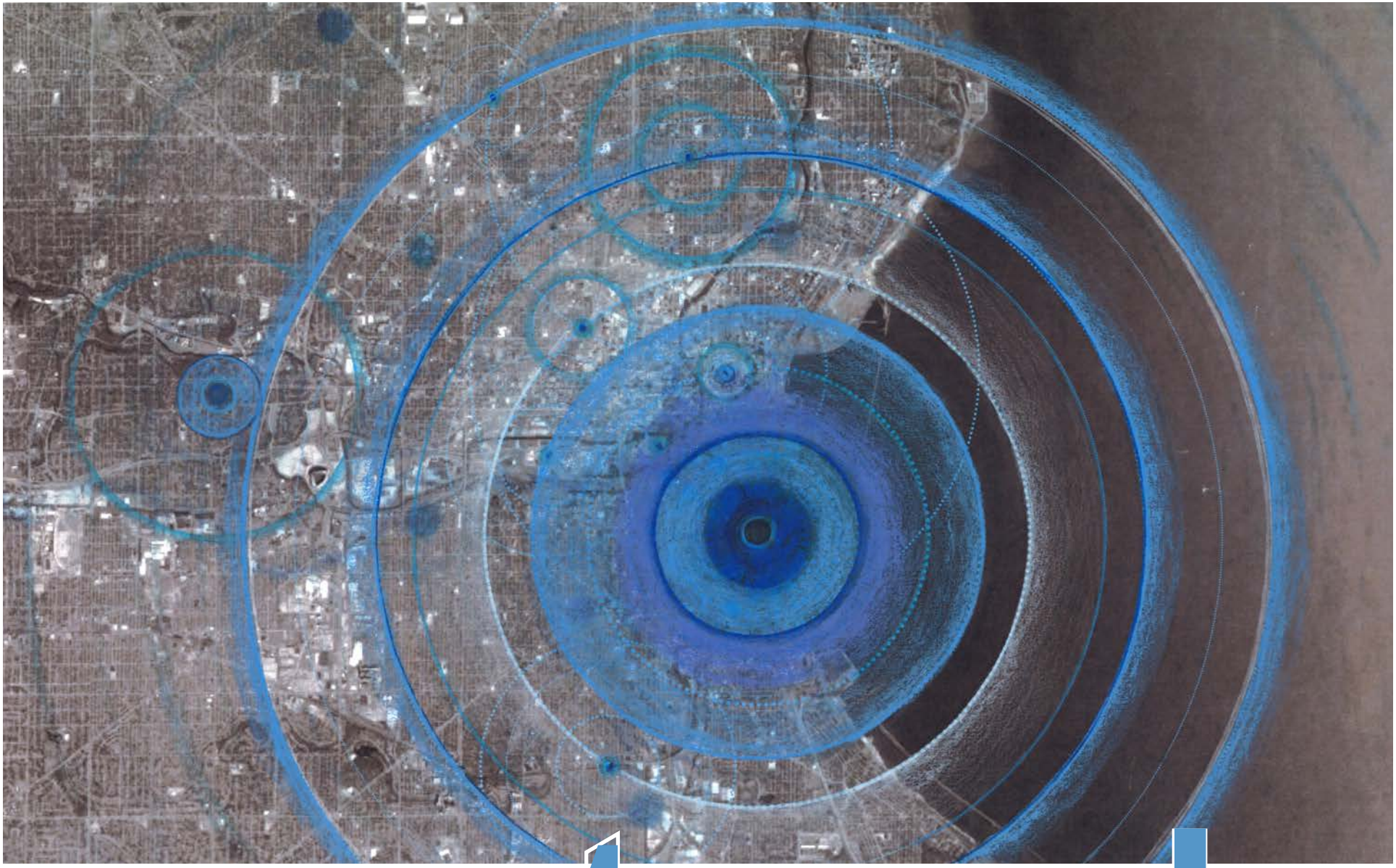


watermarks™

an atlas of water and the city of milwaukee...

TABLE OF CONTENTS

watermarks

An Atlas of Water for the City of Milwaukee...

As an artist, having the opportunity to develop a project at the scale of a city has been a remarkable experience. **WaterMarks** has grown out of a three year engagement with the city of Milwaukee. City government, academic institutions and many nonprofits have been essential contributors to the development of this urban scaled project. Focusing on water, the project has three important goals in mind: address environmental issues as a gateway to sustainable development; engage communities as active partners; help identify Milwaukee as a global water center.

Our approach has grown out of a decade of research as part of **City as Living Laboratory: Sustainability Made Tangible through the Arts (CALL).** We believe that artists have an essential, complementary role to play in creating communities of sustenance. A **'network'** approach is deployed to create change in Milwaukee; we envision a series of locations throughout the city activated by community partners. Milwaukee's Inner Harbor, the confluence of the city's three rivers, is the starting point of a multi-layered, incremental project that can be implemented over time in neighborhoods throughout the city. The project elements—the Stack, Markers, Mobile Markers and App—visually establish the initial field of engagement for the city of Milwaukee

We rely on the strategy of **Call and Response** as a means of engagement. Each physical intervention will call out the natural systems and infrastructure, the history of water as it relates to the growth of the city, as well as the site's potential to form part of an **Atlas** of water for the city. Through continual community engagement activities, the people of Milwaukee will be invited to respond to and activate these sites

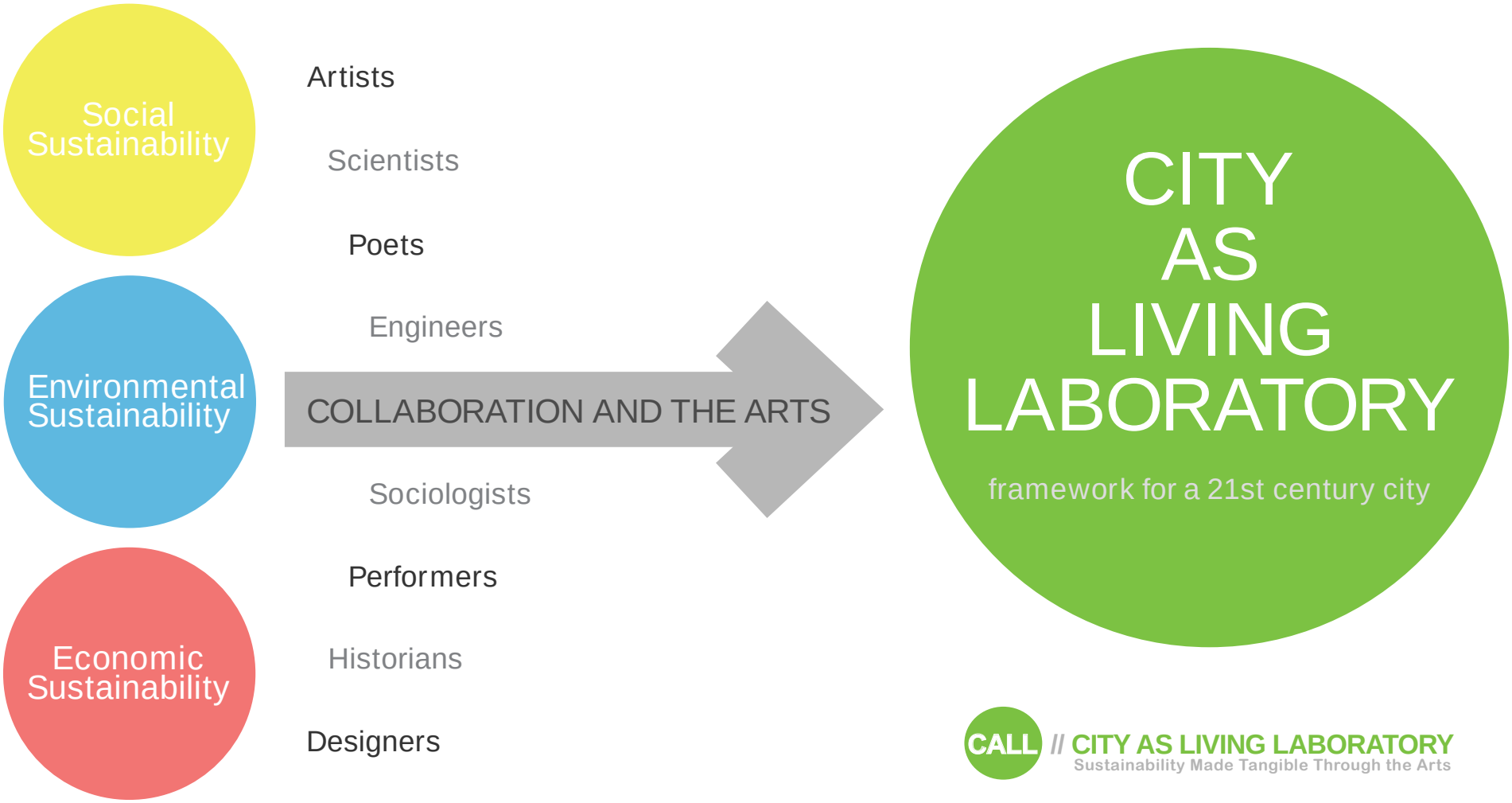
Collaborative programming developed with the Haggerty Museum at Marquette University and a broader group of project Partners will allow us to maintain an ongoing presence in the city and a strong connection with its residents. Working with Artists using CALL's methodology the Haggerty will generate public programing in partnership with MMSD and city agencies, other academic institutions, the communities of Milwaukee, and the city's many foundations and NGOs.

We envision **WaterMarks** as a means to create a unifying network for the many messages and stories around the topic of water in Milwaukee. By recognizing their own roles as 'vessels' in their own communities people begin to appreciate their responsibility for water as a resource that is both vital to life as well as general well-being across the region.

background context

WaterMarks: An Atlas of Water for the City of Milwaukee...

SUSTAINABILITY MADE TANGIBLE THROUGH THE ARTS



CALL // CITY AS LIVING LABORATORY
Sustainability Made Tangible Through the Arts

CALL / CITY as LIVING LABORATORY

Sustainability Made Tangible Through the Arts

The City as Living Laboratory (CALL) mission is to increase awareness and action around environmental challenges through the arts, and to foster public understanding of the natural systems and infrastructure that support life in the city.

CALL / WaterMarks is an initiative to invite the residents of Milwaukee to better understand the water systems that support their lives. Its strategies are grounded in place-based experience that makes sustainability personal, visceral, tangible, and encourages public engagement and governmental action over time.

The CALL Methodology nurtures collaborative teams to promote heightened environmental awareness and more livable cities of sustenance.

- CALL attention to natural and man-made systems that sustain our lives often, focusing on the unseen, under-recognized, or threatened.
- CALL to create collaborations between artists, scientists, and citizens to address specific needs through citizen engagement, community action, and policy change.
- CALL to affirm the value of artists to re-vision the public realm to enable positive environmental change and replicate successful programs in neighborhoods and cities across the country.


1 NO POVERTY
2 NO HUNGER
3 GOOD HEALTH
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 RENEWABLE ENERGY
8 GOOD JOBS AND ECONOMIC GROWTH
9 INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE AND JUSTICE
17 PARTNERSHIPS FOR THE GOALS
THE GLOBAL GOALS
For Sustainable Development

UN SUSTAINABILITY GOALS

Global Sustainability Objectives

UN Sustainable Development Goals embody the idea that sustainable development is a complex, interwoven and dynamic system where all elements are equally relevant.

