rivers. In Boston, the once severely polluted Charles River is now clean after decades of restoration work, and the Charles River Conservancy is leading the effort to help citizens reengage with the river through the establishment of a riverfront swim park.

In January 2017, the Charles River Conservancy contracted a team of graduate students from Tufts University's Urban and Environmental Policy and Planning program to conduct a comparative analysis of river swimming efforts taking shape across the country. The goal of this analysis was to inform the design and programming of the Conservancy's planned riverfront Swim Park at North Point Park in Cambridge. Through web-based research and key-informant interviews, this research aims to explore the diverse approaches and challenges faced by six US cities that are attempting to establish river swimming projects. By conducting a comparative analysis of these efforts, this report highlights national best practices and provides recommendations specific to the Charles River Conservancy's Swim Park Project.



# Team Members

This report was prepared by the Field Project Team from the Tufts University Department of Urban and Environmental Policy and Planning. The team is composed of the following members:

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# Table of Contents

## Executive Summary

## Team Members

## Acknowledgments

## Table of Contents

## List of Figures and Tables

<b>I</b>	<b>Introduction</b>	<b>13</b>
	a. Project Background and History	14
	b. Charles River Conservancy (CRC)	14
	c. Project Goals	16
<b>II</b>	<b>Methodology</b>	<b>17</b>
<b>III</b>	<b>Urban River Swimming</b>	<b>21</b>
	a. Social Background of Public Swimming in America	22
	b. Charles River Pollution, Cleanup, and Swimming	22
	c. Europe Leads the Way in Reimagining River Swimming	26
	d. Motivation Behind Present Day River Swimming	27
	e. Challenges of River Swimming	29



<b>IV</b>	<b>Case Studies</b>	<b>31</b>
a.	Austin	34
b.	Chicago	40
c.	Houston	52
d.	Nashville	57
e.	New York City	61
f.	Portland	68
<b>V</b>	<b>Analysis: Results of Interviews and Web-Based Research</b>	<b>75</b>
a.	Matrix	76
b.	Overall Findings	78
<b>VI</b>	<b>Best Practices</b>	<b>83</b>
a.	User Groups	84
b.	Funding	86
c.	Operations	87
d.	Government Involvement	88
e.	Marketing	89
<b>VII</b>	<b>Recommendations</b>	<b>91</b>
	<b>Bibliography and Appendix</b>	<b>99</b>



# List of Figures and Sources

Cover Figure: Charles River Parklands, Charles River Conservancy  
<http://www.thecharles.org/explore-the-parklands/>

## Team Pictures

Credits: Penn Loh, CRC staff

## Table of Content Background and Chapter Covers

Rendering of Swim Park, Charles River Conservancy  
<http://www.thecharles.org/projects-and-programs/swim-park/>

## City Images on Map

Human Access Project. The Big Float. Photo by Alex Milan Tracy.  
<http://media.portland.indymedia.org/images/2011/07/409581.jpg>  
Barton Springs Pool  
<http://www.austincityguide.com/listings/barton-springs-pool>  
Our Great Rivers  
<http://greatriverschicago.com/action.html>  
Breakwater Chicago  
<http://www.breakwaterchicago.com/>  
Plus Pool  
<http://www.pluspool.org/design/>  
Cumberland River  
<http://bigwilliesnashville.com/about-the-tour/>  
Houston Needs a Swimming Hole  
<https://www.kickstarter.com/projects/2060807929/houston-needs-a-swimming-hole>

## City Cover Page

Austin  
<http://www.austincityguide.com/listings/barton-springs-pool>  
<https://newyearthpartyplaces.com/wp-content/uploads/2015/06/austin.jpg>  
Chicago  
<http://www.mychicagoathlete.com/new-plan-may-allow-swimmers-in-the-chicago-river-by-2030/>  
<http://www.clickhole.com/article/incredibly-selfish-city-chicago-wants-its-baseball-5088>  
Houston  
<https://www.kickstarter.com/projects/2060807929/houston-needs-a-swimming-hole>  
<http://www.geneinman.com/night/h1EB8218#h1eb8218>  
Nashville  
<https://rootsrated.com/nashville-tn/road-running/riverfront-park>  
<https://fineartamerica.com/featured/nashville-skyline-dan-holland.html>

New York

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Portland

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<http://traveloregon.com/trip-ideas/oregon-stories/capturing-oregon-photographing-portland-at-night/>

**Fig. 1a:** Beach crowd at City Point, South Boston, approximately 1931 (Courtesy of the Boston Public Library, Leslie Jones Collection).

<http://www.wbur.org/news/2015/07/31/old-boston-beach-photos>

**Fig. 1b:** Swimming in the Charles, at Charles Bank, Back Bay, c. 1940, before Storrow Drive. (Courtesy of the Boston Public Library, Leslie Jones Collection)

[http://1.bp.blogspot.com/-bEDPQu9OLas/VdiE\\_z5FYdI/AAAAAAAAA6Jkdns9eDDuQvo/s1600/Swimming](http://1.bp.blogspot.com/-bEDPQu9OLas/VdiE_z5FYdI/AAAAAAAAA6Jkdns9eDDuQvo/s1600/Swimming)

**Fig. 2:** Charles River Circa 1935-1955 Arthur Griffin Photographer, Griffin Museum of Photography.

<https://www.digitalcommonwealth.org/search/commonwealth:k930dd76d>

**Fig. 3:** Jeff Parkes. Boston Back Bay Skyline.

<https://crated.com/art/182784/boston-back-bay-skyline-panorama-by-jeffparkes?product=FP&-size=8%7C24&frame=BF&edge=250MA>

**Fig. 4:** North Point Park swim plan, Stantec Skills-Based Volunteer Team, “Swimming in the Charles: A Feasibility Study for the Establishment of a Permanent Swimming Facility in the Charles River Basin”, 2016, p. 66.

**Fig. 5:** Esplanade Magazine from 1946 featuring swimmers in the Charles River near the Longfellow Bridge.

<http://www.bostonzest.com/2015/08/a-peek-at-the-history-of-swimming-in-the-charles-river.html>

**Fig. 6:** Disappointed Charles River swimmers after the beaches have been closed.

<https://magazinebeach.org/2015/03/03/found-one-of-the-disappointed-charles-river-swimmers/>

**Fig. 7:** Charlese River Clean-up Boat. Cleanupboat.org

<http://cleanupboat.org/wp-content/uploads/2012/05/original-Clean-Up-boat-Tom-McNichol-Framingham.jpeg>

**Fig. 8:** Charles River timeline.

<http://www.epa.gov/charlesriver/about-charles-river#historycaltimeline>

keywordsuggests.com

<http://ancientlights.org/images/transatlantic/image001.jpg>

Puritan Impact on Moralities in America

<http://puritansimpactonamerica.weebly.com/culture.html>

Franklin Public Library

Charles River Watershed Association

<http://bujournalism.com/charlesriver/>

Beacon Hill Times

<http://beaconhilltimes.com/2013/06/04/running-on-water/>

Charles River History Timeline

<https://www.timetoast.com/timelines/charles-river-history-b6890e81-ab8b-41c1-845e-e2a839e6ff0e>

Fig. 9: Recreational Swimmers at Lake Bled (Courtesy of Mido).

<https://www.theguardian.com/travel/2011/aug/26/swimming-slovenia-lakes>

Fig. 10: Europe River Swimming Day 2015 in Berlin. Source: Deutsche Welle.

<http://www.dw.com/de/flussbaden-in-der-city/a-18580787>

Fig. 11: Piscine Joséphine Baker, one of the best swimming pools in Paris.

<http://www.nyhabitat.com/blog/2016/06/27/best-swimming-pools-paris/>

Fig. 12: Barton Springs Pool.

<http://www.austincityguide.com/listings/barton-springs-pool>

Fig. 13: Barton Springs Pool.

<https://austintexas.gov/departments/barton-springs-pool>

Fig. 14: Barton Springs cleanup organized by Friends of Barton Springs.

<http://friendsofbartonspringspool.org/?paged=3>

Fig. 15a: Chicago once held long distance swimming events.

<https://www.dnainfo.com/chicago/20170309/downtown/chicago-river-long-distance-swims-swimming-races-don-macdonald-summit-perry-mcgillivray-anna-harris#slide-1>

Fig. 15b: Our Great Rivers.

<http://greatriverschicago.com/action.html>

Fig. 16: A rendering of Lake Riverdale. Source: Ross Barney Architects.

<http://www.chicagotribune.com/news/columnists/ct-river-report-kamin-met-0818-20160817-column.html>



Fig. 17: Our Great Rivers.

<http://greatriverschicago.com/uploads/cms/documents/our-great-rivers.pdf>

Fig. 18: Breakwater Chicago Concept design.

<http://www.breakwaterchicago.com/>

Fig. 19: Water Skiing in the Shamrock Hotel.

<http://www.tsdhof.org/shamrock-swim-club/>

Fig. 20a-b: Country Music Association (CMA) Festival concert at Riverfront Park, Nashville, TN.

<http://hobnobnashville.com/hobnobbin/performers-for-chevroletriverfront-stage-announced/>

<http://mccreerians.freeforums.net/thread/61/fest-chevy-riverfront-stage-nashville>

Fig. 21: Rendering of Plus Pool.

<https://aacoolhunting.wordpress.com/2014/03/18/sevillaysufuturo-como-armonizamos-empresa-y-medio-ambiente/>

Fig. 22: Illustrating the evolution of the pool idea and reasons to support it. Source: Inhabitat.

<http://inhabitat.com/nyc/check-out-pools-free-art-installation-at-the-ace-hotel-to-learn-about-nycs-first-river-purifying-pool/>

Fig. 23a: Plus Pool design with four separate sections.

<http://www.pluspool.org/design/>

Fig. 23b: Artistic representation of Plus Pool as an integrated part of New York City.

<http://www.pluspool.org/images-and-video/>

Fig. 24: Plus Pool's Float Lab, built to test their filtration technology and analyze water quality.

<http://www.pluspool.org/floatlab/>

Fig. 25: The Big Float Meetup.

<http://www.ambi.org/events/the-big-float-meetup>

Fig. 26: Human Access Project.

<http://www.humanaccessproject.com/>

Fig. 27: Beach clean-up on Poet's Beach. Source: Jonathan House, Portland Tribune.

<http://portlandtribune.com/pt/9-news/226393-88661-a-city-beach-within-reach>

Fig. 28: Wading into the Willamette River downtown.

<http://portlandtribune.com/sl/223990-73886-wading-into-the-willamette-river-downtown>

**Fig. 29:** Naked Goddess Swim in the Willamette in downtown Portland, OR.

[http://www.oregonlive.com/entertainment/index.ssf/2016/06/naked\\_goddess\\_swim\\_returning\\_t.html](http://www.oregonlive.com/entertainment/index.ssf/2016/06/naked_goddess_swim_returning_t.html)

**Fig. 30:** Portland's Willamette, Once Heavily Polluted, Now Home To A Swim Team.

<http://www.opb.org/news/article/portlands-willamette-once-heavily-polluted-now-home-to-aswim-team/>

**Back Cover:** Swimmers jumping in the Charles River

<http://www.thecharles.org/projects-and-programs/swim-park/>

**Table 1:** Plus Pool Operations and Design Information

Source: <http://www.pluspool.org/design/>

**Table 2:** Topics of Analysis Matrix

**Table 3:** Project Developmental Phases

**Table 4:** Controversies and Responses



# I. Introduction





## Project Background and History

Once popular destinations for swimming in the United States, urban rivers throughout the second half of the 20th century garnered a reputation for being some of the most polluted sites in cities due to the dumping of sewage and industrial waste. The Charles River in Boston was particularly well-known for its severe contamination, and was the inspiration for one of Boston's most iconic songs, "Dirty Water". However, hundreds of millions of dollars, extensive cleanup efforts, and decades of work have led to such significant improvements in the water quality that the Charles is now clean enough for swimming.

## Charles River Conservancy

Since their establishment in 2000, the non-profit organization Charles River Conservancy (CRC) has been "dedicated to the stewardship, renewal, and enhancement of the urban parklands along the Charles River, for the enjoyment of all".<sup>1</sup> Their work is aimed at the development of the riverfront as a recreational and cultural destination. The Charles River has been integral to Boston's development for centuries, contributing to the industrialization of the city as a crucial transportation route, fishing resource, and hydropower source. As a result, it has undergone dramatic changes in accessibility, use, and water quality. CRC works closely with city and state departments and agencies to manage these changes and leverage funds for projects to increase the accessibility and attractiveness of the Charles River waterfront.

Boston is not alone in making substantial investments in the



Figure 1a (above): Beach crowd at City Point, South Boston, approximately 1931

Figure 1b (right): Swimming in the Charles, at Charles Bank, Back Bay, c. 1940, before Storrow Drive



improvement of its urban river; cities in the US and Europe, from New York to Copenhagen to Zurich, are seeking to reclaim their urban rivers for swimming. The Charles River, however, holds the unique distinction of being the cleanest urban river in the United States and offers one of the most promising opportunities for urban river swimming in the country. CRC has taken up the task of making such a vision a reality. Their proposed Swim Park Project aims to build a safe, fun, and accessible space for swimming in the Charles River.

The Charles River Conservancy is currently working on implementing a swim park at North Point Park in Cambridge, near the Museum of Science. Partners in this endeavor include the Boston Society of Architects (BSA) Foundation and Northeastern University. The proposed park will most likely feature floating docks, shallow and deep swimming sections, and a lifeguard tower. A volunteer team from the consulting firm Stantec has already published an extensive feasibility report that outlines the technical aspects of this ambitious project.

