

Decoding the River

Artists and Scientists Reveal the Water System of the White River

Mary Miss and Tim Carter

It has become apparent over the past several decades that we are facing issues of increasing urgency in relationship to the environment in general and our water systems in particular. These natural life-support systems are often taken for granted and in many cases have become invisible to urban and suburban dwellers. The adoption of the term “Anthropocene” in the urban context recognizes the fundamental role humans have in creating, manipulating, and shaping the water systems and the environment during the very recent past. Relative to nonurban systems, the ecology of the urban water system is highly modified, and many measures of water quality are affected negatively. Scientists have become frustrated that their ongoing research into the effects of this degradation and the impact it will have in the future goes unnoted by the broader public. In the past few years artists and scientists have begun collaborating to create projects that will begin a process of engaging the general public with these pressing issues. The goal is to create awareness that leads to action and the development of more sustainable communities. Following is a description of the process of creating that engagement in two consecutive initiatives focusing on the White River and its tributaries. A replicable model or approach is envisioned that will promote inquiry, encourage participation, and help citizens become part of the “green infrastructure” of their cities.

The White River presents itself day to day as a bucolic stream as it winds its way through the city of Indianapolis. Part of the Ohio and Mississippi River systems, but too shallow to be navigable, it is unindustrialized for most of its length. Where it reaches the center of the city, factories have traditionally used it as a water source and for waste removal. The storm water infrastructure of the city also relates importantly to the health of the White River. The lack of significant

SUSTAINABILITY MADE TANGIBLE THROUGH THE ARTS

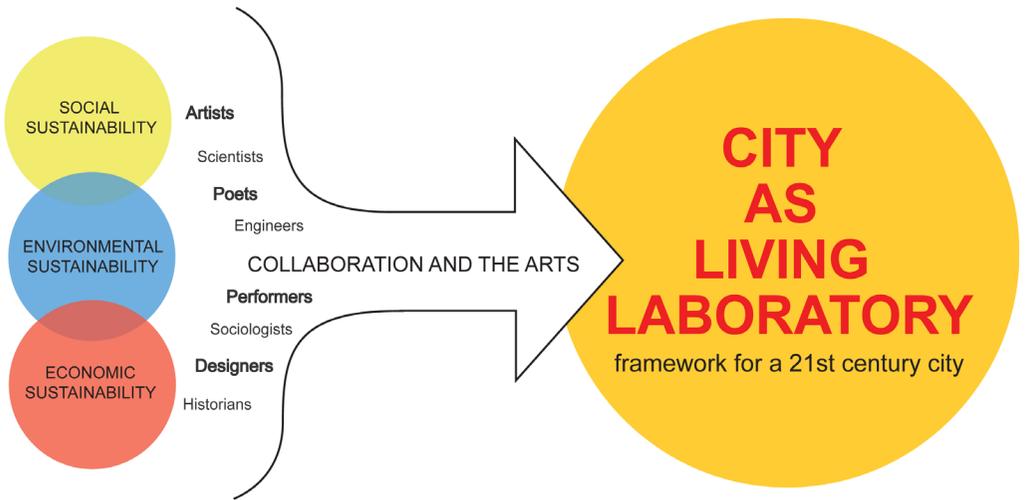


FIGURE 11.1. City as Living Laboratory (CALL) framework diagram. Image courtesy of MM/ CaLL Studio.

topographic features makes drainage a challenge. Flooding and standing water on the streets after rainfall is common. How could this river system, which supplies up to 70 percent of the drinking water for the city, become more visible to its citizens? In the approach to this question, it is essential to create situations and creative encounters through which residents and the general public become aware of the infrastructure that moves the water through their city, visualize the habitat corridors that streams and rivers provide within core urban neighborhoods, and understand the role water has in the economic vitality of the city.