The Sustainable Development Goals serve as a ideological framework for all City as Living Laboratory work and challenge us to consider that human and social development are as important for a sustainable world as climate change actions and wildlife conservation. In addressing any single issue, the process is intended to maintain awareness and to support the overall resilience of the community and its transformation into sustainability in all areas.

conceptual framework

WaterMarks: An Atlas of Water for the City of Milwaukee...

PROJECT BACKGROUND

Project Inception & Goals

The project goal is to develop an inclusive and urban-scaled vision for the City of Milwaukee, designed to help its residents better understand their relationships to the water systems and infrastructure that support their lives.

This project is envisioned as a multi-layered framework that aspires to engage citizens in varying capacities throughout the city, and in their own communities. Initial project interventions will be strategically embedded into the existing water fabric of the city, as catalysts to incrementally populate the city with further projects by other artists. Furthermore, a series of public programs, citywide initiatives and community events will be developed to further support the creation of a tangible, intimate understanding of and engagement with water.

HUBS

Community and Educational sites that can become priority collaboration locations for projects and activities built on current issues.

PROJECTS

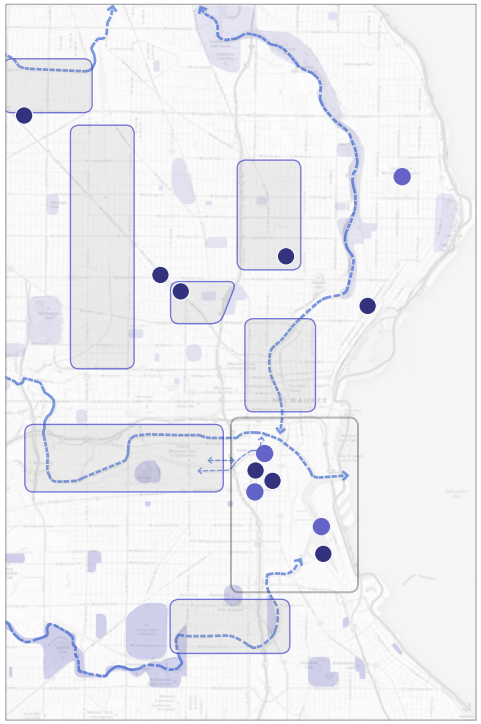
Municipal partnerships to focus on lake, river, and utility improvement locations as sites to provide access and water information.

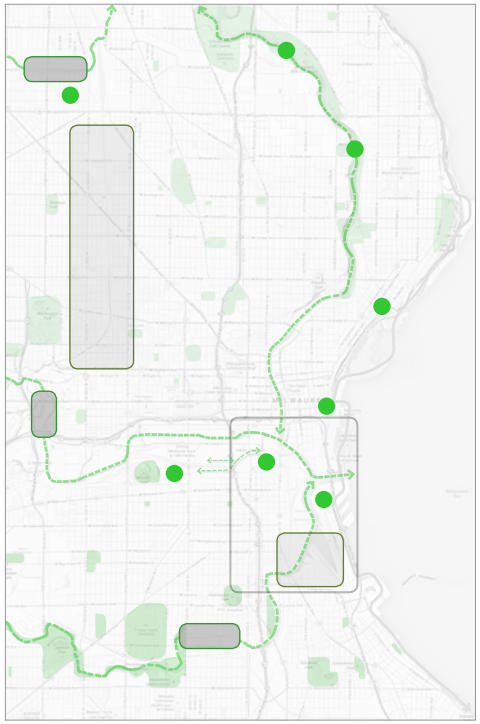
POINTS

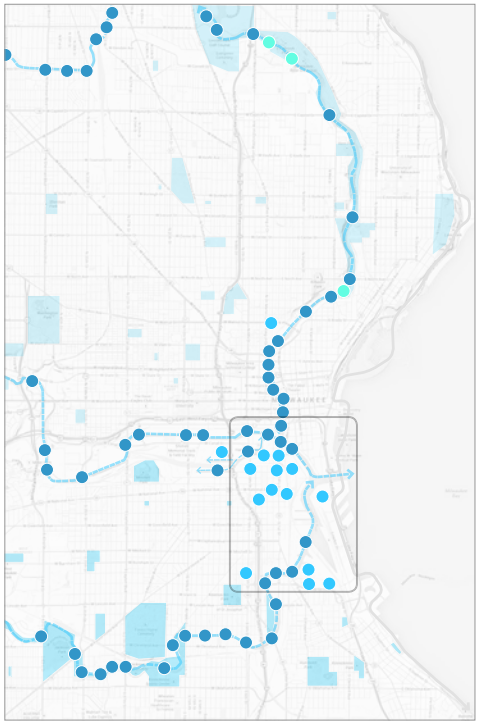
Creative Interventions opportunities to utilize existing infrastructural elements as means for water related communication and connections.

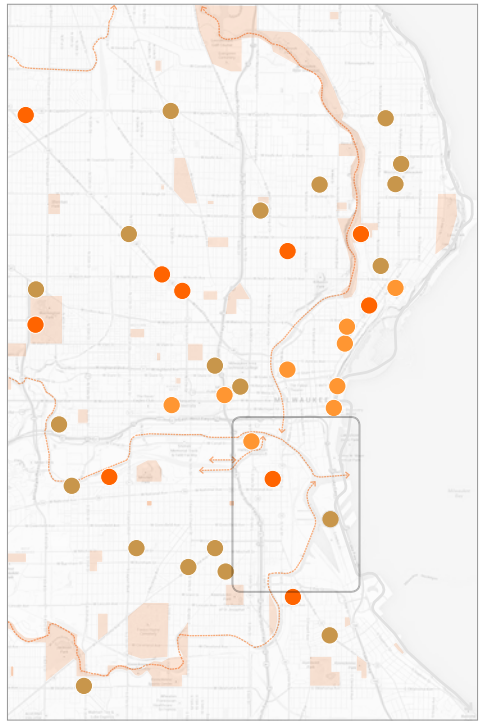
SYSTEMS

Opportunities for water-based community programming that are embedded in the pre-existing network of public facilities.









CONCEPTUAL ANALYSIS

Urban Analysis & Guiding Principles

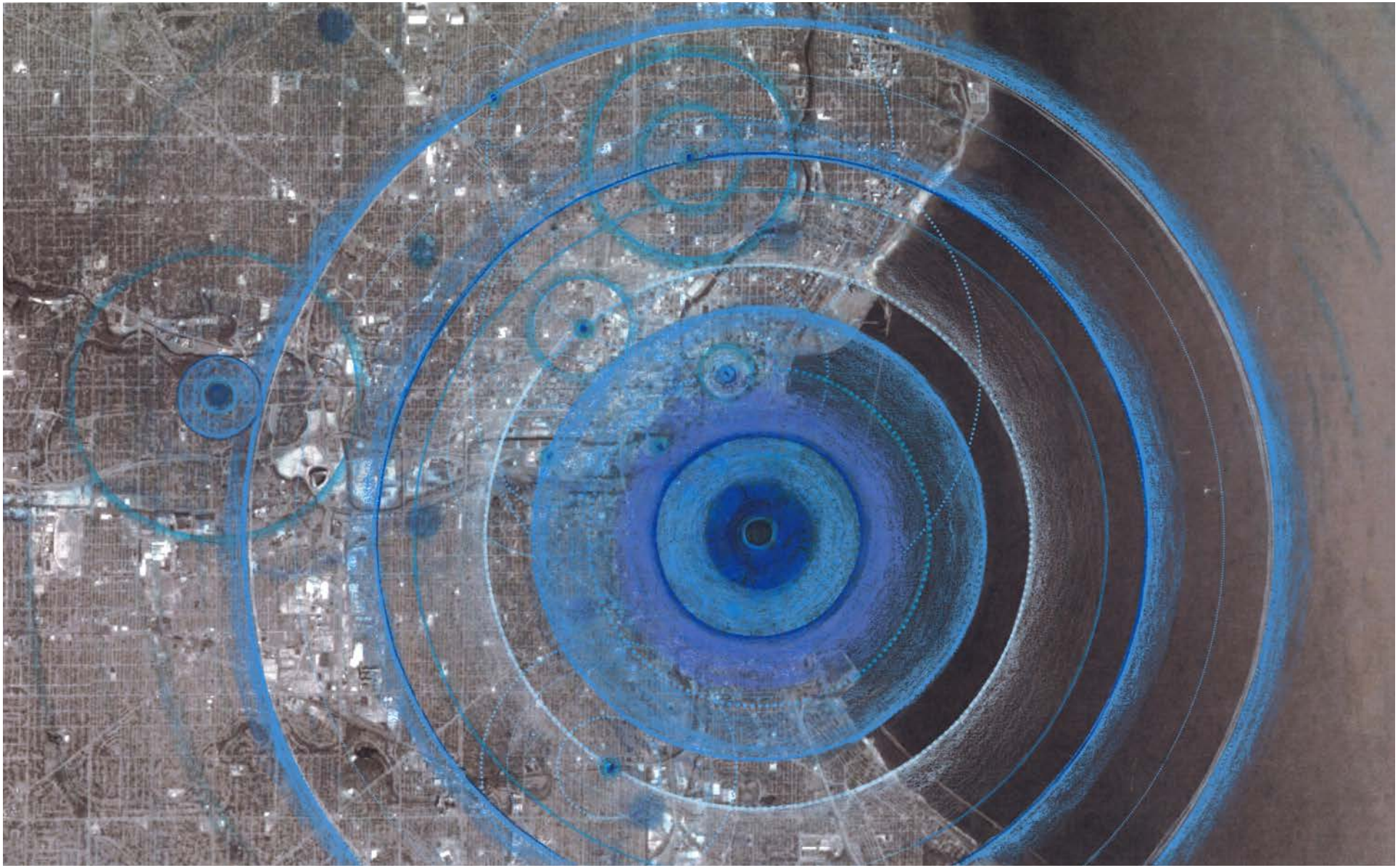
The conceptual analysis identifies a dynamic series of potential starting points for future WaterMarks project and program sites throughout Milwaukee. Utilizing this urban analysis as conceptual foundation and framework, the goal is to develop dispersed projects throughout the city, over time.

HUBS: Identify communities that can become priority sites for projects and activities built on current issues.

PROJECTS: Establish municipal partnerships to focus on river and utility improvement locations as sites to provide access and water information.

POINTS: Note opportunities to utilize existing infrastructural elements as means for water related communication and connections.