However, CRC faces several challenges in building this facility. First, of all US rivers with similar swimming efforts underway, the Charles River was originally the most heavily polluted by industrial waste. The extent to which the river gained national fame for its severe pollution left a mark on many Boston residents. Therefore, many still perceive the river to be severely polluted, despite the extreme clean-up effort which made the river safe for swimming. Second, such an effort has never been accomplished in the United States at this scale, which poses numerous logistical challenges. These challenges underscore the need for a comprehensive analysis of other cities'



*Figure 2: Swimming in the Charles River, Boston's West end, c. 1940, before Storrow Drive. In the Background: Charles Street Jail (1851), Customs House Tower (1849), and New Suffolk County Courthouse (1937)*

*Figure 3: Boston Back Bay Skyline*



efforts to design and implement urban river swimming initiatives. In an effort to support CRC in the successful development of the North Point Park, this report aims to synthesize the experiences and lessons learned from other cities working towards similar efforts, and to provide recommendations for next steps towards making this project a reality.

## Project Goals

In 2016, Stantec Engineering and Common Impact partnered with CRC to produce a feasibility study for the proposed Swim Park Project. The results of the study indicated that the project would be feasible from a technical and legal perspective, and identified North Point Park as the ideal location for such a facility.<sup>2</sup>

To support CRC's Swim Park Project, our field project team conducted a comprehensive review of urban river swimming efforts in six US cities. By conducting web-based research and speaking with representatives from organizations that have planned, funded, and operated river swimming activities and events (or are in the process of doing so), we were able to ground our recommendations for CRC in a set of national best practices. It is our hope that these recommendations will help CRC and other urban swim park organizations to learn from and collaborate with one other in order to expedite river swimming efforts across the country.

Figure 4: North Point Park swim plan







## II. Methodology



Our field projects team conducted case study research on six cities identified by CRC: Austin, Chicago, Houston, Nashville, New York, and Portland. Methods for our research included web-based searches, a review of the literature pertaining to river swimming in the United States, and interviews with members of organizations who we identified as major players behind urban river swimming efforts. After conducting interviews with eight representatives from the six cities we compiled and analyzed data to create a matrix of how cities are addressing common areas of concern. The team used secondary sources and local media to put its work in context. By comparing the efficiency and success of initiatives for urban swimming in the six cities, we have identified best practices to inform recommendations that are specific to CRC.

Although cities are at different stages in the process of their river swimming initiatives, and are approaching urban river swimming in different ways, much can be learned from their various experiences. Despite differences, there appears to be a shared set of obstacles that all urban river swimming efforts must overcome. Even though CRC may be further along in the process than some other cities in this study, understanding the different approaches taken to combat some of these issues is useful for addressing and anticipating upcoming problems.

Through our research, we identified the issues that are common among those who are pursuing urban river swimming in the United States. After introducing each case with its geographical context, the organizations or individuals who are leading the initiative, and their goals, we delineated the following six categories of information to gather:



## User Groups

This includes the methods that are used to understand the public's stance on swimming efforts, as well as those used to garner and maintain public interest. Understanding the marketing techniques used by different projects allows us to determine how to best reach out to the public and ensure that these projects are getting the attention that they deserve.

## Operations

Because the various cities' approaches differ, the day-to-day functions of the projects differ as well. This category includes actual or anticipated seasons and days of operation, water testing for quality, programs and events, maintenance, and liability issues.

## Funding

We asked about initial sources of funding as well as operating and maintenance funds, ways that cities or projects secured funding, and the balance between public and private sources. As one of the largest perceived barriers, funding is a crucial component to the inception and longevity of any successful river swimming effort.

## Marketing

This includes the methods that are used to understand the public's stance on swimming efforts, as well as those used to garner and maintain public interest. Understanding the marketing techniques used by different projects allows us to determine how to best reach out to the public and ensure that these projects are getting the attention that they deserve.

## Controversy

Because swimming in urban rivers has not been possible in the United States for decades, it is likely that many cities will face similar challenges trying to change the public's perception of urban rivers. This involves identifying the types of opposition faced by cities, whether it comes from the government or the public, and how groups have addressed controversy from those who may be opposed to this new idea of urban river swimming.

## TOPICS OF ANALYSIS

## Government Involvement

For those efforts like the Swim Park Project that are not initiated by the cities themselves, the role of the local and state governments is relevant for understanding any regulatory obstacles that may exist, or ways that the organizations can work with the city or state to further their project. Although the exact governmental context of each city differs, it is useful to elucidate any techniques that have been successful in this regard.



Our interviews were aimed at addressing these categories. We created separate lists of questions (found in the appendix) depending on the role of who we were interviewing.

Organization planning or operating the project

Vision and goals, operations, partnerships, liability, and public perception and interactions

Organization or agency funding the project

Specific funding questions, reasons for funding, public vs. private support, partnerships, and interest in urban river swimming

Government agency overseeing the project

Extent of involvement, initiation, funding, liability, and collaboration







### III. Urban River Swimming



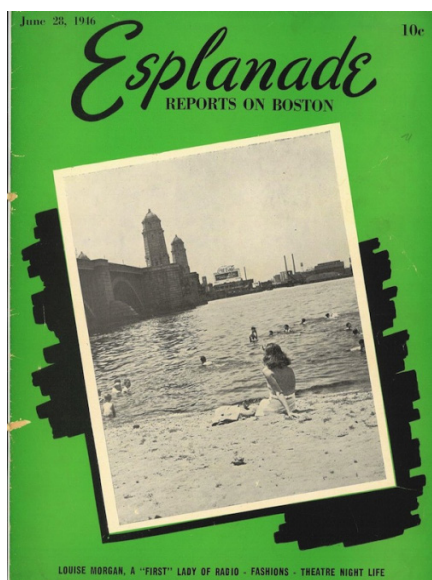


Figure 5: *Esplanade Magazine* from 1946 featuring swimmers in the Charles River near the Longfellow Bridge

## Social Background of Public Swimming in America

During the early 20th century, from the 1920s to the mid-1940s, swimming was as much a part of American life as going to the movies. Jeff Wiltse, the author of *Contested Waters: A Social History of Swimming Pools in America*, documents how public/municipal swimming pools became a part of the modern version of American life. Large numbers of residents would gather in public spaces to socialize. As parts of public space, municipal swimming pools served as centers of community life for public discourse.<sup>3</sup> However, the growing popularity of public swimming areas also changed the ways in which people interacted, due to growing gender, class, and racial conflicts that emerged in these spaces, as well as contested social norms about modesty. Wiltse writes that millions of Americans who owned private pools in their own backyards preferred them for recreation within their socially selective communities rather than going to public pools. White swimmers still banned Black Americans from private pools even though Black Americans had gained equal access to public pools by mid-20th century. Wiltse also points out that most white middle-class Americans swam in their backyards or at suburban club pools, while most African and Latino Americans swam at inner-city municipal pools.<sup>4</sup> By the 1950s, public places like municipal pools served as stages for social conflict. People constantly fought over where they should be built and who should be allowed to use them.<sup>5</sup>

## Charles River Pollution, Cleanup and Swimming

The Charles River in Boston, like most urban rivers, supported many activities throughout the 19th century: transportation, fishing, the evacuation of sewage, and the discarding of byproducts from industrial mills. Increasingly, dams were built along the Charles to generate power for industries. By the end of the 19th century, local industrial and domestic wastes heavily polluted the Charles River. A government report in 1875 identified 43 mills along the tidal estuary from the Watertown Dam to Boston Harbor.<sup>6</sup>

The Charles was so polluted that the report recommended abandoning cleanup efforts on the lower river and focusing instead on the upper half. But landscape architects and activists succeeded in persuading the city to move industry back from the lower Charles, and to build a dam at its mouth to keep out the ocean tides. Construction of the Charles River Dam in 1910, at the present Museum of Science, stopped the tides from running up the river, changing the basin waters to fresh-water, stabilized the flow of the river, and eliminated mud flats and marshes along its banks. This allowed the riverbanks of the lower basin to be landscaped into parks with beaches, of which the Esplanade is the best-known. For four decades, from 1910 through the 1940s, swimming in the Charles was thus not only possible but very popular, as these decades corresponded to high levels of immigration. Swimming in the Charles peaked in the 1940s.

Starting in 1939, however, construction of the Quabbin-to-Boston water supply system, although a needed source of fresh drinking water, stimulated substantial urban growth around Metropolitan Boston. This improvement resulted in significant increases in industrial activity and, along with it, industrial waste. Water pollution rose again, and in 1949, the seven beaches of the Charles were closed to swimming.

By the mid-1960s, the work of cleaning up Charles River had become overwhelming.<sup>7</sup> The Charles was heavily polluted by the sewage flowing from outdated wastewater treatment plants, the toxic release from industrial facilities, and riverbank landfills along the upper reaches of the river.



*Figure 6: Disappointed swimmers on Charles River after the beaches have been closed*

*Figure 7: Charles River Clean Up Boat*





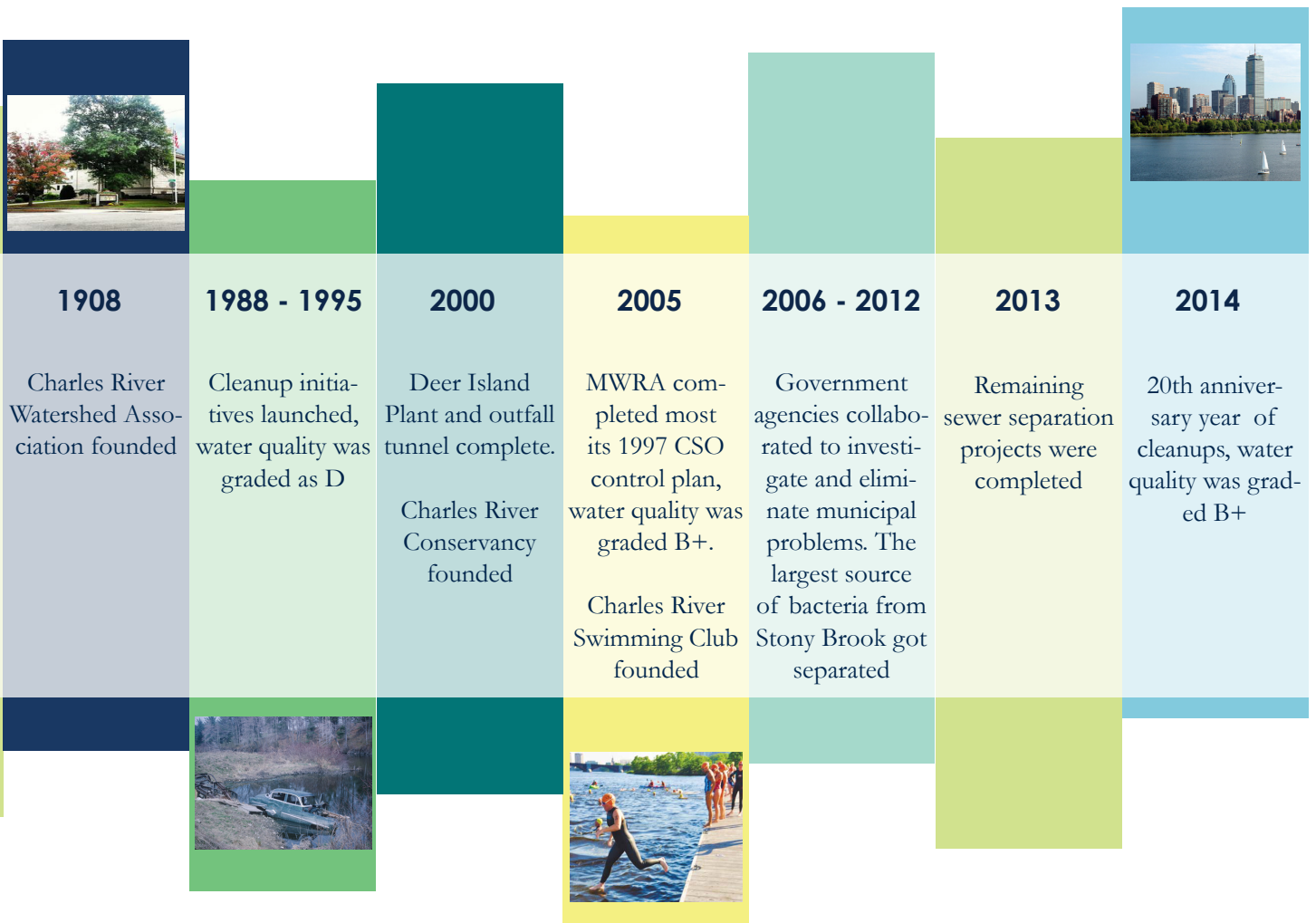
Passage of the Clean Water Act in 1972 resulted in the construction of modern sewage treatment plants along the upper Charles and strict limitations on industrial discharges. Cleanup efforts by organizations such as the Charles River Watershed Association and many volunteers improved conditions. In 1983, the Conservation Law Foundation brought a seminal lawsuit against federal and state officials that forced the cleanup of Boston Harbor. The Massachusetts Water Resources Authority was established the following year



Figure 8: Charles River historical timeline of pollution and cleanup



to manage the region's drinking and waste water, further decreasing pollution of the Harbor's tributary rivers. In 1995, the US Environmental Protection Agency launched the Clean Charles River Initiative and set the goal of making the Charles River fishable and swimmable from Watertown to Boston Harbor by 2005. Through these cumulative efforts, the Charles River's water quality has improved dramatically since 1995, from the grade of "D" to a "B+" in 2016.<sup>8</sup>



# Europe Leads the Way in Reimagining River Swimming

Numerous European cities are leading the way in modeling how to effectively plan for, market and implement urban river swimming initiatives. From the Rhine River in Switzerland, to the Spree River in Germany, to the Thames River in London, urban river swimming efforts throughout Europe provide valuable lessons for American cities, like Boston, which are planning similar ventures.