The City as Living Laboratory: Sustainability Made Tangible through the Arts (CALL), an initiative developed by Mary Miss and Marda Kirn, is a framework intended to be used to make issues of social, economic, and environmental sustainability compelling to the public (fig. 11.1). It envisions the city as a laboratory in which collaborations among artists, scientists, planners, and communities can make a city’s pressing issues apparent to its citizens through projects and events. This method of translating the city is beginning to be studied and evaluated for its effectiveness, and as the emergence of these collaborative practices continue to be executed, each case study can provide new lessons to help inform and shape future outcomes.

FLOW (Can you See the River?) is a project of the CALL framework, commissioned by the Indianapolis Museum of Art. FLOW begins with the assumption

that “all property is riverfront property—the river starts at your front door.” The intention is to engage viscerally the citizens of Indianapolis and make them aware of the multiple ways the river and its watershed support their lives.

Working with scientists from the U.S. Geological Survey, Butler University, and Indiana University–Purdue University, Indianapolis, a series of installations were implemented in 2011 from the grounds of the Indianapolis Museum of Art to the White River State Park, six miles to the south in downtown Indianapolis. The installations were intended to engage people’s interest in the complexity of this familiar feature of the landscape that they often take for granted.

As people moved along this six-mile stretch of bike paths and parklands, they encountered a series of stopping points. At each point a new aspect of the river—its infrastructure, history, or ecology—was revealed. Visitors could choose to engage in passing or choose to get in-depth information from a dial-up number, website, or app developed for the project. These stopping places were modest in nature, like acupuncture points that accessed different aspects of the circulatory system that is the White River. In addition, FLOW used collaborative community network programming to disseminate the project’s messages.

GOALS

There were very specific project goals for FLOW. We hoped to expand public awareness of the White River watershed to let people know what it is, how it functions, and what it means to Indianapolis environmentally, economically, and socially. We wanted to help citizens begin to understand their actions—at home, at work, at school, or at play—in direct relationship to the river upstream or downstream. Finally, we also hoped to inspire new learning and collaborations among individuals, institutions, and agencies that could lay the foundation for future activities.

ELEMENTS

A locator/marker was developed to direct attention to specific aspects of the river. It took the form of a circular, stainless-steel mirror attached to a pole that was positioned to reflect a particular point of focus—a levee, a storm water drain, or a wetland. A red sphere/marker, like an enlarged pin on a map, was placed on the location of interest. A red mark was made on the surface of the mirror (fig. 11.2) As the viewer aligned the red marks, his or her point of focus vibrated back and forth between the surface mark and the reflected sphere/marker. Text etched on the mirror surface identified the point of focus. These mirrors appeared singly or in clusters and in a variety of sizes. Looking at their own reflections in the mirrors, viewers could see themselves in relation to the river (fig. 11.3)

On the surface of the stainless-steel disc, a dial-up number was given from which the viewer could hear a brief description of the point of focus. A website address was also given where it was possible to read about the topic in more detail.

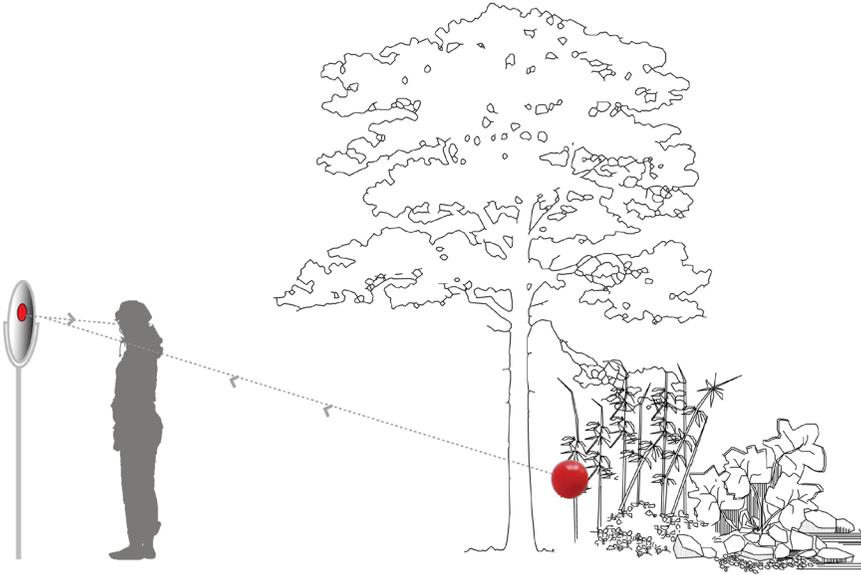


FIGURE 11.2. FLOW (Can You See the River?). Diagram illustrating mirror's reflection of red markers designating points of focus in the landscape—the river, a tree, the wetlands, and so on. Image courtesy of MM/CaLL Studio.