SYSTEMS: Identify networks of existing public facilities for water-based community programming

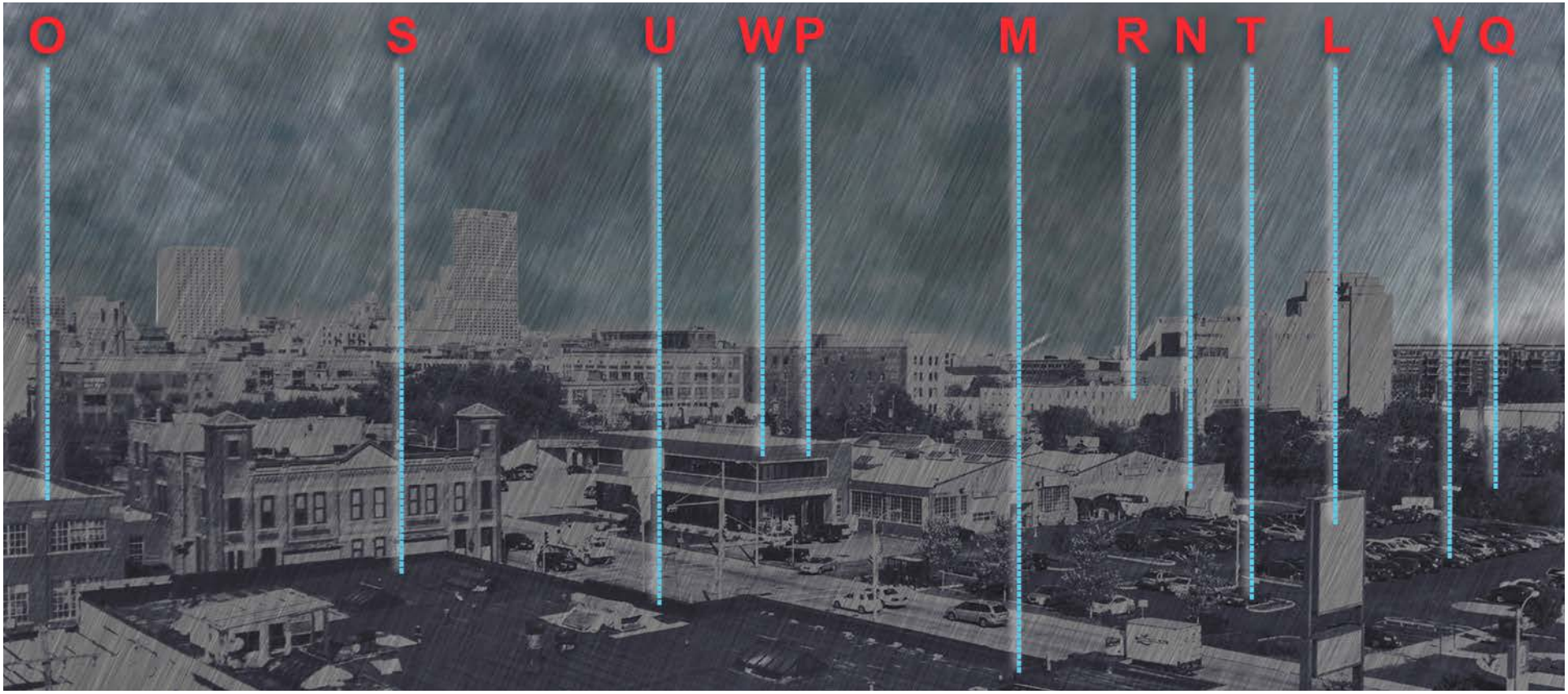


CONCEPTUAL ICONOGRAPHY

Initial Project Gesture & Ripple Diagram

To help create a new public narrative around water, we start with the image of the concentric ripples created by water. This visualization is intended to imply the effect actions can have at the scale of the region, the city, the neighborhood or the individual.

The aim is to demarcate a project epicenter as a way to demonstrate initial project relationships, establish the overall visual language for each project element, and signify a commitment to partnering in the creation of this new 'public narrative' around water.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CONCEPTUAL DEVELOPMENT

An Atlas of Water as Project Concept

The initial project concept is based on traditional atlas diagrams, where letters or numbers typically correspond to an adjacent ‘key’ to learn more.

The WaterMarks concept is to create a city scaled 3D diagram of the multi-faceted manifestations of water, throughout Milwaukee. Letters will be installed on vertical pole markers to act as ‘map pins’ calling our specific aspects of water at various locations throughout the city.

Each letter will correspond directly with a water related location or theme to create an invitation to learn more about a water story at each location (i.e. L is for Lake or R is for Rain-Garden, etc)


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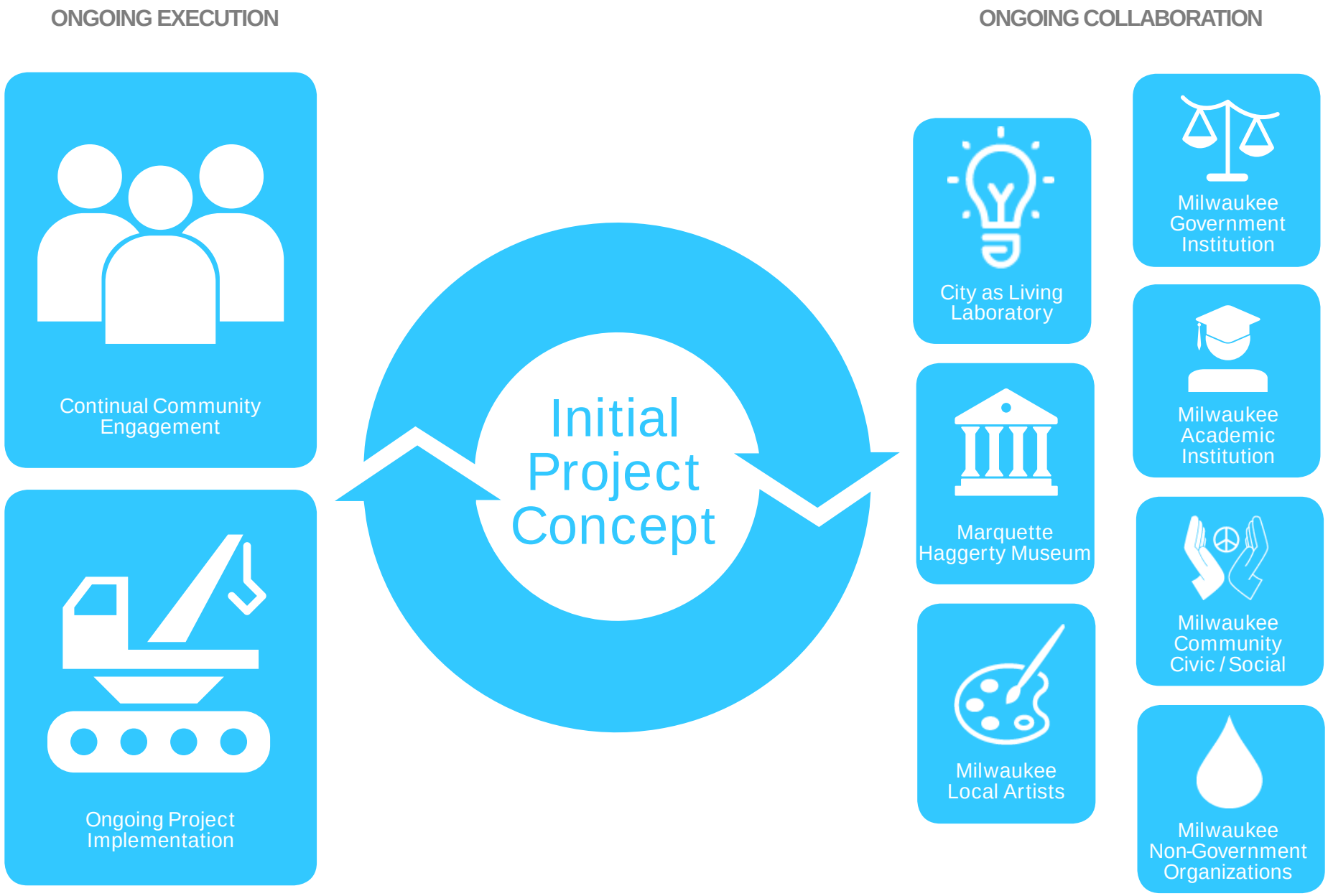
CONCEPTUAL REFINEMENT

An Atlas of Water and the City of Milwaukee

The first markers in the WaterMarks network will be placed in the Inner Harbor District, creating a visual field where the rivers meet the lake. This initial field of markers will show on a city scale where key topics related to water can be seen or experienced.

Specific content related to each marker will be revealed virtually with the WaterMarks App. The App will provide a multi-media perspective of these topics as well as initiatives to participate in programmed activities.

In addition to initiating the WaterMarks Atlas and engaging the community, this visual field activates the Inner Harbor and gives it a visual identity.


ONGOING EXECUTION
Continual Community Engagement
Ongoing Project Implementation
Initial Project Concept
ONGOING COLLABORATION
City as Living Laboratory
Marquette Haggerty Museum
Milwaukee Local Artists
Milwaukee Government Institution
Milwaukee Academic Institution
Milwaukee Community Civic / Social
Milwaukee Non-Government Organizations

COLLABORATIVE PARTNERSHIPS

Project Stakeholders, Partners, and Contributors

Our city-wide system approach has identified a group with shared concerns consisting of academic institutions, municipal agencies, organizations and non-profits, philanthropists and foundations.

There are many non-profit organizations throughout the city with similar interests, particularly addressing concerns around water, who we hope to have as WaterMark partners to incrementally implement this project. They know their diverse communities well and have developed programs with goals that are closely aligned to this project.

We envision WaterMarks as a means to provide a unifying messaging around the many aspects of water these organizations address.

conceptual development

WaterMarks: An Atlas of Water for the City of Milwaukee...

PHYSICAL ELEMENTS

COMMUNITY ENGAGEMENT

CONCEPTUAL STRATEGY

Call & Response Model

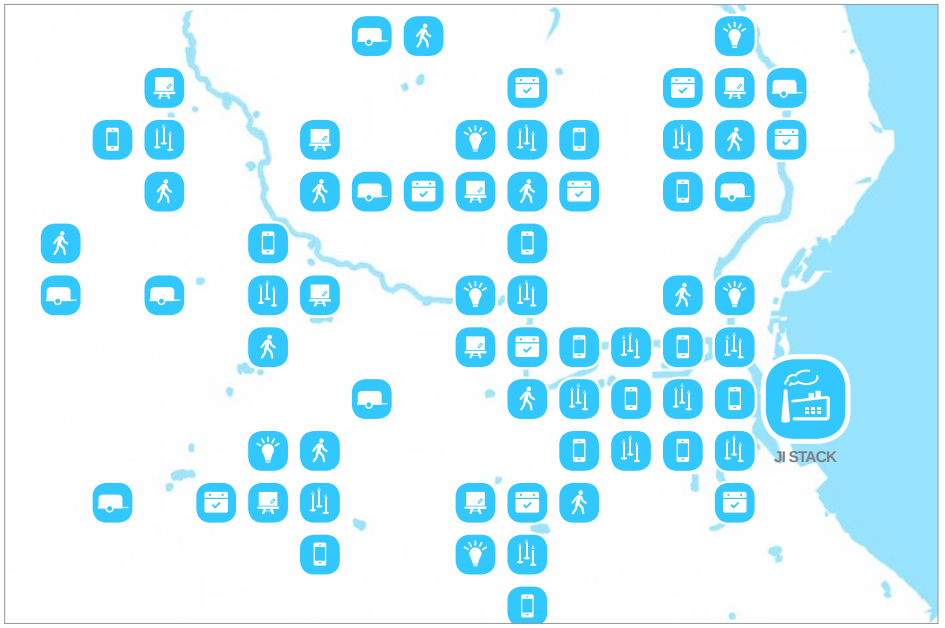
The project aspires to engage citizens in varying capacities throughout the city, and in their own communities through a ‘Call and Response’ approach.