In 2000, the European Union adopted the EU Water Framework directive, supplemented by international agreements and legislation related to water quality, with the goal of achieving chemical and ecological soundness by 2015 for surface water and groundwater of EU member states. To raise public awareness, the European Rivers Network started a quinquennial event in 2005 called the Big Jump. They spread the message, “Let us celebrate a reconciliation with our rivers - and swim all at the same time”.<sup>9</sup> The idea behind the Big Jump is to swim in all the European rivers that have achieved water quality standards, on the same day, at the same hour. The purpose is to encourage citizens to reconquer their rivers and lakes, and revive the connection binding them to these spaces. The event is accompanied by several other activities in the main European water basins, such as a series of trans-boundary swimming days, educational events on the theme of water quality and river restoration. Campaign partners include the European Environmental Bureau, RiverNet, Aquanet Europe Foundation and the World Wildlife Fund (WWF Global).

*Figure 9: Recreational Swimmers in Lake Bled, Slovenian Alps*





*Figure 10: About 100 people took the plunge in Berlin's Spree River on European River Swimming Day in 2015*

## Motivations Behind Present Day River Swimming

Today, swimming in lakes, swimming holes, springs and rivers are more popular than it has been in decades. The term “wild swimming” was coined in Europe to denote swimming in natural waters, as opposed to swimming pools. Contact with natural water provides a freer form of recreation, a direct connection with nature, the enjoyment of open space in a larger environment, and invigorates as well as relaxes. With water quality improving in the late 20th century, studies have documented that the benefits of river swimming, besides those of recreation, include improvements to the immune system and blood circulation (see box, next page).

However, it is difficult for many urban dwellers to find enough time and opportunity for recreational or therapeutic swimming away from the city. Hence, urban rivers should be more convenient for residents, once the water quality is safe for swimming. A swimmable river running through

neighborhoods, close to higher density housing, offers greater access to more residents than a more remote, single location. Individuals, friends, families, school groups, and swim teams would increase the frequency of their swimming compared to going away a few times a year to a distant place. From an environmental point of view, residents would care more about a natural resource, and would be more likely to protect it, when it plays a direct role in their personal life. It is equally important for the healthy sustenance of the river to be useful and have a desirable impact on the life of citizens. Therefore, swimming and other recreational activities in the river have considerable importance for both the city's population and the river itself.

## Benefits of Swimming in Natural Waters

**Contact with natural waters boosts the immune system.** Swimming in cold water increases the number of white blood cells, which are the important components of the immune system. Dr. Natasha Campbell-McBride MD, who studied the gut and autoimmune healing, pointed out that “people should swim in the natural waters of lakes, rivers and the sea instead of the toxic chemical soup of swimming pools.”<sup>11</sup> She indicated that natural waters are full of biological energy from plants and different creatures, minerals and other healthy substances. But she also clarified that this is only true of natural waters that are free from industrial pollution.

**Jumping into cold natural water stimulates blood circulation.** Michael Tipton, professor of human and applied physiology at Portsmouth University, explained that chilly water stimulates cold sensors from our whole body. Swimming in natural cold water is a natural blood-stimulus. When we jump into the cold water, the blood moves away and goes to our major organs, then comes back to the skin when we warm up.<sup>12</sup>

<sup>11</sup>“*Gut and psychology syndrome: Natural treatment for autism, dyspraxia, ADD, dyslexia, ADHD, depression, schizophrenia.*” Campbell-McBride, N. Medinform Publishing.” Published by 2004.

<sup>12</sup> “5 Reasons to Swim In Natural Waters (as Much as Possible).” The Healthy Home Economist. Accessed by 04, 2017.





# Challenges of River Swimming

Recognizing these advantages, swimming enthusiasts around the world are leading movements to revive river swimming, as well as other recreational activities in urban rivers. Efforts to clean up polluted rivers have been a great contribution to further this movement. It is a unique challenge to convince people to swim in a river that was severely polluted. People are suspicious of the quality of urban rivers, even if these are now deemed safe to swim in. Sometimes the river bed itself can raise concerns for containing harmful materials, such as municipal and industrial waste from past years, and toxic chemicals embedded in the sediment. Information about proper safety measures (i.e. life jackets, safety paddler, safety buoy, other floating devices) and life-saving training (i.e. learning how to swim properly, knowing CPR and basic first aid) must be available to swimmers, along with regular updates on the weather, and the quality and temperature of the river water. Making the river-side safe and accessible for every age group is also a priority for this type of project.

*Figure 11: Piscine Joséphine Baker on Sienne*







## IV. Case Studies





Portland

## Human Access Project



Breakwater

This section provides an overview of the urban river swimming efforts in the six cities chosen as case studies. By understanding the urban river swimming efforts in other cities through interviews and web-searches, we are able to identify themes that are common across cities, including shared issues and ways of overcoming these issues, in order to develop recommendations for the CRC.

## Barton Springs



Austin





## Rivers



## Plus Pool



**Boston**



**New York**



**Chicago**



**Chicago**

**Cumberland River**



**Nashville**



**Houston**

**Houston  
Needs a  
Swimming  
Hole**







# Austin

“Barton Springs is the  
great psychic heart of  
Austin”

David Heyman  
My Beautiful City Austin





Figure 12: Barton Springs Pool



## Barton Springs

Austin is the capital of Texas and a very progressive city which is seeing a surge of population growth, especially by young millennials moving there. The city is known for its environmental initiatives, such as their Zero Waste program, which seeks to reduce the amount of trash sent to landfills by 90% by 2040, and Green Building program, which was the first building energy rating system in the United States.<sup>10</sup> With a rich history, Austin has a vibrant downtown and is a major technology center.

The Barton Springs Pool in Austin is the most established pool among the cities that we researched. Managed by the city's Parks and Recreation department, the pool is located in Zilker Park, just three miles west of downtown Austin.

The site had been used by Native Americans in the area for thousands of years before William Barton, a farmer, settled in the area in 1828. As Austin expanded and developed in the 19th century, Barton Springs became a popular fishing and swimming location. In 1917, it was purchased by the city and converted into a public park.<sup>11</sup> Since then, it has become a popular local amenity and tourist destination.

The pool itself is three acres in size and fed by natural underground springs from the Edwards Aquifer, with average temperatures of 68 to 70°F.

Location	Austin, Texas
River	Barton Springs, fed by natural springs
Population	931,830 (2016)
Organization	Austin Parks & Recreation, Barton Springs Conservancy, Friends of Barton Springs
Type	Pool
Stage	Fully operational
Swimming Time	Year-round

Barton Springs Pool is in Barton Creek, one of many surface creeks that are part of the Edwards Aquifer. The pool attracts a wide variety of people, from local residents to tourists. The people of Austin are proud to mention that Robert Redford learned how to swim in Barton Springs Pool as a child. The Pool continues to be supported by a group of local and international celebrities.

An environmental issue has emerged with the Barton Springs Salamander, a species of salamander that lives only at the spring outflows of Barton Springs and has been listed as an endangered species since 1997.<sup>12</sup> The salamander population had been declining in the area since the 1970s due to increased development and harmful maintenance practices by the Pool.<sup>13</sup> After some controversy, it was determined by the U.S. Fish and Wildlife Services that both humans and the salamander can co-exist in the same ecosystem, and they have had to be careful to ensure that the salamander is not harmed by pool activities.

*Figure 13: Barton Springs Pool*





# User Groups

Barton Springs is central to Austin's identity. The Barton Springs Pool is a popular site among swimming venues for both residents and tourists. It attracts up to 800,000 visitors a year, and is one of the most popular tourist destinations in the city.<sup>3</sup> The pool is a part of the 358-acre Zilker Park which contains trails for jogging and biking, gardens, and volleyball courts.<sup>14</sup>



Austin residents are very passionate about Barton Springs, and there are several different groups of “regulars” who frequent the spring. A wide range of different communities use the spring, from people training for triathlons early in the morning, to an older crowd swimming recreation-ally later in the day, to government officials. The pool is also very family-friendly, and encourages swimming at all ages.

## Funding



As a part of Zilker Park, Barton Springs is funded and operated by the Austin Parks and Recreation Department. The Pool itself generates revenue through entry fees.

The non-profit organization Barton Springs Conservancy also raises money for the spring, to make facility improvements and to improve education about environmental issues and values. They are currently attempting to raise \$3 million to renovate the bathhouse. Their funding strategies rely largely on external professional assistance. They have held smaller fundraising events that were successful, but were unable to generate the large amounts of money necessary to sustain the spring. These events have largely been family-oriented, and were useful mainly for public support and marketing rather than long-term funding. To raise the millions of dollars necessary, they hired external professional help, which has been extremely beneficial for Barton Springs.

Additionally, since it is home to an endangered salamander, which legally has to be protected, they have found it relatively easier to acquire support and funding from those who are particularly concerned with the environmental impacts.



# Operations

Barton Springs is open from 5:00am to 10:00 pm Friday through Wednesday all year. When it is open, two dams prevent the water from Barton Creek and the main Barton Spring from flowing into the pool. Admission is free between November and March. From mid-March through the end of October there is a small fee: \$1 for children, \$3 for adults, and \$8 for out-of- town visitors. The pool is closed one day a week on Thursdays for cleaning. Lifeguards are on duty during the entire year, employed by the Department of Parks and Recreation. The pool's water quality is tested by the Austin Watershed Protection Department about once a week due to the endangered salamander. Because it relies on the water of the Barton Springs aquifer, the water is tested to ensure that the salamander will not be harmed by runoff or waste, and that maintenance practices are not damaging them.<sup>15</sup>

In addition to the city's management, two main private groups are involved in the stewardship of Barton Springs: Friends of Barton Springs and Barton Springs Conservancy. Barton Springs Conservancy oversees fundraising for major improvements projects. Friends of Barton Springs is a volunteer organization that helps to clean and maintain the spring. The Friends provide a way for individuals and families to help out and feel like they are giving back to the community, which helps to educate people about environmental issues and builds awareness of water quality issues.



*Figure 14: Barton Springs cleanup organized by Friends of Barton Springs*



## Government Involvement

The city owns and operates Barton Springs, and has continually been very supportive of Barton Springs. It is a beloved part of Austin that they are very proud of and want to see continue to be successful. The Department of Parks and Recreation and the Watershed Protection Department are closely involved with the operations and maintenance of the spring. The city also takes responsibility for addressing ADA accessibility issues.



# Marketing

Barton Springs is a well-known destination in Austin, considered to be “one of the crown jewels of Austin”.<sup>16</sup> Having been a part of Austin since the early 1900s, it has been a popular site for over a century and attracts thousands of people each year. As a strong ally and advocate of the Pool, Robert Redford co-produced a 2008 documentary called *The Unforseen* about the preservation of Barton Springs in the face of development interests.

Barton Springs is prominently featured on many city fliers and Austin government’s website. They also have a Facebook page and newsletter run by Friends of Barton Springs which they have found to be an effective way of reaching people.



## Controversy



A local environmental group called the Save Our Springs Alliance has been active in the environmental issues surrounding the Barton Springs Pool. There are concerns about pollution, because the Pool recharges from six surface streams. In 2003, the pool was closed for 90 days after high levels of arsenic were found.

The Pool is limited in its ability to expand or modify due to restrictions on harming the salamander’s habitat. Early pool maintenance practices were found to be harmful to the salamander, and those practices were changed to minimize damage. Since then, the salamander population has been growing, and although it has not yet fully recovered, it was upgraded to threatened, and the city is monitoring it carefully to ensure that it does not become extinct.

Overall, Barton Springs does not have heavy water pollution issues, but their overseers have found that some people are nonetheless averse to swimming in the water. To try to convince those who are more skeptical, they concentrate on just getting people into the water by holding events - such as Cap2k, an annual open water race and pledge swim, or encouraging recreational or training swims. Paddle boarding is a popular way of getting people onto the water, and volunteer cleaning events have also brought people closer to the water.





# Chicago

“Our rivers are already tremendous assets, but they hold the potential for much more”

Chicago Mayor Rahm Emanuel







Chicago, the third largest city in the United States with a population of 2.7 million, is located on the shore of Lake Michigan - the fifth largest body of fresh water in the world. Currently, Chicago's parklands attract nearly 86 million visitors every year.<sup>17</sup>

Three rivers run through the city: The Calumet, Chicago, and Des Plaines. Chicago is currently focusing on several river issues, particularly their water quality and environmental sustainability. To improve residents' local quality of life and attract more visitors, two urban swimming projects are currently underway: Our Great Rivers and Breakwater Chicago.

*Figure 15a: Chicago once had long distance swimming events*



Figure 15b: Our Great Rivers, showing the vision of Chicago's rivers

## Our Great Rivers

Our Great Rivers is a local initiative that aims to make Chicago's rivers swimmable. It is a project of the Metropolitan Planning Council, the City of Chicago, Friends of the Chicago River, and the Chicago Metropolitan Agency for Planning. The initiative was announced to the public in August 2016, and the Metropolitan Planning Council created detailed actions and visions for Our Great Rivers.<sup>18</sup>

The Great Rivers Chicago Leadership Commission, appointed by Chicago Mayor Emanuel, and a Resource Group of professionals in many disciplines, conducted an 18-month community engagement process that gathered input from thousands of residents. These visions formed the basis for the goals and action items of the Metropolitan Planning Council's Our Great Rivers report.