A walkable map, approximately 40 feet square, was located in the entry pavilion of the Indianapolis Museum of Art. With playful, oversized red balls scattered around the surface, viewers were invited to engage in locating their own home, school, or business and to see their relation to the river and the tag line “All Property is Riverfront Property” (fig. 11.4).

Butler University secured a grant from the National Oceanic and Atmospheric Administration (NOAA) and worked closely with Mary Miss Studio to develop a web application, www.trackaraindrop.org, that made it possible to track the movement of a drop of water from any place in the city to the river. It allowed the user to see how the water flowed in rain events of different intensities, how the water got to the river (a pipe, open channel, or stream), and what the pollutants were in that particular area. The app also made it possible to find the difference between weather and climate and what individuals could do to help clean up the river.

TOPICS

The types of topics addressed in the project were varied and intended to engage a variety of interests. For example: What is a watershed, and what is the White River's relationship to it? How does water circulate, and is there any “new” water?



FIGURE 11.3. FLOW (Can You See the River?). Image courtesy of MM/CALL Studio.

What are the local stories about the river? How does the river shape the land and the land shape the river? What are floods, and how do they happen? What is the ecology of the river, and what affects it? What is the history of the river?

A series of events were organized with community partners for a White River Festival. We imagined this community as the “human ecological infrastructure” of the city, which was a term we adopted to refer to established organizations that were already working to safeguard and improve the environment of greater Indianapolis such as government agencies, scientific institutions, and cultural organizations. These groups organized the White River Festival to align with the opening of FLOW. Activities included discussion panels, dance performances, tours, exhibits, and talks.

OUTCOMES

The FLOW prototype was the first, full implementation of the CALL framework and was a remarkable opportunity to test the use of a variety of strategies. One informal lesson that we took away from this project was that multiple means of access are essential to engage the most diverse group of visitors—dial-up, website, apps, and events. We felt that Raindrop, for example, could potentially engage more



FIGURE 11.4. FLOW (Can You See the River?). Walkable map of the city of Indianapolis that enables one to locate one's own home in relation to the river, illustrating that "all property is riverfront property." Image courtesy of MM/CALL Studio.

people via additional programming and dissemination through formal school curricula. Through our experience here and on a subsequent project (Broadway: 1000 Steps, www.broadway1000steps.com), we began to understand that events that happen repeatedly over a period of time are the most effective way of drawing more people in at a deeper level.

We evaluated the project using quantitative and qualitative methods. Quantitative results demonstrated that both FLOW and Raindrop had varying

WHO MIGHT NEGATIVELY AFFECT THE HEALTH OF THE WHITE RIVER

Baseline	Outcome
1. Corporations – 62%	1. Indianapolis residents – 57%
2. Waste management companies – 57%	2. Corporations – 56%
3. Indianapolis residents – 48%	3. Waste management companies – 43%
4. Farmers – 23%	4. Farmers – 31%
5. Other – 4%	5. Other – 6%
6. Tourists – 2%	6. Tourists – 4%

FIGURE 11.5. Sample FLOW evaluation results.

levels of effectiveness in raising awareness about water-related content about the White River (fig. 11.5). The attitudinal data that we collected which focused on awareness of the White River demonstrated little change before and after experiencing FLOW—with none of the changes to the metrics having a statistically significant difference. The baseline respondents reported that the White River was of high importance to the city of Indianapolis, and this “ceiling effect” made significant changes between baseline and outcome cohorts difficult to observe.