The Physical elements--the Stack, the Markers and the App—will each be a source of content but also invite a reply, addition of content or action. This will also apply to the various Community Engagement initiatives.


JI STACK


JI STACK


JI STACK


JI STACK

INCREMENTAL EXPANSION

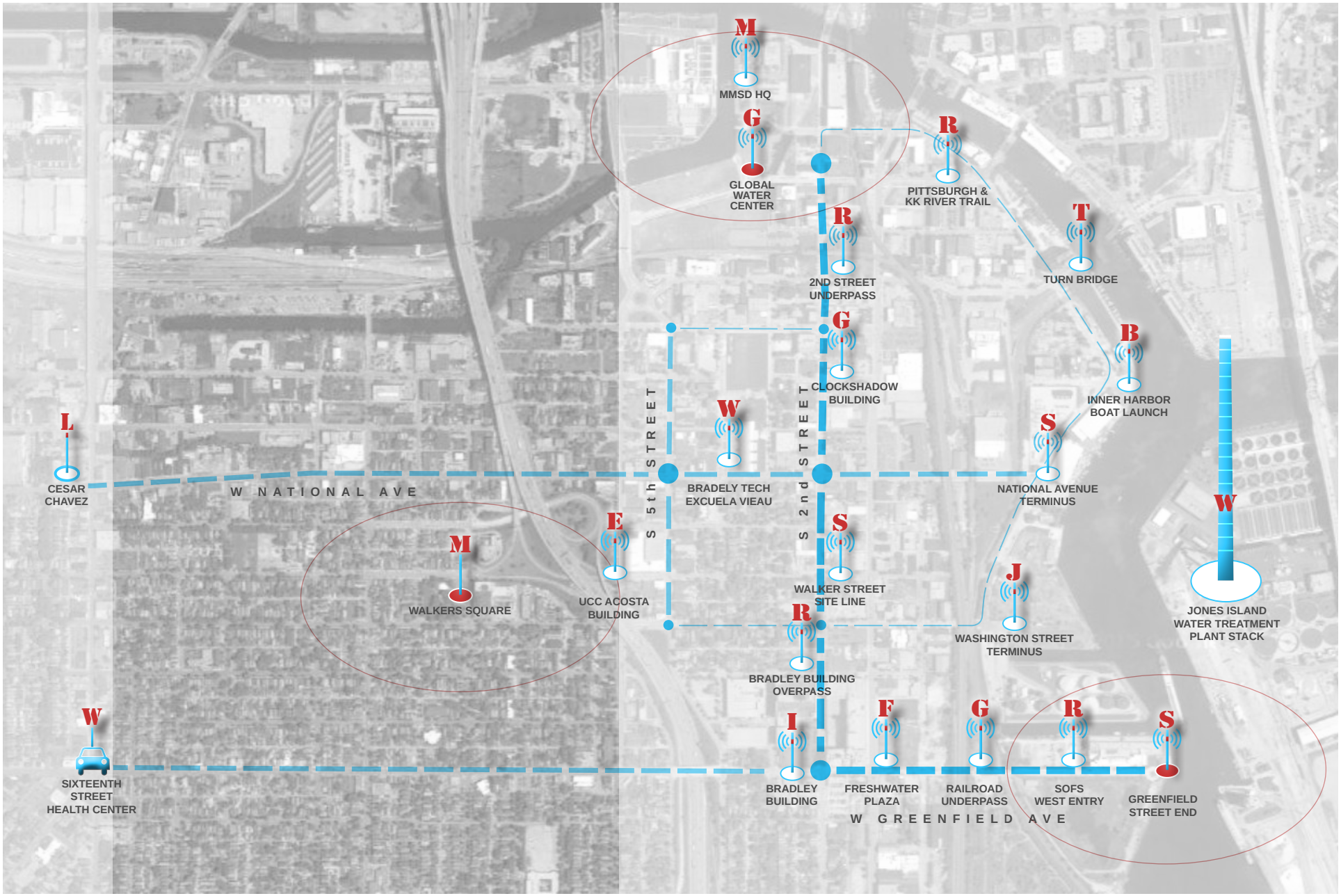
Incremental Project Growth Over Time

Through a conceptual commitment to the ‘Call and Response’ network, the ongoing deployment of Project Elements (Stack, Markers, Mobile Markers, Digital App), and the ongoing creation of Community Engagement Programs (Walks, Workshops, Projects, Events), WaterMarks will begin in the Inner Harbor and expand incrementally throughout the city.

Over time, WaterMarks will expand organically becoming larger and more diverse reflecting the ever-increasing depth and diversity of social and ecological connections.

project elements

WaterMarks: An Atlas of Water for the City of Milwaukee...


MMSD HQ
GLOBAL WATER CENTER
PITTSBURGH & KK RIVER TRAIL
2ND STREET UNDERPASS
TURN BRIDGE
CLOCKSHADOW BUILDING
INNER HARBOR BOAT LAUNCH
CESAR CHAVEZ
W NATIONAL AVE
S 5th STREET
BRADELY TECH EXCUELA VIEAU
S 2nd STREET
NATIONAL AVENUE TERMINUS
WALKERS SQUARE
UCC ACOSTA BUILDING
WALKER STREET SITE LINE
WASHINGTON STREET TERMINUS
JONES ISLAND WATER TREATMENT PLANT STACK
BRADLEY BUILDING OVERPASS
SIXTEENTH STREET HEALTH CENTER
BRADLEY BUILDING
FRESHWATER PLAZA
RAILROAD UNDERPASS
SOFS WEST ENTRY
GREENFIELD STREET END
W GREENFIELD AVE

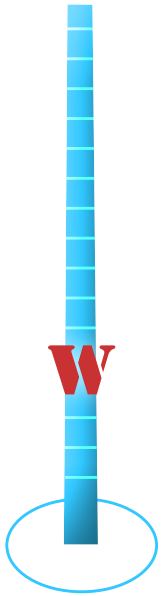
PROJECT PLAN

Initial Project Plan

The Inner Harbor and surrounding area represent the logical center for initial project implementation. This area has been selected due to its historical and contemporary importance at the confluence of the city's three major rivers.

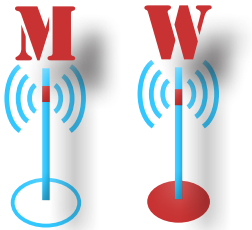
Marker Locations

- MMSD Headquarters (M)
- Global Water Center (G)
- 2nd Street Underpass (R)
- Clockshadow Building (G)
- Bradley Tech / Escuela Vieau (W)
- Walker Street Site Line (S)
- Bradley Building Overpass (R)
- Bradley Building (I)
- Freshwater Plaza (F)
- Railroad Underpass (G)
- West Entry Rain Garden (R)
- School of Freshwater Sciences (S)
- Washington Street Terminus (J)
- National Avenue Terminus (S)
- Inner Harbor Boat Launch (B)
- Turn Bridge (T)
- Pittsburgh & KK River Trail (R)
- UCC Acosta (E)
- Walkers Square (M)
- Cesar Chavez (L)



JI STACK

The stack of the Jones Island Water Treatment Plant becomes a rain forecast indicator to encourage citizens to become part of the green infrastructure of the city.



MARKERS

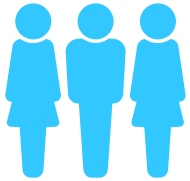
Approximately twenty Pole Markers will highlight water sites of interest and act as activators for web-content and interactive video features within the WaterMarks App.

MOBILE MARKER

Several Mobile Markers will highlight community events or interest and act as activators for community input, sharing, suggestions and future expansion throughout the city.

DIGITAL APP

The App will provide a map with marker locations, teaser info for each site, and access to video, text, images, and game content. (Web, IOS and Android platforms)



COMMUNITY

Water based Walks, Workshops, Events, and Projects highlight an engagement toolkit to invite residents throughout the city to interact with various aspects of water.

PROJECT ELEMENTS

Initial Project Elements

The WaterMarks ‘Call and Response’ network highlights two primary project components. The physical elements and the community engagement elements combine to create a WaterMarks project ‘kit of parts’

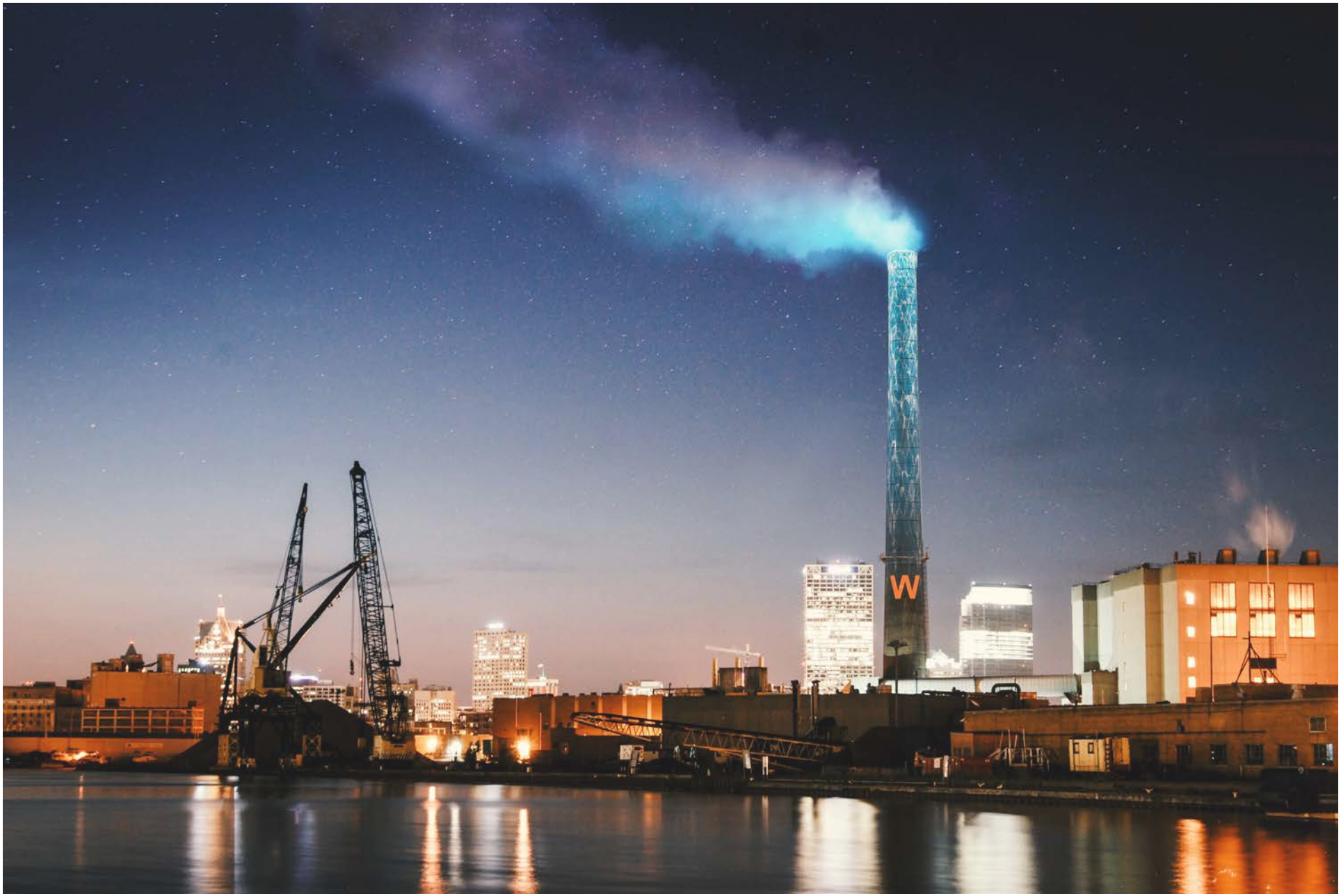
Physical Elements

- Jones Island Stack
- Vertical Markers
- Mobile Markers
- Digital App

Community Engagement

- Water based Walks
- Community Workshops
- Artist Projects
- Partner Events

WaterMarks has been developed as a flexible and fully scalable ‘kit-of-parts’ and designed to be installed at various locations contingent on available funding and scheduling limitations.