Our Great Rivers was announced as the city's first unifying, forward-looking vision, and action agenda for its three rivers. Press releases from the Mayor's office promote Our Great Rivers as a concrete effort to continue to invest in the riverfront in ways that connect neighborhoods and improve the quality of life of Chicagoans. There are currently 26 goals listed on the project's website, and each goal includes specific recommendations, with key





Figure 16: A rendering of Lake Riverdale as an active, vibrant point of recreation

players, that can be completed by 2020, 2030, and 2040. Our Great Rivers contains comprehensive plans for building a productive, inviting, and living place along the riverside. The main goals related to urban swimming are listed below:<sup>19</sup>

- 1) 2020: More activities built and programmed to draw people to their rivers. Safe rivers and riverfront.
- 2) 2030: Easy access from all neighborhoods and increased access for people of all ages and abilities. “Rivers we can swim in.”
- 3) 2040: Fully litter-free and odor-free rivers

Location	Chicago, Illinois
River	Calumet, Chicago, and Des Plaines
Population	2,720,564 (2016)
Organization	Metropolitan Planning Council, Friends of the Chicago River
Type	Riverfront events
Stage	Planning, exploring different versions, discussing partnerships
Swimming Time	June-September



# User Groups

Our Great Rivers is intended to be for everyone in Chicago. The project team of Our Great Rivers wants to ensure there are no restrictions on any groups of people. There are thousands of residents and many communities along the rivers in Chicago, and project planners must address the challenges of coordinating and negotiating with different departments and organizations, as well as learning people's and communities' needs and attitudes towards river swimming. They are currently gaining public feedback through community meetings, focus groups, and online surveys. They have held nine community meetings, as well as 100 focus groups to gain input from 6,000 people who live, work, or play along Chicago's rivers, and they have received over 3,800 responses to their surveys.<sup>20</sup>



By the end of 2030, Our Great Rivers aims to improve accessibility to the river for all neighborhoods and people of all ages and abilities. The project team is currently assessing the network of each riverfront's paths, sidewalks, and streets to document existing conditions of accessibility to the rivers, including barriers of missing signage, and lack of trail connections.<sup>21</sup> In order to meet this accessibility goal, the project team plans to undertake the ADA assessment for rivers' edges as well as riverfront facilities. This may include building more ramps, ladders, lifeguard stations and riverfront infrastructures that are necessary for safe swimming.

## Funding



The Chicago Community Trust, the Joyce Foundation, ArcelorMittal, Boeing, and The Gaylord and Dorothy Donnelley Foundation have funded Our Great Rivers.<sup>22</sup> These organizations and companies also helped Our Great Rivers to set visions for the projects. Our Great Rivers is a long-term project, and for now, is still in the early stages of engaging community partners, identifying agencies to coordinate with, and determining future costs and budgets.

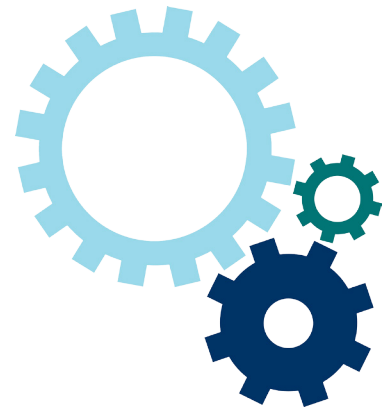




# Operations

Once the project is running successfully, the goal of river swimming is slated to be achieved by 2030. Key goals are followed by specific, recommended actions. For example, by the end of 2020, Our Great Rivers aims to build more activities to draw people close to the riverside. The project team plans to organize rowing events on the Calumet River, and communicate with the Forest Preserves of Cook County and the Chicago Park District for permitting special events such as charity-marathon running. They encourage private landowners along the riverfronts to host some low-cost events, and contact local schools and neighborhoods to organize riverfront festivals. Moreover, in order to make people trust the water quality of the rivers, the project team will share real-time river water quality information online. They will also allow people to sign up for and share information from Friends of the Chicago River's Overflow Action Alerts, and the Metropolitan Water Reclamation District of Great Chicago (MWRD)'s sewer overflow notifications.<sup>23</sup>

Much like in Boston, people used to swim in different parts of rivers in Chicago before industrialization, but for decades now, there has been no river swimming. In order to attract people once again to river swimming, the project team is initially promoting other river activities. Kayaking, for example, will get people closer to the water. The manager of the Metropolitan Planning Council mentioned that: "Time passes, people will gradually accept river swimming and trust that the river is swimmable."





## Government Involvement

Our Great Rivers was originally created by the Metropolitan Planning Council, in close partnership with the City of Chicago. Our Great Rivers works closely with many partners, different departments and organizations, such as the city's Transportation Department and other related organizations. For example, Friends of the Chicago River, a volunteer organization dedicated to the health of the Chicago River, is helping to engage people living close to river in attending community meetings and responding to surveys. The Chicago Metropolitan Agency for Planning supported Our Great River and has worked to engage around 20 suburban communities in examining how the vision can play out in their neighborhoods.

In order to ensure that all of Chicago's rivers achieve the EPA's standard of water quality for swimming, fishing and boating, the most promising achievement of the plan will be the completion of the Tunnel and Reservoir, called the Deep Tunnel, by the end of 2029. The Deep Tunnel will improve the rivers' water quality, by diverting storm water and sewage into temporary holding reservoirs, thereby eliminating the harmful effects of combined sewer overflows. For ongoing water quality assessment, the United States Geological Survey is providing statewide real-time information on water quality data. Meanwhile, the Metropolitan Water Reclamation District of Greater Chicago and Forest Preserves of Cook County are investing in improving the water quality of the Chicago rivers. The Chicago Department of Water Management and Friends of the Chicago River are also engaged in monitoring water quality.

The project team needs more time to determine how best to inform people about water quality through social media. Because this is a city project, the water quality information needs to be available to everyone in Chicago.



# Marketing

Our Great Rivers was originally created by the Metropolitan Planning Council, in close partnership with the City of Chicago. Our Great Rivers works closely with many partners, different departments and organizations, such as the city's Transportation Department and other related organizations. For example, Friends of the Chicago River, a volunteer organization dedicated to the health of the Chicago.



# Controversy

The largest issue with Our Great Rivers is the cooperation required among the multitude of organizations that are involved in the clean-up, monitoring, and programming efforts. It is a massive decades-long undertaking by the City of Chicago, and it needs to ensure that all of the departments and organizations are working together and communicating to accomplish their goals.

*Figure 17: Our Great Rivers, showing the vision of Chicago's rivers*





Figure 18: Breakwater Chicago Concept



## Breakwater Chicago

The second urban river swimming initiative in Chicago is called Breakwater Chicago, a private commercial project. It is being developed by local entrepreneur Beau D’Arcy, co-founder Ashvin Lad, and a group of consultants, financial advisors, and funders. Publicly announced on June 9, 2014, the project aims to create a floating entertainment resort about half of a mile from Chicago’s shoreline in Lake Michigan, and make it Chicago’s top tourist destination.<sup>24</sup> The floating resort will include diverse facilities such as a swimming pool, lounges, shops, restaurants, and boat slips. This project plans to operate as a small island 300 feet long by 100 feet wide, slightly smaller than a football field.<sup>25</sup> Designed as a floating vessel that will be built in a shipyard and towed to its location, it has been called a “floating resort”, “floating island”, “floating entertainment vessel”, “floating water park”, “artificial island”, “resort island”, “party barge”, “pool-equipped barge” and “party island”.<sup>26</sup>

Location	Chicago, Illinois
River	Lake Michigan
Population	2,720,564 (2016)
Organization	Breakwater Chicago
Type	Floating resort
Stage	Design phase
Swimming Time	Year-round

# User Groups

Local news articles claim that the floating resort will have a capacity of 2,850 people at one time.<sup>27</sup> As a luxury entertainment venue, Breakwater Chicago will offer swimming in a 10,000-square-foot wading pool, multiple furnished sundecks, a spa and wellness center, a lounge/nightclub, and a small retail area.<sup>28</sup>



During the summer, the floating venue will only be accessible by boat. Breakwater will offer 30 boat slips for boat owners to tie up to the vessel. A prime motivation for the project was to create a destination for boaters in Chicago and from surrounding states as well. Breakwater-operated water taxis to and from shore will also be available for guests without boats, which will make Lake Michigan more accessible. The cover fee for the venue will be \$20, including the round-trip water taxi.

During winter months, Breakwater Chicago will be moved from its offshore location and tied up to shore. This will protect the facility from winter lake storms and increase the public's accessibility. Guests will be able to walk to the venue directly.

They also offer summer family passes for \$600 that allow access for adults and up to three children as a way of encouraging families to use Breakwater and promoting it as a family-oriented project.<sup>29</sup>



## Funding

The development budget has been estimated at \$23 million.<sup>30</sup> The project would require about \$7 million of equity, \$14 million in debt financing and \$2 million in working capital.<sup>31</sup> The main sources of funding will come from investors and equity firms. To pay for some upfront costs, and to spread the word about the project through social media, founder Beau D'Arcy launched a Kickstarter event in 2014. With an initial goal of \$30,000, the crowdfunding campaign raised more than \$60,000 from over 700 backers in one month.<sup>32</sup> This allowed the project team to pay for a 3D flyover video and a scaled model to show to potential investors and government officials. It was also meant to build grassroots support, demonstrate public interest, and create a feeling of ownership in this ambitious project among residents of Chicago.

Revenue generated by the project will come from individuals and corporations. The project website offers a menu of 20 activities that the public can buy, ranging from \$1 to \$5,000. These include one's photograph incorporated into a photo mosaic mural (\$1), private and corporate party packages (\$25 - \$2,000), sailing trips and cruises on the Lake (\$200 - \$1,000), VIP membership cards and passes (\$500- \$1,000), sports events at Wrigley and tail-gate parties on Breakwater (\$700 - \$1,900), first dive into Breakwater Pool (\$2,000), advisory board memberships (\$2,500), pre-opening private dinners on Breakwater (\$3,000) and christening the Breakwater vessel (\$5,000).



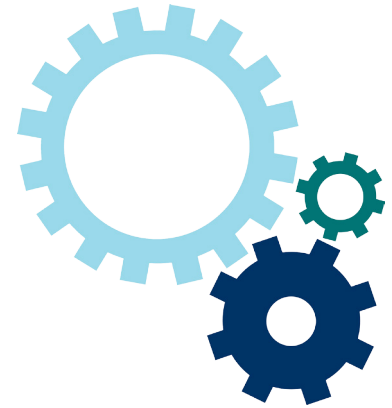
# Operations

The floating swimming pool will be 10,000 square feet in area. To ensure guests' safety, the swimming pool will be shallower than a regular one, and is often referred to in the project's descriptions as a wading pool. Rather than being confined in a closed shape, its design is of that of a "lazy river" meandering through the length of the deck.

To ensure that the floating resort, including the swimming pool, can be operated year-round, the design team SPACE Architects + Planners revealed a plan that shows a removable dome. The dome will cover the resort during the winter and will be UV-transparent, to create a greenhouse effect and warm, tropical conditions inside. During the winter, the floating resort will be enclosed in the dome and tied to shore.<sup>33</sup>

The project designers plan to use renewable energy sources including photovoltaics, solar water heating, aqua thermal cooling, and potentially kinetic wave power. They will also follow LEED design standards where possible.<sup>34</sup>

In order to operate the project in an environmentally-friendly way, in addition to using renewable energy sources, Breakwater Chicago will install a unique Green Hull system on the bottom of its vessel.<sup>35</sup> This is an underwater garden of aquatic plants that help absorb dangerous nutrients from the water, a common problem in the Great Lakes caused by runoff, and provides cover for fish. The garden acts like a green roof on top of buildings, except that instead of absorbing CO<sup>2</sup> from the air, the plants absorb nutrients from the water, thereby improving water quality conditions in Lake Michigan.



## Government Involvement

While Breakwater Chicago is still in its early stages, project sponsors are well aware that they need to coordinate with all levels of government to broaden public support, convince public agencies of the project's feasibility and soundness, and obtain the necessary permits.

In November 2016, Breakwater's naval engineers completed final design drawings and submitted them to the US Coast Guard for approval.<sup>36</sup> The following month, the project team attended the quarterly meeting of the Chicago Harbor Safety Committee. The Facebook post indicated that public safety and maintaining good working relationships with law enforcement were significant goals of the project.





# Marketing

Breakwater Chicago has its own official website, which includes information about the project, its history, team members, media coverage, and its design renderings. Although the website releases less detailed information now than it did after its first public announcement in 2014, Breakwater Chicago continues to update its social media (Facebook, twitter and Instagram), so that the public still has opportunities to follow the project's evolution. They have also conducted several radio interviews and been featured in multiple news segments on TV.



## Controversy

The main problem that needs to be addressed is noise. The project team promised that Breakwater would be designed to stay 1.1 mile away from the closest residential building on the shoreline.<sup>37</sup> Some government officials, such as Alderman Brendan Reilly, have opposed the project due to concerns about the sound carrying extremely well over water. Reilly also questioned whether offering boaters alcoholic beverages while operating watercraft would be appropriate. He said, “Boating and alcohol would not make a good mix”.<sup>38</sup> Although the project team offers distance from the shore as safeguard against noise, they do not mention how noise will be mitigated in winter, when the vessel will be docked at the shore.

Others question the very idea of a private development on lake waters. Howard Learner, executive director of the Environmental Law and Policy Center, an environmental legal advocacy organization for the Midwest, is a leading voice of that criticism. “Lake Michigan is a national treasure,” he said. “It supplies drinking water to all Chicagoans and recreation to tens of millions of people. We shouldn’t be messing with the lake”.<sup>39</sup>

Although the project launched in 2014 had announced a completion date of summer 2015, the project is still currently in the planning stages. In a 2016 article, D’Arcy remained optimistic: “We’ve had our heads down working through design and engineering for a while now, but things continue to move along nicely”.<sup>40</sup>



# Houston

“Let’s Build a giant  
natural swimming hole  
in Houston!”

Houston Needs a  
Swimming Hole



## Houston Needs a Swimming Hole

With a population of 2.2 million, Houston is the fourth largest city in the United States and the most populous in Texas. With its brutally hot summers, Houston is in need of a refreshing outdoor swimming space. A swimming hole added as a new dimension to Houston's growing network of parks could become the centerpiece of its parks system.