Qualitative interviews told a more nuanced story regarding awareness of the White River. After engaging with the project, interviewees reported that they learned about the river, and this translated into a meaningful personal experience. For example, one respondent said, “Before participating in the project, I had no idea that there was a hundred-year flood, so I definitely was educated about the history of Indianapolis. . . . So seeing the red markers and the red balls and the mirrors and everything was a harsh personal context for me.” Another reported, “It [FLOW] made me think about really where the role of the River is in our community, and again, how hidden it is in places. It’s caused me to lament the fact that when I cross the bridges that I cross day to day, I lament the fact that I can’t see the River” (RK&A 2012).

Raindrop was also evaluated using interviews. It was most clearly defined as an educational resource, and respondents described its value as raising personal awareness of the water systems in Indianapolis. This included statements such as “It prompted me to be more aware of what’s going on around me. It makes me realize how much environmental issues are going on here and how much there needs to be a change in our behaviors”; and “I think [Raindrop] raises everybody’s awareness that everything flows into [the White River] and everybody needs to pay attention to what they’re doing with their water.” The nature and frequency of responses indicated a successful connection between the intended outcome of the app and actual user experiences.

Perhaps the most compelling outcome of this initiative was its ongoing effect within the community. At the beginning, we spoke about our intentions for this

project; it was intended to be modest in form, not dependent on spectacle. We hoped that it would be a catalyst within the city, to help start other initiatives that elevated the value of the waterways of Indianapolis in the eyes of the public.

We have built on our experience with FLOW and continue the process of connecting the citizens of Indianapolis to the White River. In 2013, another collaborative CALL project—Streamlines—was funded through the National Science Foundation’s Advancing Informal STEM Learning (AISL) program. The lead project team included representatives from Butler University, Indiana University–Purdue University Indianapolis, and New Knowledge Organization Ltd.; and the overall partnership included representatives from Indianapolis-based organizations such as Reconnecting to Our Waterways (ROW), the Indianapolis Museum of Art, and the DaVinci Pursuit. This project, launched in the fall of 2015, focuses on tributaries to the White River in five neighborhoods that were originally identified by ROW and uses four art forms (visual, music, poetry, and dance) combined with relevant, water-based science content to create informal learning sites in the city. A community facilitator from the Streamlines team worked with every neighborhood to identify general areas where the projects could be implemented. This dialogue with the neighborhoods is an ongoing part of the process.

Miss’s role has been to develop a conceptual framework for this project that creates sites that will be activated by multiple artists and with community partners through ongoing events. Each site was chosen because of its specific characteristics through a dialogue between the artists and a group of scientists. Interpretive themes range from focusing on habitat corridors, water infrastructure, atmosphere, and land use to water as a resource and change over time. These themes in turn are associated with “keywords” such as precipitation, infrastructure, temperature, contamination, restoration. Some of these “keywords” are shared between sites, while others are specific to single locations (figs. 11.6, 11.7). The most salient topics at each site are noted, and visitors explore them through a series of on-site interventions, virtual devices, and programs. A series of prompts encourages each person to seek out specific aspects of each site through a kind of game-based wandering—what might be called a *dérive* or “ludogeography” after the work of Guy Debord and the artists Nikki Pugh, Ana Benloch, and Stuart Tait, respectively (Dubord 1955; Benloch, Pugh, and Tait 2008). An onsite map shows all five locations and their topics as well as the keywords associated with them. Visitors are encouraged to construct their own tours of sites according to their interests. For instance, if “habitat” is their choice, there may be three out of five sites where that topic is the focus.

As part of the project’s conceptual development, we have created iconography that takes the form of a splayed star, which is referenced in the different layers of the project. Uses of this iconography include graphic identity, suggesting the relationship of topics at the five locations, and forming structures on the sites to prompt visitors to move out and explore the surroundings.