W

JONES ISLAND STACK

Jones Island Water Reclamation Facility

The cornerstone of this first phase of interventions is an iconic lighting installation at the Jones Island Water Reclamation Facility stack. This installation will transform the 350’ Stack into a visual icon and a city scaled barometer, intended to notify citizens in advance of any major precipitation event.

As result, the stack of the Jones Island Water Treatment Plant becomes a rain forecast indicator to encourage citizens to become part of the green infrastructure of the city, shepherding the use of water before a rain.


W


W

THE STACK

Jones Island Stack Installation

The Jones Island Stack installation will notify citizens of a major precipitation forecasts via real time alteration of color and intensity of lighting effects.

Blue Light: Under clear weather conditions the stack and vapor trail will be illuminated at night in blue light. This rippling blue lighting effect on the stack will indicate that no rain is in the forecast and that normal water usage is acceptable.

Red Light: If rain is predicted the stack and vapor trail will turn red, alerting water customers to reduce water consumption in order to avoid overburdening the plant and the ensuing pollution.

Character W: The illuminated character W will represent ‘Water’ or ‘WaterMarks” designed to reinforce the character vocabulary of the Water Atlas throughout the city.


F
FRESHWATER
PLAZA
1320

VERTICAL MARKERS

Vertical Pole Markers

The Vertical Markers consist of a series of 25’ to 40’ aluminum poles with a corresponding illuminated red character at the top. Each Vertical Marker will highlight a specific site of interest to activate a piece of the Milwaukee Water Story and provide access to digitally accessible content and project programming (in conjunction with project partners).

Additionally, some Vertical Markers will be outfitted with an adjacent seating element to provide a location for contemplation and access to additional information. Seating elements may also consist of modest content engravings in the paving, paired with a static or rotating bench element.

FRESHWATER PLAZA

Collaboration: Wangard
Designer: Jim Wasley

RAILROAD UNDERPASS

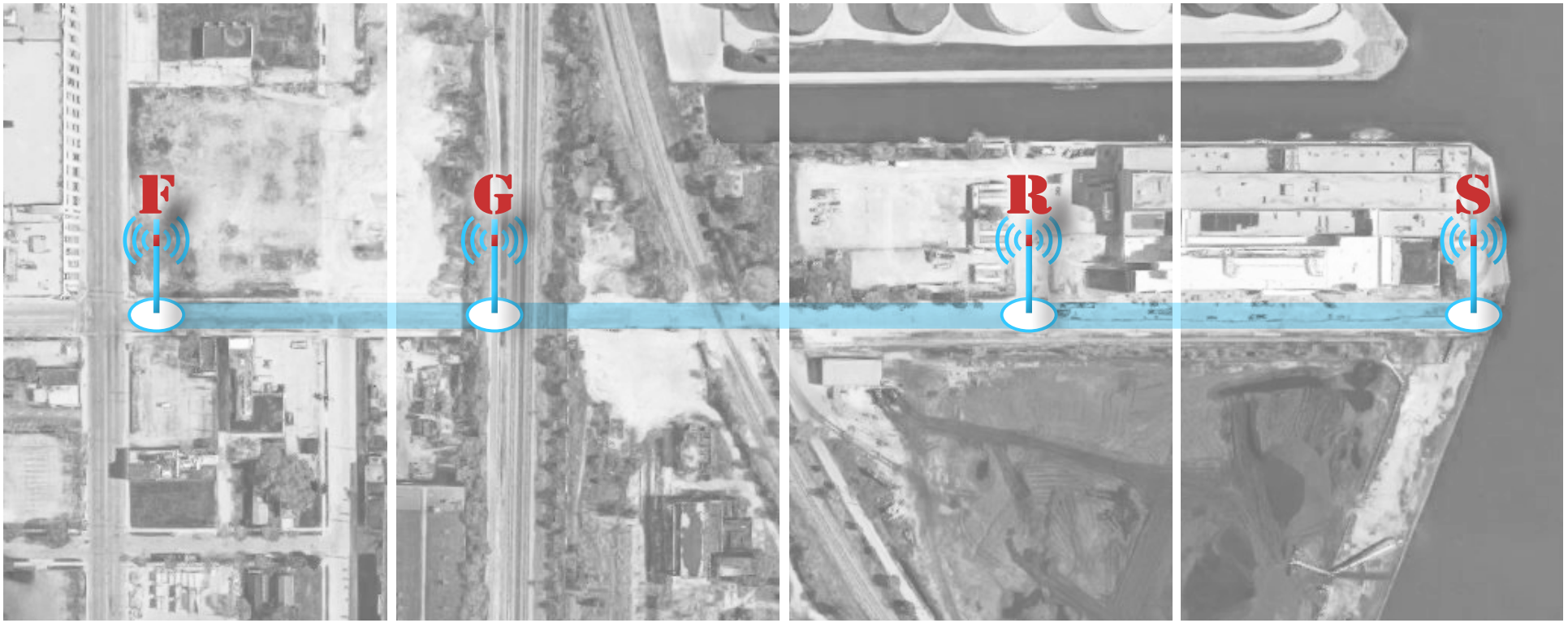
Collaboration: Harbor District
Artist: To be Determined

SFS WEST ENTRY

Collaboration: Freshwater Sciences
Designer: Jim Wasely

TAKE ME TO THE RIVER

Collaboration: Harbor District
Designer: Jennfier Current



GREENFIELD AVENUE

Artist / Designer Collaborations

The first phase of project markers will be installed along Greenfield Avenue, between Freshwater Plaza and the School of Freshwater Sciences.

Each of these Vertical Markers will be installed adjacen to an ongoing or completed artist / designer projects and will provide specific water focused content at each location.

These markers will transform Greenfield Avenue an active gateway, inviting residents to travel along its path towards the waters edge, while simultaneously serving as a demonstration site to showcase the expansive potential for the WaterMarks project.


F


S

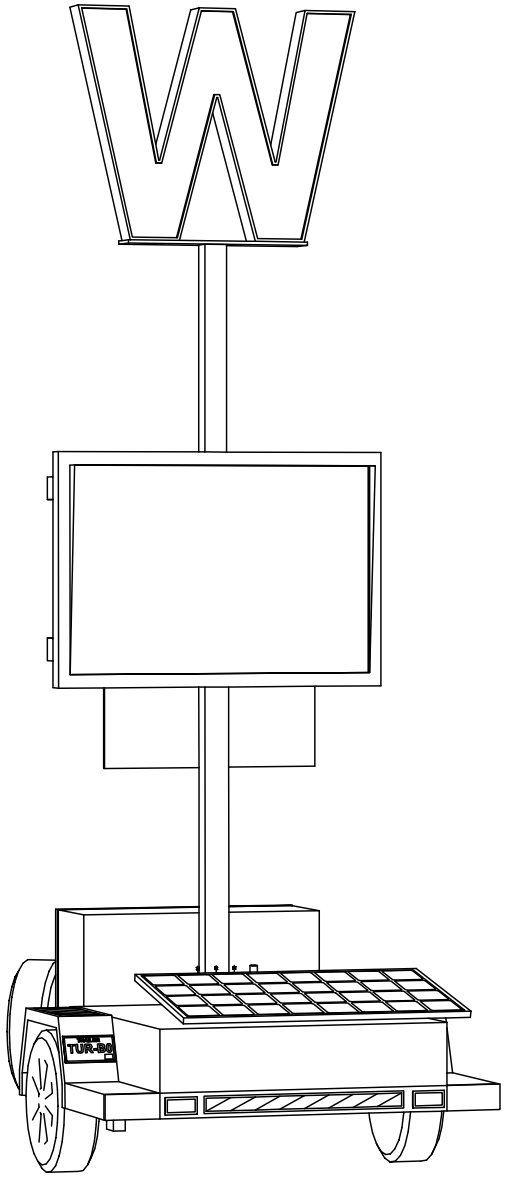
INITIAL MARKER SITES

Freshwater Plaza & Take Me to the River

The first Markers will be installed to feature two artist/designer projects along Greenfield Avenue.

At Freshwater Plaza, Jim Wasley has created a water filtration fountain designed to clean and hold roof water runoff, prior to being released into the combined sewage system. At Take Me to the River, Jennifer Current and Quorom Architects submitted the winning proposal for a dynamic urban public space at the east end of Greenfield Avenue, designed to provide access to the Inner Harbor.

At each site, WaterMarkers will create physical and digital access points where the public will be invited to learn more about each project, while the marker also serves as a physical catalyst for future events.


W


W
WHAT IS YOUR FAVORITE MEMORY OF WATER?
43/94
41

MOBILE MARKERS

Mobile Pole Markers

The Mobile Markers consist of Vertical Marker elements mounted atop a customized highway utility trailer. These Mobile Markers have been designed to serve dynamic and mobile elements of the WaterMarks ‘kit of parts’ project markers at various locations throughout Milwaukee.

Mobile Markers will be painted WaterMarks blue and consist of an illuminated red character (powered by panel-mounted photovoltaic panel). A digital signage board will be used to engage new communities and ‘test’ potential marker sites by parking adjacent to water themed events. (in conjunction with project partners)


W
WHAT IS YOUR FAVORITE MEMORY OF WATER?
ACCION HISPANO
accionhispano.com
800-343-4143
¡Consulta Gratis


W
WHAT IS YOUR FAVORITE MEMORY OF WATER?


W
WHAT IS YOUR FAVORITE MEMORY OF WATER?


W

MOBILE MARKERS

Mobile Pole Markers

Mobile Markers will be used to highlight existing public events and WaterMarks programming, while also serving as activators for water-themed community input, person to person sharing, and suggestions for future expansion throughout the city.