Houston Needs a Swimming Hole is a project initiated by developer Monte Large and designer Evan O'Neil, later joined by the Sherwood Design Engineers team of San Francisco, the group that designed the Google campus. The team explains the legacy of larger swimming pools in Houston and especially remembers Shamrock Hotel, a grand hotel built in 1946 to bring Vegas to Houston. It was the largest hotel built at that time in the U.S. The Shamrock's swimming pool was reportedly the largest outdoor pool in the world. It was so large (142' x 165') that it featured waterskiing.<sup>41</sup> Demolished in 1987, the hotel and its swimming pool are still remembered by many Houstonians today, including the Swimming Hole's three promoters. To bring back the glory days of the historic Shamrock Hotel's Texas-sized swimming pool, this trio started to dream about a new swimming hole in Houston. Citing countless swimmable rivers in Europe and the Streets Beach in South Brisbane in Australia, the development team is planning to conduct a feasibility study and generate extensive media coverage. They have raised \$30,000 through a Kickstarter crowdfunding campaign toward these initial steps.

While currently there is not a specific location, Large, Kaplan and

Location	Houston, Texas
River	Buffalo Bayou
Population	2,239,558 (2016)
Organization	Houston Needs a Swimming Hole
Type	Swimming hole
Stage	Conceptual
Swimming Time	Close to year-round







*Figure 19: Water skiing in the Shamrock Hotel*

O'Neil propose that the site should be on the banks of Buffalo Bayou near Marron Park, east of downtown. They are currently looking for a 10-acre site. The pool and park would take six to nine acres, and the rest would be for facilities and parking.<sup>42</sup> They are modeling their concept after Austin's Barton Springs and New York's Plus Pool as well as other examples in Europe.

Until the feasibility study is completed, details on the swimming hole proposal remain nebulous. So far, the developers have revealed that they want to use a natural filtration system that is supported by plants and high-tech oxidizing pumps with titanium coated plates.<sup>43</sup>

Health advocates support this project, as Harris County has a major child obesity problem.<sup>44</sup> However, at an estimated development cost of \$10 million,<sup>45</sup> the \$30,000 the project initiators raised for soft costs is a small beginning. Houston has a reputation for doing things on a large scale and they want this project to be a Texas-sized landmark in the city. The idea created a large amount of buzz in the Houston area and garnered initial support from city and community leaders, but the development team has a long road ahead. While everybody agrees on the need for this project, the details are still unclear.

## User Groups

The Houston Needs a Swimming Hole project is a design idea to provide a relaxing and dynamic social space for Houston residents as a place that people from all walks of life can enjoy.

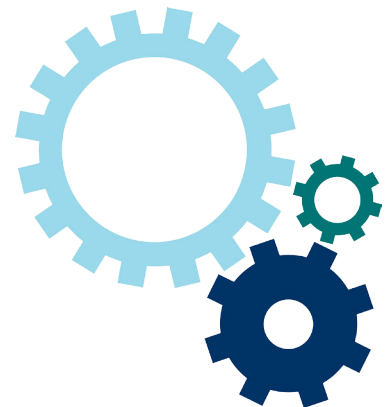


## Funding

Over \$30,000 was raised on Kickstarter to date, from just over 300 people. Funding is currently being allocated to conduct a feasibility study. Long term plans are unclear at this time. Developer Monte Large says that their capital fundraising efforts for the pool itself have not started yet.

## Operations

The project team recently signed a Memorandum of Understanding with Buffalo Bayou Partnership, a nonprofit that was founded in 1986 to preserve the Buffalo Bayou. They hired HR&A Advisors for strategic consulting, engaged Sherwood Design Engineers to study topography and filtration technologies, and presented the project to Harvard University's Graduate School of Design for design ideas and sites.<sup>46</sup>





## Government Involvement

It is too early in their process to understand how they want to work with the local government, and what they would want the government's role to be.

## Marketing

The project is getting a lot of media coverage from the Houston Chronicle and other local press and television stations. It is featured in the local ABC affiliate. They have an active Facebook page and a Kickstarter page.



## Controversy

Some controversy surrounds the development along the Bayou. Some of the design ideas would subvert the bayou's natural flow and that concerns environmentalists. A feasibility study will bring to light how man-made versus natural the project would be.







# Nashville

“Nashville has the potential to create a great waterfront that is truly world-class”

Nashville Riverfront  
Concept Plan 2007



“It was the most unbelievable pollution that I’ve ever seen”

Vic Scoggin

## Cumberland River

The Cumberland River, which originates in Kentucky and goes through Nashville, Tennessee, has been an industrial river with frequent barge activity. While many segments of the 688-mile-long river are open for swimming, the most polluted area is the part surrounding downtown Nashville. Known as the city of music, Nashville has a very vibrant downtown, but until recently the riverfront has been ignored.

Cleanup efforts started after Vic Scoggin, then a glass plant worker and now the founder of Save the Cumberland Inc., took the plunge into the Cumberland River and swam its entire length in 1996. It took him 10 weeks to complete the course and he said, “it was the most unbelievable visual pollution” that he had ever seen, including sights of floating carcasses.<sup>47</sup> Scoggin’s initial swim started widespread cleanup efforts and mobilized concerned citizens to create in 1997 the Cumberland River Compact, with the mission to enhance the health and enjoyment of the Cumberland River. A Water Quality Advisory Committee established by the Compact identified sediment as the primary pollutant in the Cumberland River. Since these beginnings, several partnerships and initiatives have improved the water quality of the river, increased public access to the riverfront, programmed water activities, and heightened public awareness of the need to protect the Cumberland River as a natural and recreational resource.<sup>48</sup>

Recent developments by the city to enhance the banks of the Cumberland River as a part of a larger riverfront revitalization plan, resulted in two parks built on each side of the river near downtown: Riverfront Park in 2014 and, Cumberland Park in 2013. Both parks are located near

Location	Nashville, Tennessee
River	Cumberland River
Population	659,042 (2016)
Organization	Cumberland River Compact, Nashville Metro Parks and Recreation
Type	Riverfront improvements
Stage	Conceptual
Swimming Time	May-September





the Nissan Stadium, home of the Tennessee Titans football team. Riverfront Park includes an amphitheater (Ascend Amphitheater) completed in 2015, and attracts local residents and tourists alike. The park has replaced a 17-acre asphalt parking lot that did not contain a single tree. The water features in the Riverfront park are a part of a stormwater harvesting system that collects the water from nearby parking area and the bridges. The development of these two parks is intended to increase public interaction with the Nashville riverfront.

Both parks and additional improvements on the Riverfront are designed to create parks, waterfront access and other public attractions for the millions of people that visit Nashville each year. Both parks are part of a larger plan to restore the ecological system of the Cumberland River.



*Figures 20a and 20b: Country Music Association (CMA) Festival concert at Riverfront Park, Nashville, TN*



## User Groups

During the hot summer months, the Cumberland River sees a flurry of activity from concert goers, to triathletes, to paddle board tours. The Music City Triathlon draws thousands of people to swim in the river each year. A small action sports company gives paddle board tours on the river through downtown. The parks are easily accessible from downtown.



## Government Involvement

The Nashville city government has been working on the cleanup of the Cumberland River over the last 20 years. River cleanup efforts resulted in two new parks in downtown on each side of the river and a new amphitheater for outdoor concerts. Cumberland compact collaborates with state and federal agencies as well as local business and other nonprofits. Since the Cumberland River crosses 3 different states various actors including Army Corps of Engineers are involved in keeping the river well maintained.

## Marketing

Organizations like the Cumberland River Compact have been active in promoting the health of the river. In addition to having a strong web presence, they regularly host “River Talk”, an educational series of public lectures and events about the river that brings together experts, artists, researchers, and other professionals to share their knowledge and experience. Nashville Metro Parks and Recreation also actively promotes the parks on their website.





# New York City

“What if you could change how New Yorkers see the rivers, just by giving them a chance to swim in it?”

Plus Pool





Figure 21: Rendering of Plus Pool



## Plus Pool

Like some of the other cities in this report, New York City has hosted an annual river swim. Starting in 2011, hundreds of swimmers have signed up for the short swim across the East River in spite of cleanliness concerns. Though this was initially headed by an organization called NYC Swim, it has recently been taken over by a group called New York Open Water.<sup>49</sup> New York Open Water (NYOW) was started in 2016 by marathon swimmers David Barra and Rondi Davies, and paddler Alex Arevalo. Their mission is to provide swimmers and kayakers with safe, challenging and fulfilling water adventures in and around the waters of New York City and New York State.

NYOW provides safety, support, and funding for river swimming and kayaking events, and advocate for improved oversight of New York’s waters and for increased public access to those waters. They are also working toward the establishment of athletic and environmental youth programs in the water to promote support among the younger generations.<sup>50</sup>

Though they have made great achievements in promoting and organizing river swimming in New York, NYOW has not attempted to construct a physical facility for swimming in the river. The most promising

Location	New York City, New York
River	East River
Population	8,550,405 (2016)
Organization	Plus Pool, Friends of Plus Pool
Type	Floating pool facility
Stage	Discussing permitting, looking for a site
Swimming Time	June-September





option for this type of formal river swimming facility comes from a group of architects and graphic designers – Oana Stanescu, Dong-Ping Wong, Jeff Franklin, and Archie Lee Coates – who began Plus Pool in 2010. Their goal is to design and construct a floating swimming structure in the East River that is accessible to all New Yorkers. This facility, called Plus Pool after its shape, consists of four separate pools combined into one: a kid’s pool, a lap pool, a sports pool, and a lounge pool.

The motivation behind Plus Pool comes from the designers’ frustration with being so close to the East River, but never actually being able to go in it.<sup>51</sup> The goal is similar to NYOW’s, of promoting public access to the water, but in this case, it also has community, environmental, and design considerations. Plus Pool differs in that it is truly meant to be a public pool – open daily and accessible to everyone – as opposed to an annual event for only the most diehard swimming enthusiasts. They want to create an immersive urban river swimming experience, where people can truly feel like they are swimming in a river in New York City. In the long term, they hope to change people’s perceptions of urban rivers and to raise citizens’ awareness of issues affecting water quality. They have a nonprofit organization, Friends of Plus Pool, that has worked to integrate local schools and low-income families into the process.

Table 1: Plus Pool Operations and Design Information

Plus Pool	
Total Length	200'
Total Width	200'
Total Depth	9'-0"
Total Area	20,550 SF
Pool Capacity	481
Pool Volume	285,500 Gallons
Pool Area	9,300 SF
Pool Depth	5'0"
Pool Length	164' (Olympic)
Pool Width	31'-4" (4 lanes)
Dates of Operation	June 21-Sept 30
Hours of Operation	7am-7pm

Source: <http://www.pluspool.org/design/>



Figure 22a and 22b: Drawings from the art installation “Doing Something Big When No One Asks You To Do Something Big” by +POOL designers. Illustrating the evolution of the pool idea and reasons to support it.

Figure 23a (right): Plus Pool's design contains four separate pools to cater to different types of swimmers

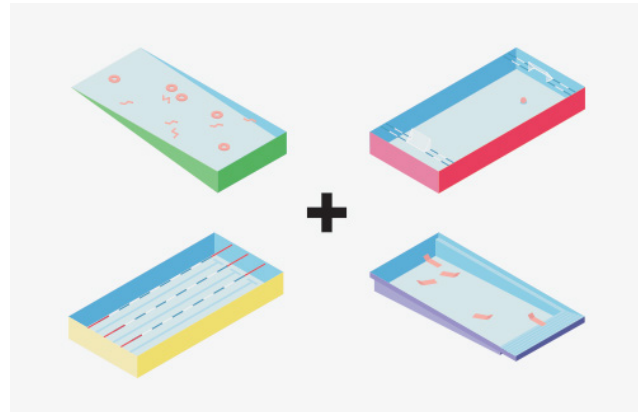
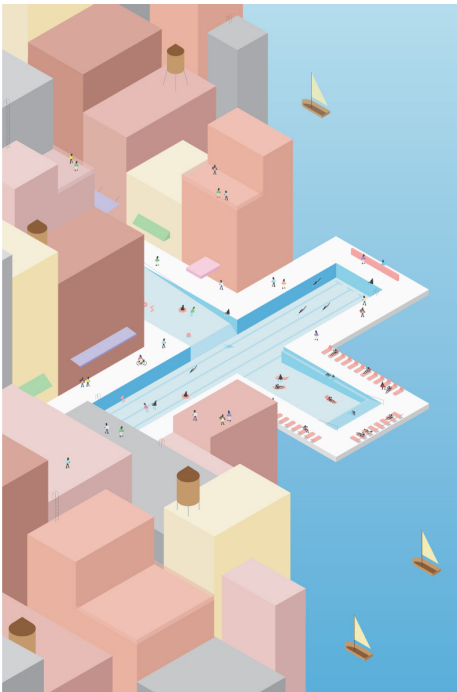


Figure 23b (below): Artistic representation of Plus Pool as an integrated part of New York City



Because it was started by architects and graphic designers, Plus Pool has taken a more design-oriented approach than other urban swimming initiatives. They have focused on promotion and partnerships within the design community, where Plus Pool has garnered a great deal of interest and validation, and has been featured in several magazines and articles.

Because the East River is not as clean as the Charles, Plus Pool is designed to filter the water as people swim in it. The project team has partnered with science and engineering firms to address the technological aspects of this approach to river swimming.<sup>52</sup> They have also promoted their technology as a bottom-up approach to clean the river and to raise awareness about the importance of water quality issues.

Figure 24: Plus Pool's Float Lab, built to test their filtration technology and analyze water quality



## User Groups

Plus Pool is intended to be for everyone: a destination for local residents as well as for tourists. Project designers are continually thinking of ways to ensure that it will actually be inclusive, and that there are no limitations to people based on their background or any restrictions to prevent people from enjoying the pool.