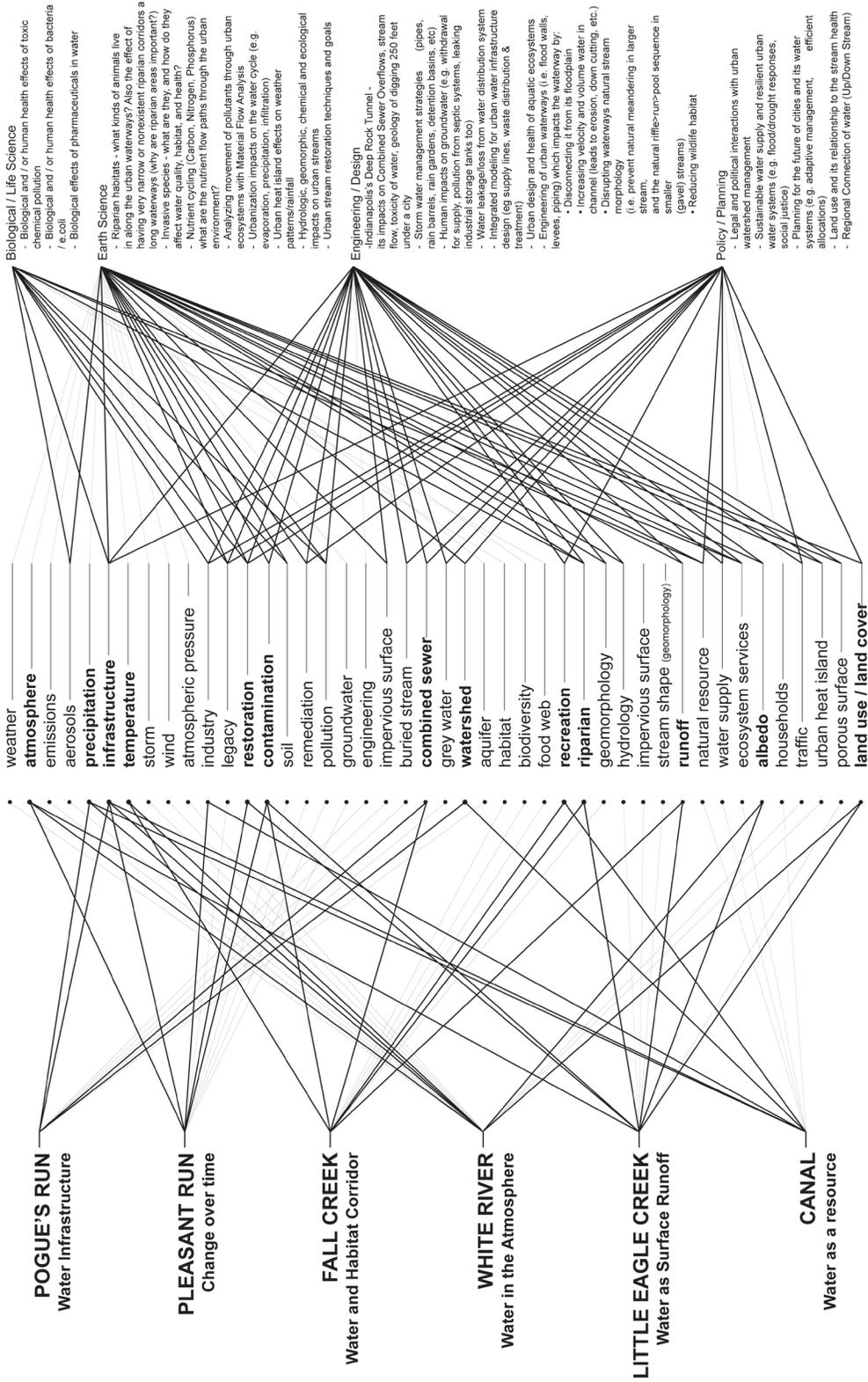


FIGURE 1.1.6. STREAM/LINES (I/CALL). Diagram illustrating keywords for each of the six tributary sites off the White River and their interrelationship. Image courtesy of MM/CALL Studio.