Sample Images

- Clarke Square
- Sixteenth Street Community Health Centers
- Alice's Garden
- Walnut Way

These sites represent a visual sampling of the potential impact of the Mobile Marker on water-based events and programs all across the city.
(Please see more information pages 52-57)

FIND A SITE

WaterMarks Project Sites
Map interface shows immediate project area, project marker sites, and access to more information

TYPES OF CONTENT

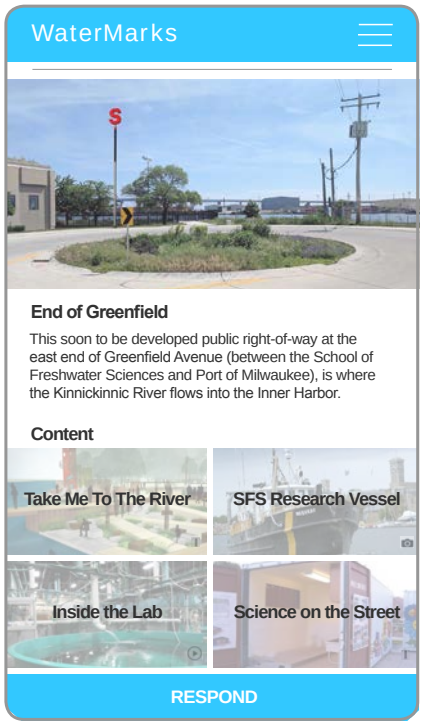
WaterMarks Content Options
Layout shows available types of content. Further access to content will require user to be on location.

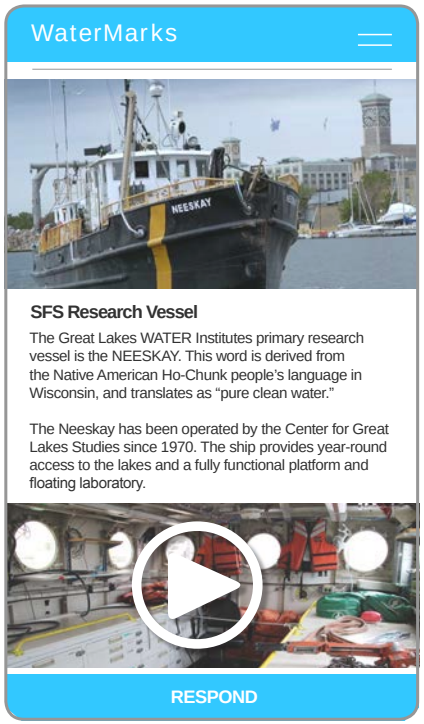
PROVIDED CONTENT

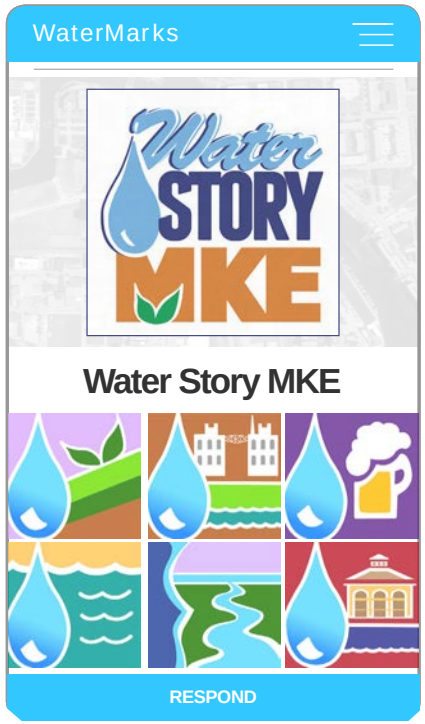
WaterMarks Content Delivery
Selected content will be delivered by Video / Photo / Text / Audio at each project marker site.

INTERACTIVE CONTENT

WaterMarks Interactive Options
Interactive content will invite users to Upload / Explore / Game at select marker sites.







DIGITAL APP

Digital Engagement App

Developed in partnership with Reflo, the App will provide a variety of digital opportunities to allow users to passively or actively engage in aspects of the Milwaukee water story. The App will launch onto a map interface screen with all active marker locations, general project information and 'teaser' information for each site.

Access to advanced video, text and image content, as well as interactive story, image and game content will be location dependent and only available on site.

APP Elements

- Home Page: Map Interface / Information
  (Locations / Directions / How-To / Latest)
- Content Page: Content Menu / Information
  (Teaser / Content Options / Directions)
- Provided Content: Site-specific content
  (Video / Streaming / Photo / Text / Audio)
- Interactive Content: User-generated content
  (Stories / Photos / Games / Experiences)
- User Feed: User Content / Gamification Record
  (Recording / Photos / Followers / Social Media)
- App Menu: Drop-down interface / Information
  (About / Feed / Events / Contact / Privacy)

The App will be developed for both IOS and Android.


WATER HEALERS

COMMUNITY ENGAGEMENT

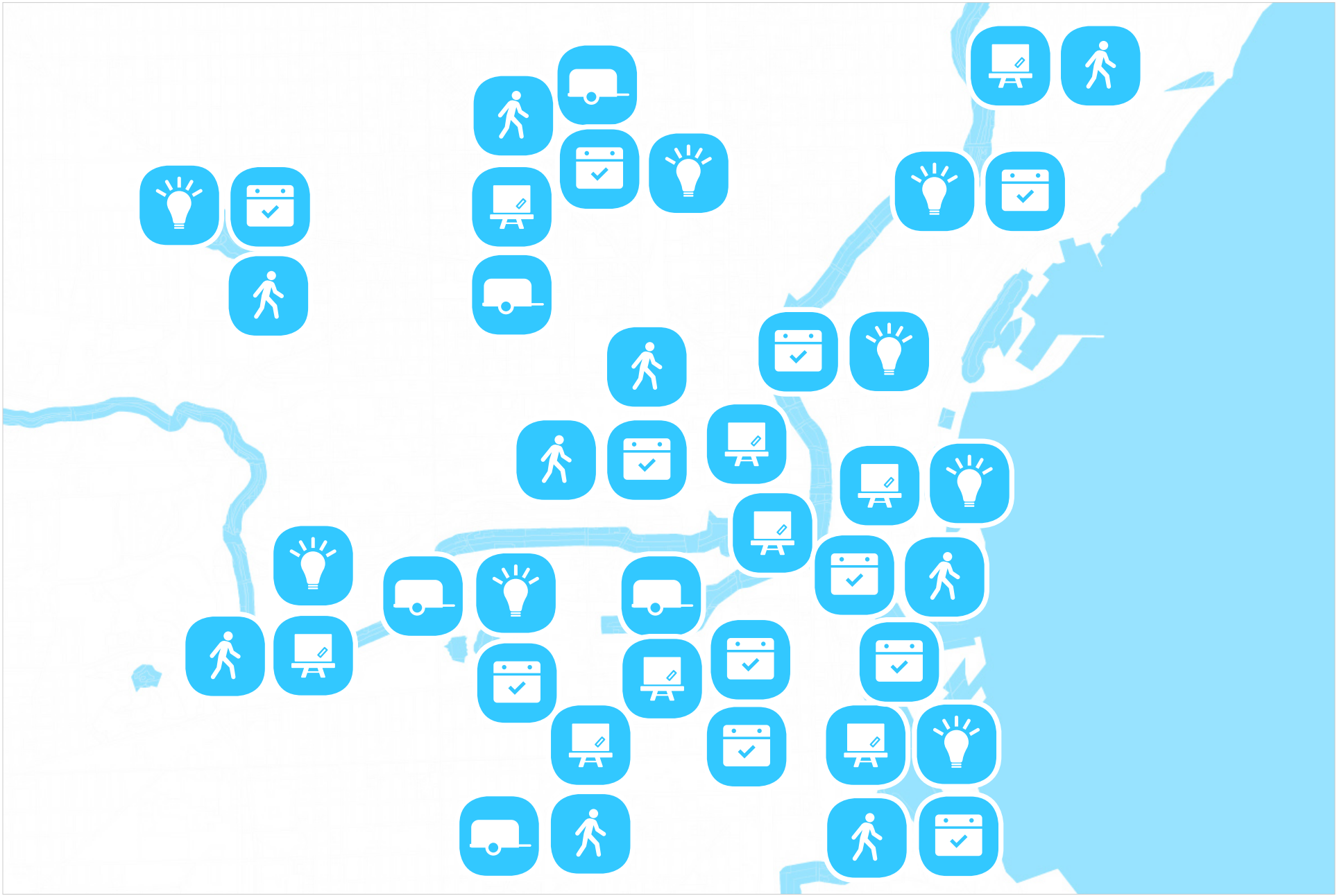
Engagement Elements

The primary objective for WaterMarks Community Engagement efforts is to provide a public platform to support a unifying network of water messaging in various communities throughout Milwaukee. These engagement activities are conceived to nurture partnerships among disciplines, institutions, neighborhoods, and interested individuals as they work together toward shared environmental and sustainability goals.

Engagement Elements

- Artist / Scientist Community Walks
- Idea Generating Community Workshops
- Collaborative Community Projects
- Partnering Organization Events

WaterMarks Community Engagement Elements (Walks, Workshops, Project, and Events) combine the skills and perspectives of artists and designers with those of other experts and residents to support a series of public programs and project development efforts that increase awareness and potential for action around key water topics.



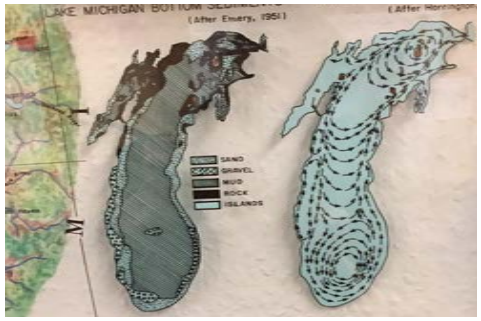
COMMUNITY ENGAGEMENT

Incremental Expansion Guidelines

Based on the CALL Methodology the following guidelines will serve as the framework to support community programs and engagement efforts. Over time, these efforts will expand to engage with more audiences throughout Milwaukee.

Engagement Guidelines

- Artists will collaborate with other community experts (NGOs, scientists, historians, residents, students, etc) to develop projects – content and concepts.
- Projects will be anchored in specific communities and coordinated with ongoing initiatives and programs.
- Ongoing programs to engage residents with project goals is an essential aspect of the WaterMarks
- Community Engagement Strategy Framework. This may be accomplished through educational offerings, events, gatherings, walks or programs.
- Artist initiatives may be large or small, temporary, permanent, or programmatic in nature.
- Artists will be selected by qualified arts/science professionals and community stake-holders; their work overseen by art professionals. The selected artists should be local, as well as from further afield.



ARTIST / SCIENTIST

An artist and scientist collaboration could be an event, program or installation that involves an aspect of research.