They have emphasized a strong communal aspect, and this attitude has inspired several partnerships with local organizations. They have worked with local communities to provide free swimming lessons for low-income children, not only teaching them how to swim but also training them to be lifeguards at Plus Pool. They developed a curriculum to teach schools about the science and technology behind Plus Pool's filtration system. They have also turned down an offer from a developer to make the Pool into a member's only club, because they want it to be open to everyone.<sup>53</sup>

For Plus Pool, it is about promoting the diversity of New York City and offering an opportunity for all New Yorkers and visitors to get into the river. Plus Pool has made people believe that such a project is possible – as more and more people continue to join and support them, they raise their profile and find it easier to navigate through the process.

## Funding



The engineering firm Arup estimated in 2011 the total development cost of Plus Pool to be \$21.5 million.<sup>54</sup> So far, Plus Pool has been funded entirely through private means. They have raised over \$300,000 through Kickstarter and by selling commemorative tiles for \$25 to \$249 that can be personalized and will be used to construct the Pool.<sup>55</sup> They have no government funding as of yet, but they are looking for the city to invest, both financially and collaboratively, because they see Plus Pool as a public project with public benefits for New York City.

“+ POOL is for you, for your friend, for your mom, for your dad, for your girlfriend, for your boyfriend, for your kids, for your boss, for your boss's boss, for your coffee guy, for your burrito guy, for that dude over there, for New York City.”

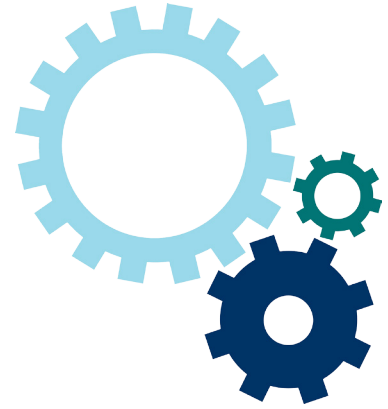
+ Pool Website





# Operations

Plus Pool has strongly emphasized collaboration. They formed a “Friends of Plus Pool” nonprofit organization with the mission to both operate the pool and educate the public. They recognize that they are in new territory, and that, as a group of designers and architects, they are not experts in environmental issues or educational programming. They have partnered with organizations who are in fact experts in these fields to help them have the reach and impacts that they are seeking. As a nonprofit organization, they have found that they can do this because people are willing to lend pro bono services to work on challenges together.



Plus Pool will take care of the operation and maintenance of the pool through Friends of Plus Pool. Friends of Plus Pool feels that they are the only ones qualified to operate the pool, because it is a type of pool that has never been done before, and only they will know how to maintain it. It is still too soon in the process to know about liability issues, since they are waiting until they determine the site of the pool to do so.



## Government Involvement

Plus Pool has been working closely with the Mayor’s Office, and they are looking to create a public-private partnership. The city’s involvement is very important to them, and they emphasized the necessity of collaborating with the city due to the unique nature of the project. They have not faced any regulatory issues yet, but they anticipate hurdles once they begin to apply for permits. They are currently in discussion with city departments (e.g. Department of Health, City Council, NYCHA, Mayor’s Office of Tech and Innovation) about how they can design around the challenges that they - and the city - feel are important. Plus Pool clearly does not fit into any of New York’s existing regulatory structures. Therefore, they stressed that it is crucial that they work together with the city through these challenges to understand what types of standards and policies must be created in order for this public space to exist and to ensure that it is a public benefit.



# Marketing

The Plus Pool designers and promoters appear to have a very active social media presence, and they've thrown galas and fundraisers to support Plus Pool. They have spoken at several conferences, given radio interviews, and appeared in blogs and magazines. There has also been a lot of media coverage about Plus Pool and what they are trying to do.<sup>56</sup>

Overall, public sentiment has been incredibly positive. There have been challenges among their supporters about the public's general lack of awareness about the process. For example, some supporters have called to find out why the pool isn't built and running yet, since their timeline had it opening May 2016. The project team must explain the permitting process of structures built in waterways. After these and similar explanations, callers and others who inquire on social media are generally supportive. Project sponsors are thinking of new ways to make the process transparent so people aren't frustrated with the timeline and because they are learning how this works. They plan on releasing their new website in the upcoming weeks with a full timeline so that people can to see what phase the project is in and what still lies ahead, and follow its progress.



# Controversy



Plus Pool has come across the issue of public perception of the cleanliness of the water. Many people were initially hesitant to trust that the water is actually clean enough to swim in, even with the filtration. To convince people of the water quality, the project team constructed a Float Lab in 2014, which was a mini, temporary floating version of their filtration system. They used the Float Lab to test the East River's water quality for six months. The most important outcome was that they published all of their data through Google Drive on the "Plus Pool Dashboard" in an easily digestible and visually appealing way to make it accessible to the general public to appease those who may not have fully trusted the water quality.<sup>57</sup>

Though not quite opposition, the largest issue they are facing appears to be the time frame - the process is taking much longer than they anticipated. This is due to the lack of precedent for much of what is being done, since there is no clear path for Plus Pool to follow. The time table for setting up a partnership with the city is very long, and they have fallen behind their initial timeline, which had Plus Pool opening in May 2016.





# Portland

“Once you’re in the river, your relationship with the river is forever changed”

Willie Levenson  
Founder, Human Access Project





Figure 25: The Big Float



# Human Access Project

The Human Access Project (HAP) in Portland, Oregon started in 2010 with a vision to revive the relationship between the river and the residents of the city. HAP was founded by Willie Levenson, a local business owner and swimming enthusiast.<sup>58</sup>

By the end of 2011, the city of Portland had completed an ambitious public works project called the Big Pipe, undertaken to address the combined sewer overflow (CSO) of the Willamette River, which was the main source of pollution in the river. The Big Pipe was a \$1.44 billion project, which took 20 years to complete. After the Big Pipe was built, the river was declared to be safe for swimming and for other water recreation during the summer. Although there are still instances when CSO conditions are present, they are rare.<sup>59, 60</sup> During any CSO event, the city of Portland activates a River Alert System through CSO online Advisories, and posts signs at the public access points to the river warning citizens to avoid contact with river water.<sup>61</sup> The water quality of the river is measured every month from November to April, and every week from May to October by the Oregon Department of Environmental Quality to provide updated information to the public about the water conditions.<sup>62</sup>

The Human Access Project launched its first event “The Big Float”

Location	Portland, Oregon
River	Willamette River
Population	632,309 (2016)
Organization	Human Access Project
Type	River and river-front events
Stage	Planning and execution
Swimming Time	Summer



Figure 26 (right): Human Access Project

Figure 27 (below): Beach clean-up on Poet's Beach



in 2011. The idea behind the event was to get a large number of people in the river to demonstrate that the river was safe for swimming. The Big Float has been the largest annual event organized by the Human Access Project, with 2,300 participants in the first year and growing every year since. The event starts with a parade followed by willing participants floating downstream. There is an after-party with live music bands, accompanied by food carts, beverages and chair massages. Participants can collect discount coupons for swimwear, food and beverages. There are also opportunities for kids and observers to have fun on the beach.

HAP's mission involves organizing small incremental projects for providing human access to the Willamette River that no rational person or bureaucracy could say no to. With this approach in mind, HAP organized "Portland Beach Bash and Clean-up" and "Unrock the Bowl". These events were arranged for volunteers to clean up chunks of concrete, trash, and weeds from the beach and the riverbed, make the beach more accessible by creating and clearing pathways, and in the process, have a good time by the river. HAP needed to get permission from eight separate agencies simply to remove concrete chunks. In the end, permission was given with the stipulation that no heavy mechanized equipment be used. For these events, HAP partnered with Stop Oregon Litter and Vandalism (SOLVE), a Portland-based





*Figure 28 (left): A 150-foot long cable was removed from the Willamette Riverbed*

*Figure 29 (below): Naked Goddess Swim in the Willamette in downtown Portland, OR*

environmental nonprofit organization, which has been at the forefront of reducing and cleaning up litter and vandalism throughout Oregon since 1984. Both events, “Portland Beach Bash and Cleanup” and “Unrock the Bowl” attracted volunteers of all ages.

A new addition to the list of events is the “Naked Goddess Swim”, which is a yearly night swimming event for women only. This particular event started in Oregon City’s Clackamas Cove led by Triathlete and master swimmer Janie Malloy, and was later relocated to the Willamette River and held in partnering with HAP.

The river has a regular swim team called the River Huggers, a group of intermediate-level swimmers who swim in the river three days a week at 7:00am before going to work. They also do after-work swims on Thursdays. Usually the team starts together as a pod to swim across to the west side (Tom McCall Beach) of the river, waits for everyone to arrive, and swims back together again. There are volunteer safety kayakers who follow the swimmers and come to their aid if needed. The kayakers also give a safety talk before the swim to let the swimmers know how to signal them if they need assistance. The HAP website provides the waiver form to sign up before joining the swimming team.

Ted Wheeler, the mayor of the city, is also a member of the swim







*Figure 30: The River Hugger Swim Team swimming to cross the river*

team.<sup>63</sup> In 2016, he swam across the river in the first annual mayoral swim with his wife and daughter along with 250 other people who joined him for the swim. Kevin Parrett, the manager of NW Region Cleanup Program at the Oregon Department of Environmental Quality, participated in the Big Float with his family. HAP appreciated their participation in the event and stated that city officials getting into the river with their family sends a clear message about the safety of the river water, and strengthens the support of the city government for the movement.

Currently, the river has three beaches for public use: the Poet's Beach, the Tom McCall Bowl Beach, and the Audrey McCall Beach. The "Poet's Beach" project is a collaborative effort between HAP, Honoring Our Rivers, Willamette Partnership, and Flowing Solutions. The project was approved by the US Army Corp of Engineers, Department of State Lands, and Portland Parks and Recreation. Along with HAP, Oregon Wildlife, Confederated Tribes of Grand Ronde, Wildwood|Mahonia, and NW Natural worked in collaboration to fund this project.

## User Groups

The River Hugger swim team and the participants of Naked Goddess Swim are all adult swimmers at an intermediate swimming skill level. All other events encourage and welcome participants from all ages and diverse groups. The riverfront is currently not accessible to disabled individuals



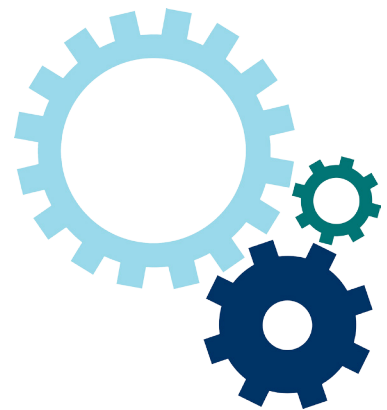
## Funding



Individuals willing to participate in the swim teams or in any event are required to purchase tickets; the revenue from ticket sales contributes to funding HAP. The events are sponsored by local businesses, nonprofits and environmental organizations. The Oregon Travel Philanthropy Fund contributed for the river cleanup in 2014.<sup>64</sup> In 2015, then Mayor Charlie Hales set aside \$300,000 for “River Access” in his budget proposal.<sup>65</sup> HAP successfully advocated for \$300,000 throughout 2016: this fund will be used to create a new public beach by the river.

## Operations

All events are organized by HAP, which includes beach maintenance, changing rooms and check-ins, and gathering volunteers to ensure safety and to increase accessibility. There are signs issued by Portland Parks and Recreation to make the users aware about swimming at their own risk, as the river does not have lifeguards yet. All the participants need to register for the events, and show photo ID and tickets on arrival.





## Government Involvement

The Oregon Department of Environmental Quality is responsible for measuring the water quality at eight public access points along the river. They have stated that the water is safe for swimming, even for vulnerable user groups like young children and pregnant women.<sup>66</sup> The Oregon Health Authority was responsible for analyzing environmental data around public access points along the river before the cleanup events. The US Army Corp of Engineers, the Department of State Lands, and Portland Parks and Recreation are involved in maintaining the river and the area around it. The Port of Portland is one of the sponsors for the events. The founder of HAP stated that they enjoyed greater support once the mayor of the city came on board with the project.

## Marketing

HAP has its own website, and uses Facebook and Twitter. The Big Float also has its own website. Because of the success of the Big Float, HAP was able to draw considerable media attention, and the event has now become a tourist attraction. Media coverage includes The Oregonian, The Portland Tribune, KGW-8 (NBC-Portland), KATU, intertwine (blog), Oregon Public Broadcasting and many other travel blogs.



## Controversy

Before the inception of HAP, citizens of Portland and even the local environmentalists seemed to give up on the river as a source of recreation because of its heavily polluted water. Although the situation changed with the efforts from HAP, the river bed still has contaminated sediment from industrial waste. Additionally, though the overall grade of the water quality is B-, the part of the river water in downtown Portland has a grade of C+.