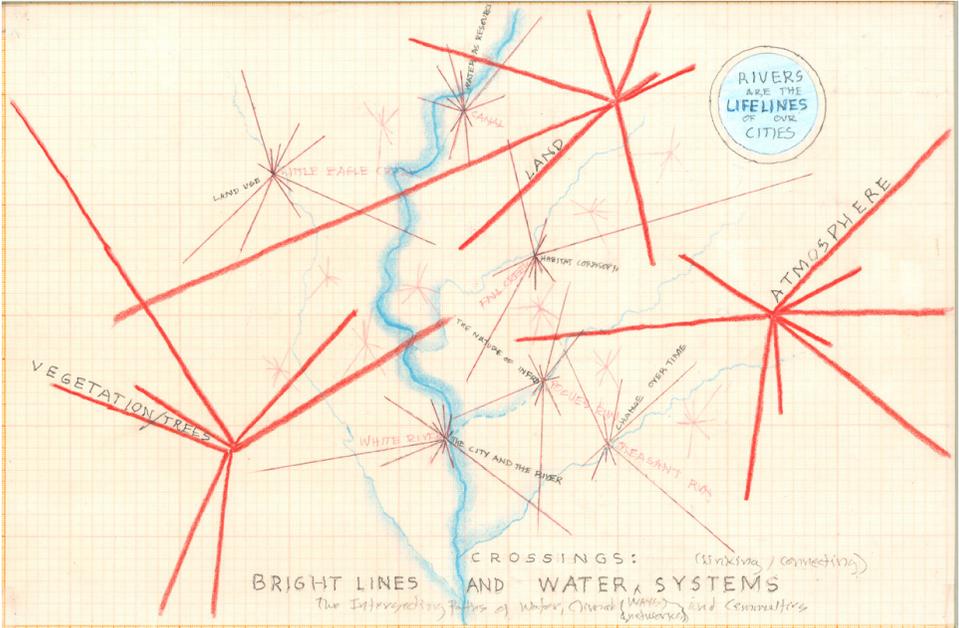


FIGURE 11.7. STREAM/LINES (I/CALL). Drawing by Mary Miss mapping the connections between the water system and the city of Indianapolis. Image courtesy of MM/CALL Studio.

The sites are activated in a number of ways. Interventions by Miss are encountered in the form of markers and mirrors, areas of plantings for cleaning storm water, or places to sit and reflect on the issues that affect our waterways. Music specifically commissioned for each site is accessible virtually. Texts composed by Indiana poets appear on the site, and site-specific dance performances that involve the community are being held over a two-year period.

The intention is to give communities adjacent to each of the sites a better sense of how their homes, streets, and businesses are connected to the river system and how important it is in supporting their daily lives. The goal is to arouse curiosity and a desire to visit all five locations. These sites, in combination, reveal multiple aspects of the city’s water system. By dispersing sites around the city, we aim to initiate new levels of water awareness throughout Indianapolis.

CONCLUSION

The Anthropocene context is one in which hybrid ecosystems, like the urban water system, are complex and largely hidden by design. These systems make awareness and care a major challenge but very fertile territory for collaboration among artists, scientists, communities, and policy makers. Our work thus far has helped to



FIGURE 11.9. STREAM/LINES (I/CALL). Installation at Butler University.

expand on CALL's premise that the arts can be an effective way to communicate science and reveal to individuals the ways in which they are embedded in their "environment." FLOW was a demonstration of how this could be done with modest installations along a major waterway. "Streamlines" expands this initial work into a citywide initiative (figs. 11.8, 11.9). A major goal for CALL is to develop a replicable framework that can be used by other cities to address the multiple challenges we face, particularly in our rapidly expanding urban environments. More types of projects are necessary for us to understand the ways these art-science collaborations can be most effective. Scientific research and government regulations alone will not be enough to help us deal with the challenges we face in the Anthropocene epoch. Finding ways to encourage citizens in all types of communities to engage in sustainable development in the face of climate change is essential to maintaining resiliency, health, and equity in our cities. Projects like those described above are intended to activate the imagination, encourage participation, and make it possible to envision a sustainable future.