ADDITIONAL PROGRAMMING

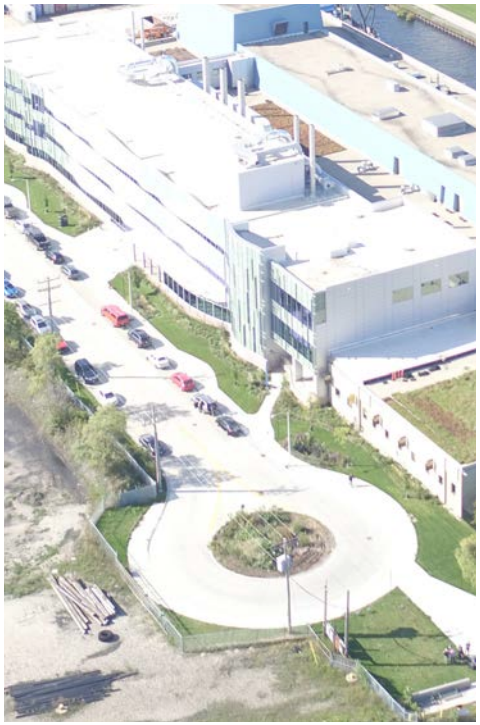
In coordination with local organizations to elicit responses from the communities in order to build stronger personal connections with the lake.

PORTABLE LAB

A portable lab can be placed on site as a venue for discussions, public interest and/or a series of research based demonstrations by scientists.

SFS RESEARCH VESSEL

Monthly docking of the Neeskay and a series of discussions and onboard tours to better understand the work that takes place onboard.



PROGRAMMING PARTNERSHIP

Science on the Street at SFS

At the Greenfield Avenue site the goal is to get the research of the School of Fresh Water Sciences out of the classroom / lab and onto the street, to engage the public with the work and research that go on here. Through a series of programmatic interventions, we would like to help the community better understand the connections between ourselves, the land and the lake.

In addition to programming at the School of Freshwater Sciences regular programming will also be coordinated through the Milwaukee Metropolitan Sewerage District, Sixteenth Street Community Health Center, and the United Community Centers and ongoing events will take place at the Global Water Center in this initial phase.

project implementation

WaterMarks: An Atlas of Water for the City of Milwaukee...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JONES ISLAND
WATER TREATMENT
PLANT STACK


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WALKERS SQUARE
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JONES ISLAND
WATER TREATMENT
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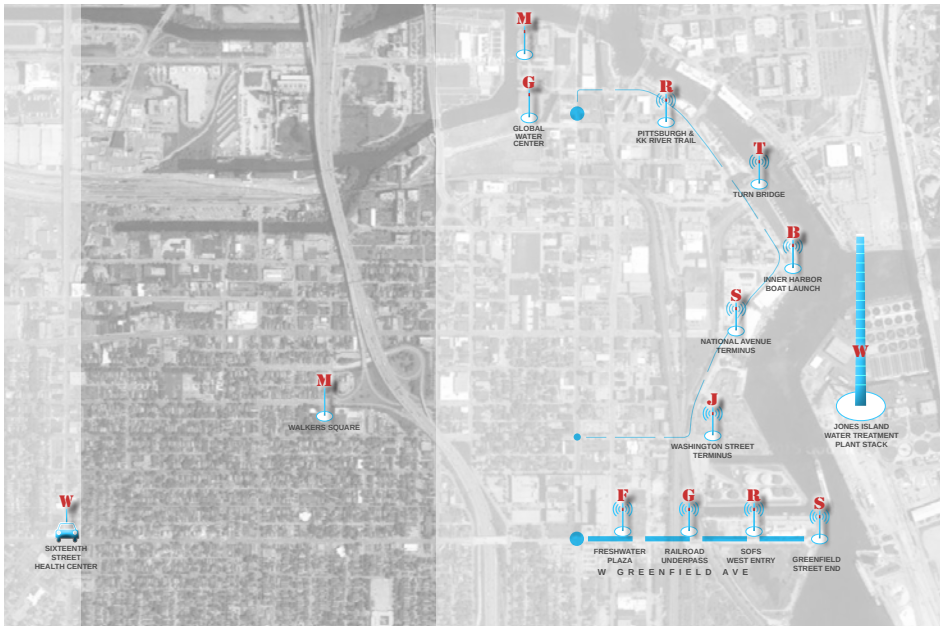
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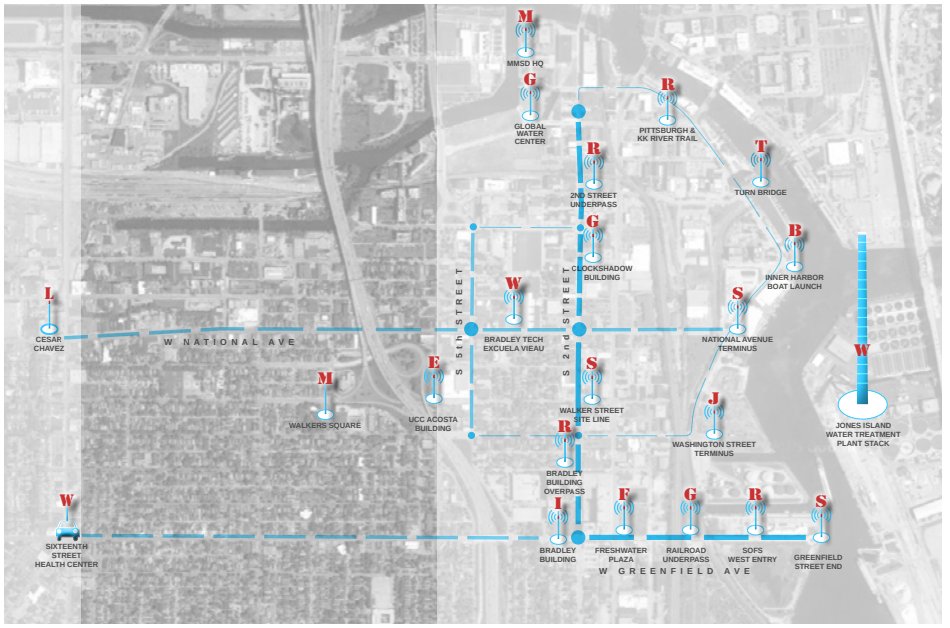
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PROJECT PHASING

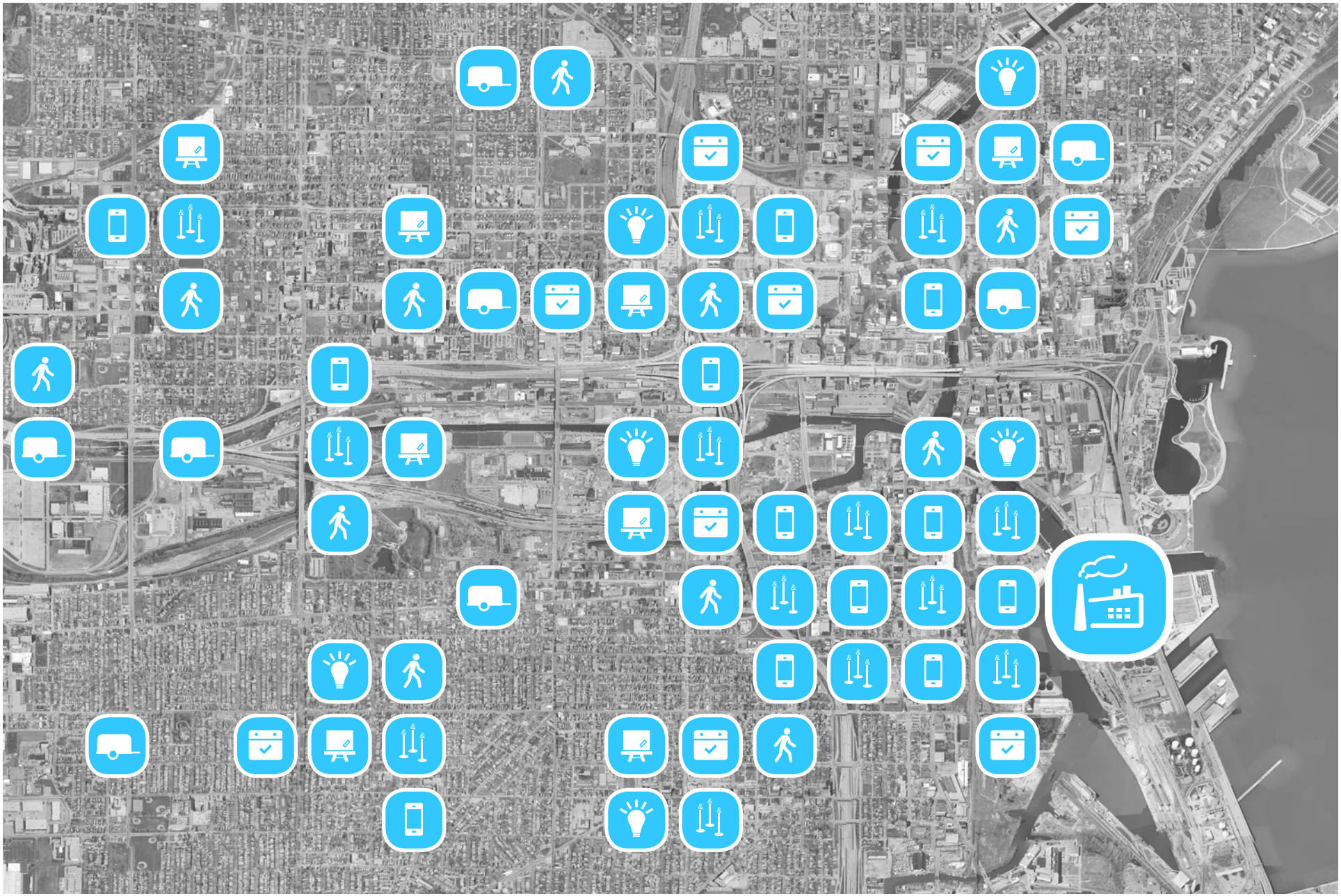
Initial Proposal Phasing Options

The initial WaterMarks implementation strategy has been developed as a flexible and fully scalable ‘kit-of-parts’ and designed to be installed at various locations contingent on available funding and scheduling opportunity.

Project Phases

- Phase 1: Jones Island Stack Installation
- Phase 2: Phase 1 + Greenfield / Mobile Markers
- Phase 3: Phase 2 + Inner Harbor Makers
- Phase 4: Phase 3 + 2nd Street Markers

WaterMarks Community Engagement Elements (Walks, Workshops, Project, and Events) are to be included in each of the aforementioned project phases and throughout project expansion.



PROJECT EXPANSION

Incremental Project Expansion

WaterMarks is intended to establish an integrated, urban-scaled network of opportunities and create a series of platforms for Milwaukee residents to explore their relationships to the natural water systems and infrastructure that support their lives.

Over time, the project is intended to expand organically becoming larger and more diverse reflecting the ever-increasing depth and diversity of social and ecological connections.

In the larger context, the project goals are intended to contribute in the transformation of Milwaukee to a sustainable city (as described in the UN Sustainable Development Goals). WarterMarks will contribute to these ambitious goals by establishing a network of efforts and practices with institutions and city agencies activated by artists, designers, scientists, and residents.

Create a unifying network of water messaging to:

Address environmental and water related issues

Engage Milwaukee neighborhood communities

Establish Milwaukee's visibility as a Global Water Center

PROJECT MESSAGING

Unifying Network of Water Messaging

WaterMarks primary objective is to create a unifying network of water messaging and to support the following three goals:

Three Primary Goals

- Address environmental and water related issues, towards sustainable development
- Engage communities as active partners
- Establish Milwaukee as a Global Water Center.