## V. Analysis



	Developmental Stage	User Groups	Funding
Austin	Operational - Formal	Open to public, cheaper for residents, events for kids	City Government; entrance fees during season; foundation support. Funding for small scale projects comes from the City Council; large scale funding comes from Barton Springs Conservancy
Chicago: Our Great Rivers	Planning	Residents and tourists of all ages and abilities	Publicly-funded planning. Funding for capital costs sought from private companies and foundations
Chicago: Breakwater Chicago	Design	Tourist destination, encourage family use, but renderings show little diversity	Private funding sought for \$23 million development costs. Kickstarter funding raised \$60,000 for plans, model, video
Houston	Concept	Open to public, for all age groups	Private funding sought for \$6 - \$10 million development costs. Kickstarter funding raised \$30,000 for feasibility study
Nashville	Concept for river swimming. Riverfront parks built and more planned	City parks are open to the public year-round	Government pays for the cleanup of the river
New York	Planning	Work with local communities to ensure there are no background or income limitations	Private funding sought for \$21.5 million development costs. Kickstarter funding raised over \$300,000 for engineering study, cost estimates, and the Float Lab
Portland	Operational – informal	Events are for all, adults, swimmers and non-swimmers	Ticketed events such as the Big Float, foundation support

Table 2: Matrix of how each city or organization addresses each of the topics of analysis



Operations/ Organizations	Government Involvement	Marketing	Controversy
Parks and Rec department operates, volunteer cleanups, Watershed Protection Department tests water quality	Part of Zilker Park, operated by Austin Parks and Recreation	Popular city attraction, featured on city website and brochures, and tourism, travel websites	Environmental concerns and home to an endangered species
Metropolitan Planning Council and Mayor initiated, Friends of Chicago River organize events	Metropolitan Planning Council, in close partnership with the City of Chicago	Official Website, Events' Surveys	Cooperation with the multitude of departments and organization over a long timeframe
Breakwater Chicago	In the process of negotiating with government; Private so far	Official Website; Social media	Noise level; concern about private development in public drinking water supply
Houston Needs a Swimming Hole	Too early in the process to define the government's role	Website Social media but not updated	Concern about the environmental impacts of diverting the bayou
Nashville Metro Parks and Recreation does cleanups, Cumberland River Compact organizes events and initiated cleanup efforts	Nashville Metro Parks and Recreation	No official marketing campaign. Music concerts and festivals generate publicity. Riverfront parks featured on travel, tourism websites	Very industrial river, hard to clean up near the downtown area.
Plus Pool will operate, Friends of Plus Pool work with organizations for marketing/partnerships	Mayor's Office, discussing regulatory issues	Social media, website, interviews and talks, featured in blogs and magazines	Time frame and skepticism of filtration and river cleanliness
HAP founders and volunteers organize events and cleanups and beautification projects	Dept. of Environmental Quality tests water, Parks and Recreation and City of Portland work with permitting	Website, social media, media (newspaper, radio, TV) outreach	Public perception of the cleanliness of the river





# Overall Findings

## Developmental Phases

We found that urban river swimming projects fell into one of four developmental phases: Concept, Design, Planning, and Operational. At the concept stage are Houston and Nashville, because they are only beginning to think about swimming and have not come up with a design for a facility or plans for a swimming site. Breakwater Chicago is at the design stage, because they have proposed and submitted their designs and have not yet raised the capital or obtained the permits to implement their project. Our Great Rivers and Plus Pool are in the planning phase, because they have outlined plans and timelines for river swimming or constructing a pool and have begun the process. Only Barton Springs and Portland are operational in the sense that they have functional swimming sites and events. It is important for CRC to recognize that some of the projects are much farther ahead, and some are much farther behind. Different strategies depend heavily on where the city or organization is in the process.

Table 3: Projects can be categorized according to developmental phase, ranging from concept to operational, and by whether or not they involve formal swimming facilities or structures.

	Concept	Design	Planning	Operational
Informal	Nashville		Our Great Rivers	Portland
Formal	Houston Needs a Swimming Hole	Breakwater Chicago	+ Pool	Barton Springs



# Formal and Informal Swimming Facilities

Overall, river swimming efforts have taken one of two directions: formal and informal. Formal efforts creating physical structures or facilities for swimming, while informal efforts focus on just swimming in the natural river itself. Formal projects include Barton Springs, Plus Pool, and Breakwater Chicago for established or attempting to establish a physical swimming location. Informal projects include swimming in the actual rivers, whether it through organized city events or groups of people coming together to swim. Informal projects consist of Portland and Our Great Rivers. Since Nashville and Houston are in the concept phase, it is too soon to tell whether or not their projects will take on a formal or informal river swimming facility or site. Additionally, formality of river swimming does not appear to be an indicator of the success or stage of the project or effort, since both informal and formal initiatives appear to be able to be successful. CRC is already thinking of a formal structure for the pool, it will be important for them to identify whether they want it to look more natural, like Barton Springs, or more fabricated like Plus Pool.

## Government-led clean-up efforts alleviate public concerns

In cities where the local government manages the river clean-up or maintenance, projects face fewer public perception issues, such as in Nashville. The organizations are able to take advantage of the government's efforts without having to concern themselves with performing the actual cleaning themselves. People are more willing to trust cleaning efforts organized by governments than by individual organizations. Even if the rivers themselves are not yet suitable for swimming, such as in New York, the cities that are pursuing cleaner rivers are more open to the idea of river swimming. It would be beneficial for CRC to identify local or state agencies or officials and involve them in their efforts to promote the cleanliness of the Charles River.



Table 4: Summary of the controversies that cities have faced, and ways that they have addressed and attempted to mitigate them.

Project	Controversy	Response
Barton Springs	Environmental concerns and home to an endangered species	Organize cleanups, careful monitoring, expanded critical habitat, changed maintenance practices
Our Great Rivers	Cooperation with the multitude of departments and organization over a long timeframe	Report lists organizations that are involved and identifies key players for projects to facilitate coordination
Breakwater Chicago	Noise level, concerned about drinking water quality	Feasibility study to understand the impacts
Houston Needs a Swimming Hole	Concern about the environmental impacts of diverting the bayou	Feasibility study to understand impacts, hired consultants and engineers engaged, solicited ideas from Harvard's Graduate School of Design
Nashville	Very industrial river, hard to clean up near the downtown area	Extensive city efforts to clean the river
+ Pool	Time frame and skepticism of filtration and river cleanliness	Release of an updated timeline, communication with supporters about process, published water quality data to make it accessible to the public
Portland	Public perception of the cleanliness of the river	Continued city cleanup efforts, events helped to convince people





## Controversies are either environmental, procedural, or related to the public

The controversies that cities have faced are either environmental, as with Barton Springs, Breakwater Chicago, and Houston, procedural with regards to the logistics, as with Our Great Rivers, Plus Pool, and Nashville, or about neighborhood-level or public perception concerns, as in Portland and with Breakwater Chicago and Plus Pool. It is likely that the CRC's Swim Park Project will face a combination of all three. There are different ways that cities and organizations have attempted to address these controversies, as shown on the page on the left.

## Cities communicate and swimming efforts are connected to and build off of each other

Throughout our interviews, we found that many of the cities were aware of urban river swimming efforts in other cities, and that in most cases they had had some form of communication. The efforts have built off of each other and some have served as inspirations for cities. Houston looks heavily to Barton Springs, and also to Plus Pool. Chicago has looked to Plus Pool and also to the efforts of CRC. Portland has also looked to CRC as a model, as well as to Our Great Rivers. The coordination between cities contributes to the development of the projects and helps to connect those around the country who want to reclaim urban rivers for swimming.

## Projects are for the public

With the exception of Breakwater Chicago, all of the projects in this study are meant to be publicly accessible and affordable for everyone in the city. Breakwater has higher entry fees and barriers to access, while the rest of the projects have taken efforts to ensure that their swimming facilities or events are inclusive of everyone.







## VI. Best Practices





As a result of our research and analysis, we have composed a list of Best Practices for each of these categories based on the case studies. We selected the city or project that we believe has been the most successful at addressing each individual issue, and highlight in greater detail what they have done, how they have done it, and what its impacts are. This section expands on the description in the matrix for one or more cities for each category.



## User Groups

**Organize recurring public events to engage a diverse set of local community members and build a sense of community-ownership.**

Barton Springs in Austin provides a place for communities to form that would otherwise not interact/exist. Barton Springs is an integral part of the Austin identity and community, and actions taken by both Barton Springs Conservancy and Friends of Barton Springs have inspired a sense of advocacy and ownership of the springs by the people of Austin. Friends of Barton Springs organizes fundraising events and volunteer opportunities to provide a way for the public to help out and give back to the pool. On the first Thursday of every month, the pool closes down so for organized clean ups, where Friends of Barton Springs brings food, drinks, and shirts for volunteers who help to clean, paint, or do gardening work around the pool. Allowing people to be closely involved with the maintenance required to keep up the pool inspires a sense of ownership and builds awareness of the environmental issues that surround Barton Springs. Their fundraising events have included a “Treeathlon”, a family-friendly mini-triathlon that includes a swim across the pool, short bike leg, and quick run around the nearby field. These types of events allow those who frequent the pool to meet and make connections with others who are passionate about Barton Springs, and for those who are new to get acquainted with the communities and the pool.

**Make inclusiveness a top priority. Collaborate with community representatives to establish programming that meets the unique needs of the local community.**

Plus Pool in New York City is envisioned as a truly public place,



where there are no limitations to access for people based on their background or income. Early on in their process, they rejected an offer from a developer who wanted to turn the pool into a member's only club, and they promote the pool as both a tourist destination and for "the guy who lives down the street" to use every day for his morning swim. To ensure the pool is accessible for everyone, Friends of Plus Pool has been working with local experts to understand how this should be accomplished and what is needed so that the kind of programming they offer is consistent with their vision. Plus Pool stresses the importance of education, and collaboration with environmentalists and educational programmers has been a vital part of their development. They have partnered with New York Sun Works, a nonprofit organization that educates students on sustainability science, to develop a classroom curriculum for students and teachers about the science behind Plus Pool that meets New York's education standards. They have also worked with the New York City Housing Authority to find elementary school age residents who were interested in swimming, and provide free swimming lessons and trained them to become life guards and ultimately to work at Plus Pool. They provided swim gear such as towels, bathing suits, goggles, and swim caps to the kids to ensure that they have everything they would need to be able to swim.





## Funding

**C**ollaborate with city and nonprofit organizations, and look to professional expertise to provide sufficient funding.

The operation and maintenance of Barton Springs is taken care of by the Austin Parks and Recreation Department, but they have multiple sources of funding that they rely on for projects to improve or renovate Barton Springs. In 2008, the Barton Springs Pool Master Plan was approved by the Austin City Council, which provided \$6.2 million in funding for a list of short term improvements to be made. These include pilot studies to better understand environmental issues, repairs to maintenance facilities and the bathhouse, and a detailed topographic survey. The Master Plan also included a list of long term proposals which did not immediately receive funding from the City Council. These include major renovations to the bathhouse and reconstruction of certain springs to increase the salamander habitat. Funding for these long term proposals has come largely from Barton Springs Conservancy. Friends of Barton Springs organizes smaller scale fundraising events that do raise tens of thousands of dollars, but are largely for public outreach and community building opportunities. As a fully operational swimming facility, the pool itself earns \$200,000 to \$400,000 annually for Austin's general fund,<sup>67</sup> but Barton Springs Conservancy has been the primary fundraiser. They have spoken with local community leaders to learn how to run capital campaigns, and hired a campaign strategist and executive director to help them acquire the funding necessary for the larger scale renovations and enhancements. It was worth the upfront expenses of hiring professional fundraising assistance, as they continue to raise money for long-term projects for Barton Springs. They are currently working on a \$3 million renovation to the bathhouse, about \$1 million of which they have already secured.

The passion people have and the importance of the pool to the city have made it relatively easy to acquire support and funding from the city. Additionally, though it has caused problems, a large part of the success of the pool is the salamander habitat that legally has to be protected and has attracted the support of those who are concerned with environmental impacts. They have also found that adding local celebrities – such as the former mayor, and Lucy Johnson (LBJ's daughter) – to the serve on the board has enhanced their credibility and made it easier to secure funding.

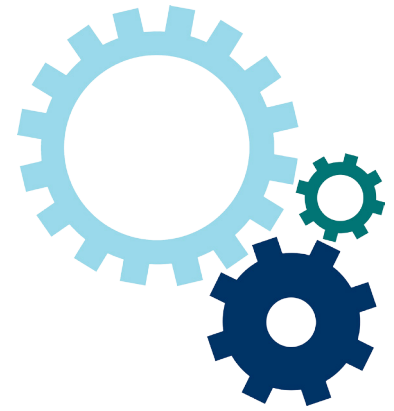




## Operations

**Take measures to mitigate adverse environmental impacts that may be caused by the project.**

One of the most important things that Breakwater Chicago has considered is environment impact. High levels of nutrients promote algae, which might clog water intake, kill fish and produce toxins that harm people, which is common in Lake Michigan. Breakwater Chicago plans to install their unique Green Hull system on the bottom of their floating vessel to help control nutrient levels in the waters of Lake Michigan. This system will utilize aquatic plants as the underwater garden on the bottom of vessel. The underwater garden will operate similarly to green roofs on the top of buildings, by absorbing harmful nutrients from the water, and will also provide space for fish. In considering the location of Breakwater Chicago, they want to ensure that noise levels are minimized and drinking water is not harmed by their operations. Although it is still in the process of designing, Breakwater Chicago has already given consideration to the environmental impacts of their project, and the project team is willing to work to mitigate that impact and to operate their project in environmentally friendly way.



**Take small, incremental steps to build up to large-scale improvements and a more accessible riverfront.**

The success of Human Access Project so far lies with the incremental projects they organized. The purpose was to provide opportunities to the citizens through small events that no rational person can say no to. The founder of HAP stressed the fact that instead of big ideas, HAP is interested in the ideas that are executable. He believes that once people rebuild their connection with the river, they will be encouraged to take bigger steps to make the river more usable. The projects they have done so far were mostly dependent on proper organization and execution, as opposed to abundant funding. This is used to demonstrate that a movement should not get stalled for the lack of sufficient funding. Once they got the citizens involved in the events and got the media to cover it, the projects moved along at a great pace. HAP is insistent on keeping the movement alive by organizing the events on a regular basis. The events were also welcoming to bystanders, which made it very inclusive of young children and people who do not swim but were still interested in the river.





## Government Involvement

**U**timize government-led efforts to clean up the river and create programming along the riverfront.

The government of Chicago was involved in and supported Our Great Rivers. Chicago Mayor Emanuel announced his support for Our Great Rivers in a press release, and asked the Metropolitan Planning Council to lead Our Great Rivers two years ago. The city pays close attention to the ongoing process of Our Great Rivers, and their official city website is quick to post new announcements or updates to the public. The most recent announcement came out in March of 2017, and was posted on the website. It was about the Mayor Emanuel, the Chicago Department of Planning and Development and the Metropolitan Planning Council's announcement that the Chicago Urban River Edges Ideas Lab will be engaged with the architectural design on parks, riverfronts, and public spaces. Meanwhile, Our Great Rivers works closely with several departments and organizations for ensuring the progress toward its projects' goals. Friends of the Chicago River is helping to encourage people living close to river to attend community meetings and respond to surveys; Metropolitan Water Reclamation District of Greater Chicago and Forest Preserves of Cook County are making comparable investments in water quality improvements. The government's engagement attracts more public and media attention to Our Great Rivers, and the government's efforts have successfully moved the project to the planning and execution phase.

Additionally, advocacy groups like the Cumberland River Compact were successful in pushing the Nashville city government and the Tennessee state government to take up the immense project of cleaning up the river. The city of Nashville has been actively involved in the clean-up project over the past 20 years, and has created a pleasant environment for city residents to gather and recreate. An amphitheater was recently built for outdoor concerts. Nashville is still early on in the process of urban river swimming, but the Nashville government has been cleaning Cumberland River for decades, and it is only recently that the river has been open to public use for boating and kayaking as a result of the clean-up efforts.



# Marketing

**B**e transparent and open with the public about the process of developing a project, and actively promote ideas through various media sources.

Transparency and openness has been a major part of Plus Pool's development. Though they are a private organization, they view themselves as more of a public organization working on a project for the public. Coming from a group of architects and designers, their marketing and outreach has been centered around proving that this idea is possible from a design standpoint and that people would actually support it. To help the project gain traction in the earlier stages, the founders were very active speaking at several TEDx talks, conducting radio interviews and interviews with ABC and CBS news, and presenting to government representatives to garner further support. They even had videos playing in the back of NYC taxis. Their primary focus was getting their ideas out into the world and proving that such a pool is possible. Early on they found validation from the architecture and design community through Architizer, an online architecture database and news source, and from building and real estate community through Curbed, and interior design and real estate blog, which led to a number of other features in news outlets and blogs. Successful Kickstarter rounds proved that people were not only interested, but willing to financially support the project, and selling commemorative tiles that will be used in the construction of the pool allows for supporters to feel invested in the project and fosters a sense of ownership of the pool by the public.

Although a lot of this publicity and marketing comes from its design focus, the idea of urban river swimming was something that they still needed to address. Publishing the water quality data from their Float Lab was able to convince some skeptics of the ability of their filtration technology to clean the water. Overall, Plus Pool has been responsive to the community with a very active social media presence, though they have had some challenges with effectively communicating to the public about the process that such a project must go through. It takes a very long time, even longer than their initial estimates, and they are continually working on ways to increase the transparency of the process so that people can better understand the timeline





and any setbacks that may occur, such as the upcoming release of a new website with a detailed and updated timeline. The public's response has been overwhelmingly positive, and their large awareness and publicity efforts have been successful in getting their name and ideas out into the public realm, and their partnerships and long list of supporters continue to raise their profile. Their efforts have been successful in moving them from the concept to design to planning phase, and they are on track to build an operational Plus Pool.

## **G**et your ideas out there, and capitalize on people's nostalgia and historical connections.

The Houston Needs a Swimming Hole project might be far from completion, but the founders of the Idea have done a great deal in a short amount of time to promote their concept. They started a Kickstarter page to raise initial funding for a feasibility study, and established an active social media presence. They have also garnered a lot of press from local media as a part of the team's initial success in getting the word out about the project. Their team taps into the nostalgia of the past success of Shamrock Hotel and its famous swimming pool to remind Houston residents that they once had a great place for swimming in the city, and that they could have one again. Though early success of the creators of the Houston Needs a Swimming hole idea is currently somewhat stalled due to the size and the complexity of the





## VII. Recommendations



From our Best Practices, we have formed recommendations that are specific to the Charles River and the Charles River Conservancy. These recommendations take the lessons that we have learned from the Best Practices, and consider how they can be applied to the Charles River to further the Swim Park Project.

## Water Quality and Transparency

CRC could benefit from measuring the water quality data by the EPA and publishing it to the public.

This will help to convince people who may not believe that the Charles is swimmable. A lot of people are apprehensive about swimming in the Charles, because they believe it is polluted. Publishing the water quality data in an easily accessible manner and distributing it would appease people's concerns who may not fully trust the cleanliness. For example, by publishing the water quality data from their Float Lab, Plus Pool was able to convince some skeptics of the ability of their filtration technology to clean the water. Austin, Chicago, and Portland also test weekly.

CRC can consider creating a Swim Park specific web site that publishes EPA data as well as other water quality information.





# Marketing and Social Media

CRC could be more open with regards to the process so that people can better understand their timeline and the upcoming release of the swim park project.

Creating a full, detailed timeline with the progress that has been made, what CRC is currently working on, and what they anticipate accomplishing in the future would keep supporters engaged more with the project, and could provide ways for people to get involved and help out with certain steps.

CRC could raise the profile of North Point Park, even before the Swim Park is built. Organizing events before the swim park opens will keep the target user groups interested and engaged, which will also play as a marketing strategy. Because the park is relatively new and not a lot of people know about it, holding events at North Point will attract attention to the area, and could increase people's sense of investment in the project. For example, the small events that the Human Access Project organizes help to instill a sense of ownership in the river itself, even without a formal facility.

CRC could also consider launching a Kickstarter to pay for a mock-up floating pool. The mock up pool would be a visible, tangible object to give swimmers of all backgrounds an idea of what the final project might look and feel like.

## Safety

Quick safety lessons can be arranged before any swimming events, to teach the swimmers what to do in emergency situations, such as is done in Portland by the Human Access Project. This is essential to ensuring that people understand that there are risks to river swimming, even for experienced swimmers. This would be especially crucial for events that are geared towards children.



## Transportation

CRC should explore different options for increasing the connectivity among public transportation, cycling, and walking to North Point Park.

There are multiple T stops that are within walking distance of the park. CRC should explore ways of highlighting the routes to the park to make them safer and easier to recognize. They could also consider designating specific paths to walk from T stops to North Point Park so that they are accessible and safe.

CRC could explore ways of getting bicycle advocacy groups to focus on making the Charles River Dam road more bike friendly and to connect the Esplanade and Dr. Paul Dudley White bike paths to the North Point Park.

## User Groups

To ensure that the Swim Park is inclusive, CRC could arrange events that non-swimmers can also attend, offer free swimming lessons to low-income children, and expand programming to families and children. For example, Portland only requires memberships for the swim team, because they all need to be intermediate swimmers. Events where non-swimmers, bystanders, or young children (only if the water is safe for children) can also take part will be more inclusive, and will attract people to the riverfront.

CRC should work to coordinate with other local organizations that have expertise in areas that CRC does not, to reach out to areas that would otherwise be difficult. For example, youth organizations could provide swimming lessons for children to get them engaged in the Park at a young age.

CRC could encourage kayak and canoe rental companies to set up a rental location at North Point Park, to attract to this new location people who are already engaged with the Charles River further upstream.



# Environmental Impact

CRC should study the Green Hull technology that is to be used in Breakwater Chicago. Breakwater Chicago will use an underwater garden of aquatic plants on the bottom of vessel, to absorb nutrients from the water, and provide habitat for fish. Current plans for the Swim Park include underwater nets to protect people from toxin sediments at the bottom of the Charles. CRC should investigate whether the nets could be used as infrastructure for aquatic plants.

## Next Steps for CRC

We believe that building a constituency that is invested in the Swim Park and is willing to work with CRC is the most beneficial step the CRC could take. This would rely on a combination of marketing efforts, raising public awareness of North Point Park and the Swim Park, and engaging local communities. The recommendations described above will help to build such a constituency of people who really care about swimming in the Charles and who are willing to work with CRC to achieve this goal. For optimal impact, the first step CRC should take would be to begin to work on organizing an event at North Point Park, for this summer if possible. Even holding another charrette, such as the ones already organized by the CRC, at North Point Park would help people to better understand the site and what they might want a Swim Park to look like, and feel more invested in the project.





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## Appendix A: Interviews

Name	City	Title/role	Organization	Email
Nelson Guda	Austin	Advocacy	Friends of Barton Springs	
Kara Riggio	Chicago	Manager	Metropolitan Planning Council	kriggio@metroplanning.org
Lora Fox	Nashville		Nashville Planning Department	
Tom Hooper	Nashville		River North Development	tom.hooper@al.jll.com
Kara Meyer	New York City	Deputy Director	Plus Pool	kara@pluspool.org
Willie Levenson	Portland	Founder	Human Access Project	will@humanaccessproject.com
Kevin Parrett	Portland	Manager, NW Region Cleanup Program	Oregon Department of Water Quality	kevin.parrett@state.or.us





# Appendix B: Interview Questions

## **Interview Questions for the organization operating /planning the project**

- 1) How long have you been with the (name of the organization)?
- 2) Could you tell me a little bit about the vision for (name of river initiative) evolved in (name of city)?
- 3) I would first like to ask you a little bit about the (name of the organization). What are your initial sources of funding and how much of that is public and how much of it private?
- 4) As it is with all things, getting funded is difficult these days, do you have any issues/difficulties receiving funding?
- 5) (if there is an existing project or plan) How do you plan to fund the operating costs of the (name of the project). What kind of ongoing maintenance and possible future cost do you anticipate?
- 6) Once the project is up and running do you have planned operating hours?
- 7) Who will oversee, or be responsible for security, liability?
- 8) Does your city or state perform water quality assessment? If not who is providing this service?
- 9) Are there any organizations working with you on this project or any other similar projects that you know of?
- 10) On the counter side, have you faced any opposition from any groups or individuals?
- 11) To what extent are you partnering with or supported by any local or state government agencies in this effort?
- 12) If yes, how did they worked with you on this project? What are the critical organizations working with you?
- 13) Have you come across any regulatory issues?
- 14) What is their perception on this issue/project?
- 15) Was there any history of swimming in this area/river?
- 16) Which methods did you used to understand the stance of public on this issue/project? On follow up how are you garnering and maintaining interest? Newsletters, local radio, social media?
- 17) How did you introduce the project to the public and what worked best for attracting user groups towards the goal of swimming in the river or utilizing the river recreationally?
- 18) Do you have a specific target group that you would like to see utilize the pool on the river? And do you have any further plans to extend accessibility to the users by collaborating with authorities responsible for the city's transportation system?
- 19) And finally, have you collaborated with other organizations that are doing similar things in other cities? and would you like to comment on what is being done well with the project?

## **Interview Questions for the organization/agency funding the project**

- 1) How long have you been with the (name of the organization)?
- 2) How large are the grants/loans/checks you are writing for this and similar projects? Over what time frame? And what is it you are funding? Research? Infrastructure? Outreach? Staffing? Cleanup? Other?
- 3) How successful do you feel the organizations you are funding are in achieving their goals?
- 4) What lessons have you learned? How has your thinking about Urban River Swimming evolved over the time you have been funding it?
- 5) Are there any organizations working with you on this project or any other similar projects that you know of?
- 6) What are the critical organizations working with you?
- 7) On the counter side, have you faced any opposition from any groups or individuals?
- 8) Do you get any support from city or state government?
- 9) If yes, how did they worked with you on this project? What are the critical organizations working with you?
- 10) And finally, have you collaborated with other organizations that are doing similar things in other cities? and would you like to comment on what is being done well with the project?

## **Interview Questions for the Government agency overseeing and/or funding the project**

- 1) How long have you been with the (name of the agency)?
- 2) What is the agency's involvement with the project?
- 3) Was the project idea initiated by your agency? If not, which organization came to you with the idea?
- 4) (if there is an existing project or plan) How do you plan to fund the operating costs of the (name of the project). What kind of ongoing maintenance and possible future cost do you anticipate?
- 5) Are you receiving any additional funding from outside resources?
- 6) Does your city or state water quality assessment? If not who is providing this service?
- 7) On the counter side, have you faced any opposition from any groups or individuals?



8) And finally, have you collaborated with other organizations that are doing similar things in other cities? And would you like to comment on what is being done well with the project?

**Interview Questions for foundations or individuals providing funding for this project:**

- 1) What is it about Urban River Swimming that interests your foundation?
- 2) How many funding requests are you receiving for these projects?
- 3) What is the grant range you are writing? Over what time frame? And what are you funding specifically? Research? Outreach? Cleanup? Staffing? Other? Infrastructure?
- 4) How successful do you feel the organizations you are funding are in achieving their goals?
- 5) What lessons have you learned? How has your thinking about Urban River Swimming evolved over the time you have been funding it?
- 6) Who would you say are the critical people and organizations driving this Urban River Swimming?
- 7) Who else should we speak to?



## Appendix C: Charles River Grades

Year	Overall Grade	% Meets Standards	
		Boating	Swimming
2015	B+	95	69
2014	B+	91	65
2013	A-	96	70
2012	B+	87	67
2011	B	82	54
2010	B+	86	66
2009	B+	93	62
2008	B+	95	48
2007	B++	100	63
2006	B+	90	62
2005	B+	97	50
2004	B+	96	54
2003	B-	85	46
2002	B	91	39
2001	B	82	54
2000	B	92	59
1999	B-	90	65
1998	C+	83	51
1997	C	70	34
1996	C-	57	21
1995	D	39	19

Source: <https://www.epa.gov/charlesriver/charles-river-initiative#ReportCards>







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