Additionally, we aspire to work with the many diverse communities of Milwaukee to create futures of sustenance. By recognizing their own roles as ‘vessels’ in their own communities, residents of the city begin to appreciate their responsibility for water as a resource that is both vital to life as well as general well being across the region.

appendix section

WaterMarks: An Atlas of Water for the City of Milwaukee...

An Artist Narrative

Milwaukee Background

In the late 90's I originally came to Milwaukee at the invitation of the Milwaukee Institute of Art and Design and the Historic Third Ward to conceive a proposal for a riverfront walkway for the Historic Third Ward District. The invitation was made in recognition of my work as lead designer for the South Cove in Battery Park City, one of the first waterfront parks giving renewed access to the Hudson River. The project supporters felt I was a good choice to help reconnect the city with the Milwaukee River.

My goal for the riverfront walkway project was to allow people to get closer to the river as they walked this seam along the water's edge, as well as help reveal the ecological connection between the city, the water that comes off it and the river.

The focus on the relationship between the city and the river was to be explored through the design of such features as wetlands to clean highway run off water in one of the few open spaces, an access point to view into the deep tunnel system, and various locations to look out over the water or get down close to it among others. Most of the elements designed for the Riverwalk were not implemented due to lack of funding, and because Milwaukee, as with many other cities, had not yet begun efforts to recognize and re-establish a complex relationship to its water systems.

The entire Riverwalk has, however, become a great amenity for the city contributing to the transformation of the city and revitalization of its inner core. Such an initiative demonstrates the power that a relatively modest investment in a project can have to help reshape a city and positively engage residents. Many years after the completion of the Riverwalk, it is being considered by the Urban Land Institute for its Global Award for Excellence.

Returning to Milwaukee in 2015 for a panel at UWM's School of Architecture, I met Marsha Sehler and Peter McAvoy who, having heard about my recent water related projects in Indianapolis, asked if I would consider doing a project to help tell Milwaukee's water story. This was a particularly appealing request given my experience in Milwaukee and my more recent interest in urban scale, systemic approaches to promote communities of nurturance.

A working Advisory Committee was formed to help guide the project through its initial concept development. It consisted of MMSD's Director, Kevin Shafer; the MKE Department of Public Works' Commissioner Ghassan Korban; UWM Water Policy Consultant, Peter McAvoy; UWM Architect, Jim Wasley; Lynden Sculpture Garden Director, Polly Morris; Marsha Sehler, formerly of Uihlein Wilson Architects; Developer Gary Grunau; and retired Discovery World Director, Paul Krajniak. Most of this group has continued to guide the project through Design Development.

New Means of Engagement

Having spent several decades drawing people's attention to the relationship between the built and natural environment and thinking about how to create a visceral engagement with place, I became concerned that a different or additional form of engagement was necessary to address the increasing environmental risks that were emerging. Rather than the approach of overwhelming or frightening people, how could it be possible to get individuals / communities to take note of these issues and then feel empowered to address them and take action in envisioning a future of sustenance?

In response to these concerns in the mid aughts I developed the framework for a non-profit, CITY AS LIVING LABORATORY: Sustainability Made Tangible through the Arts" (CALL). The main goal has been to help cities understand the important complementary role that artist can have alongside scientists, urban planners or educators in making issues of sustainability accessible and actionable at ground level in communities, on the streets. Artists' ability to provide direct, visceral experience can be a compelling means of engagement with issues that otherwise seem too overwhelming, too much in the future or too complex.

I began to think beyond individual projects to whether a broader approach in a city could be considered: in Indianapolis we looked at a six mile corridor of the White River and in a subsequent project generated in part by the first, at neighborhoods along five tributaries to the river there.

In New York City over the past seven years we have been working on defining the 18 mile length of Broadway as the 'green corridor' of NYC where new ideas developed by artists can address issues as diverse as storm surge, gentrification and environmental equity, and the daylighting of a buried stream.

This is a systemic approach to create change: it has been interesting to think about how a landscape/community can be affected with multiple sites being activated. We have worked to create situations where it is possible to enlist a broad array of artists of different mediums working in tandem with scientists / other experts to engage communities and their residents with the issues that are most pressing. One time exposure to problems is shown to be ineffective. Partnering with local community organizations, academic and cultural institutions and city government the goal is to create an ongoing engagement 'in place' with these critical issues.

We have kept in mind the importance of the UN's 17 Sustainable Development Goals. We recognize that these are irreducible and inextricably linked. Whether addressing water or air quality as a topic, health, equity, justice, climate, etc are also being impacted. In addressing any single issue, the process is intended to maintain awareness and to support the overall resilience of the community and its transformation into sustainability in all areas.

Lessons Learned

The process of review and reflection about past CALL projects considers multiple questions: physically what works and what does not, who needs to be involved and at what stage, what is the best means of engaging people with content, how much is too much information, what is the best process for getting the interest of communities, how does this happen over time, what are the sustainability goals and how are the multiple aspects interrelated? Below we describe key aspects of our previous experience that influence WaterMarks.

When deciding where to start in Milwaukee, we spent a great deal of time talking to people and exploring the city. We were very aware of the development that had happened in recent decades in the central parts of the city nearest the lake. We visited the neighborhoods outside the central core and saw how pressing and complex the needs are. We began to identify the organizations within these communities that could be possible future partners.

After these preliminary explorations, we finally decided to initiate the project in the Inner Harbor for several important reasons. One is that here the city's three rivers flow together into Lake Michigan making it almost unavoidable as a starting point. Also, the city's main water treatment facility is located here with its 350' tall stack making it very visible.

However, the most pressing question was, what criteria would be used to determine the sites for the project. Our experience with the National Science Foundation sponsored project in Indianapolis taught us that while it is positive to have sites in stressed or changing neighborhoods, by having these sites distributed throughout the city, it was very hard to gather the momentum to make this project visible at the urban scale. The impact was limited by the dispersed presence and lack of density of installations and activities.

In the case of Indianapolis we hoped that relationships could be developed with communities through our collaborating partners during the two years the installations were in place. But as the project progressed we realized our partners did not necessarily share our concerns. It became clear that engaging the communities directly with appropriate partners was the most important first step. The nature and goals of the partnerships had not been clearly enough defined beforehand limiting their effectiveness. Finally, the lack of ongoing programming to engage communities limited the medium and long-term impact of the project.

The Vital Interaction: Installations, Programming and Community Engagement

Our work in New York City has provided important experience in terms of programming: we have explored steps for defining the most important issues for communities, how artists can be directly engaged with those issues and the residents, and how this engagement can lead to collaborative proposals to address interests and concerns.

We have found that introducing artists to other experts—scientists, historians, sociologists—and having them lead walks in a neighborhood is a good way to start

conversations regarding the community and its concerns. It also allows artists, the scientists and other key actors to get acquainted with each other and find common points of interest. The walks are therefore a fundamental part of the process and several take place in each neighborhood in order to facilitate these important relations and consider different issues.

Another key step in the process is to have meetings and workshops with community members. A 'partners' committee' of people from the neighborhood meet to begin to identify relevant issues. They also help coordinate the logistics and list of invitees to a larger community-wide workshop. Word is put out by the advisors about the workshop and people are invited to sign up. Questions are proposed ahead of time, posted on the walls at the start of the gathering and responses elicited. A discussion that addresses those questions and the responses is led by the partners. Afterwards, the group breaks up into sections to discuss the issues that have surfaced as being most outstanding; an artist is present with each group.

Based on the discussion dynamics and the content/priorities that surface, the artists proceed to develop proposals. After the proposals are collected, a group from the workshop decides which proposal they would like to see developed. Sometimes it is only one, sometimes it is several. A plan is then developed to take on these proposals.

Project Partnerships

In Milwaukee, CALL has been applying the lessons learned to facilitate and promote the most effective collaboration between artists, the community and other key actors.

The city-wide system approach has identified a group with shared concerns consisting of academic institutions, municipal agencies, organizations and non-profits, philanthropists and foundations. There are many non-profit organizations throughout the city with similar interests, particularly addressing concerns around water, who we hope to have as WaterMark partners. They know their diverse communities well and have developed programs with goals that are closely aligned to this project. Examples of a few are the Water Commons, the 16th Street Health Center, the United Community Center and the Urban Ecology Center. We envision WaterMarks as a means to provide a unifying messaging around the many aspects of water these organizations address.

To have municipal partners in this initiative has been key. The Department of Public Works and Milwaukee Metropolitan Sewer District (MMSD) have been key partners as WaterMarks has developed identifying neighborhoods, introducing us to their leaders across the city in diverse communities. They will be important players in future programming and locating future sites where green or other infrastructure is to be installed. We also look forward to working with the city's Environmental Collaboration Office (ECO) as the project develops.

But to ensure the long-term success of the project requires a strong partnership with a local institution or organization with the capacity to help activate the project and to sustain it after CALL's initial work is completed. It is important that this partner share our values and goals for community engagement. They also must have the capacity to design and implement programs and projects over time with an array of partners, including local artists. This key partner must also have the resources to maintain a robust network with other institutions and organizations to collaboratively carry on the project and programming through all parts of the city.

To our great satisfaction, the Haggerty Museum at Marquette University has taken on this role and has served as a steadfast partner in the WaterMarks project. Over the past year they have shared our aspirations while providing on the ground presence, project support and resources that include a Marquette University Innovation Grant and space within the university's floor in the Global Water Center.

As we move forward WaterMarks keeps three important goals in mind: address environmental issues as a gateway to sustainable development, engage communities as active partners, help identify Milwaukee as a global water center.

We aspire to work with the many diverse communities of Milwaukee to create futures of sustenance. By recognizing their own roles as 'vessels' in their own communities, residents of the city begin to appreciate their responsibility for water as a resource that is both vital to life as well as general wellbeing across the region. Citizens will have new tools to understand that all property is lakefront property and that the health of Lake Michigan starts with each resident of Milwaukee.

Over-arching Goals for the WaterMark Project

To create an integrated, urban-scaled vision of the city of Milwaukee designed to provide citizens with a platform to explore their relationships to the natural water systems and infrastructure that support their lives. The project is intended to expand organically becoming larger and more diverse reflecting the ever-increasing depth and diversity of social and ecological connections.

In the larger context, the project goals are intended to contribute in the transformation of Milwaukee to a sustainable city (as described in the UN Sustainable Development Goals). WaterMarks will contribute to these ambitious goals by establishing a network of efforts and practices with institutions and city agencies activated by artists, designers, scientists, and residents.

To accomplish these objectives, CALL and the Haggerty Museum / Marquette will:

1. Launch community-based Watermarks installations and activities as platforms for exploring, imagining, creating, and enacting connections between:
    - Water and other elements that effect quality of life and sustainable development;
    - Milwaukee history, Milwaukee contemporary and aspirations of Milwaukee residents for the future
    - People within the landscape, lake and waterways and the larger ecological system.

2. Explore the capacity of the arts to complement science, urban planning, and other technical approaches to environmental challenges through collaborative public engagement that can:
    - Increase curiosity about a site and its surroundings;
    - Inspire exploration of a site and the history, ecology, and relevant scientific research;
    - Promote knowledge sharing and learning;
    - Produce a narrative that complements technical/scientific knowledge about subjects related to sustainable development; and
    - Drive civic action.

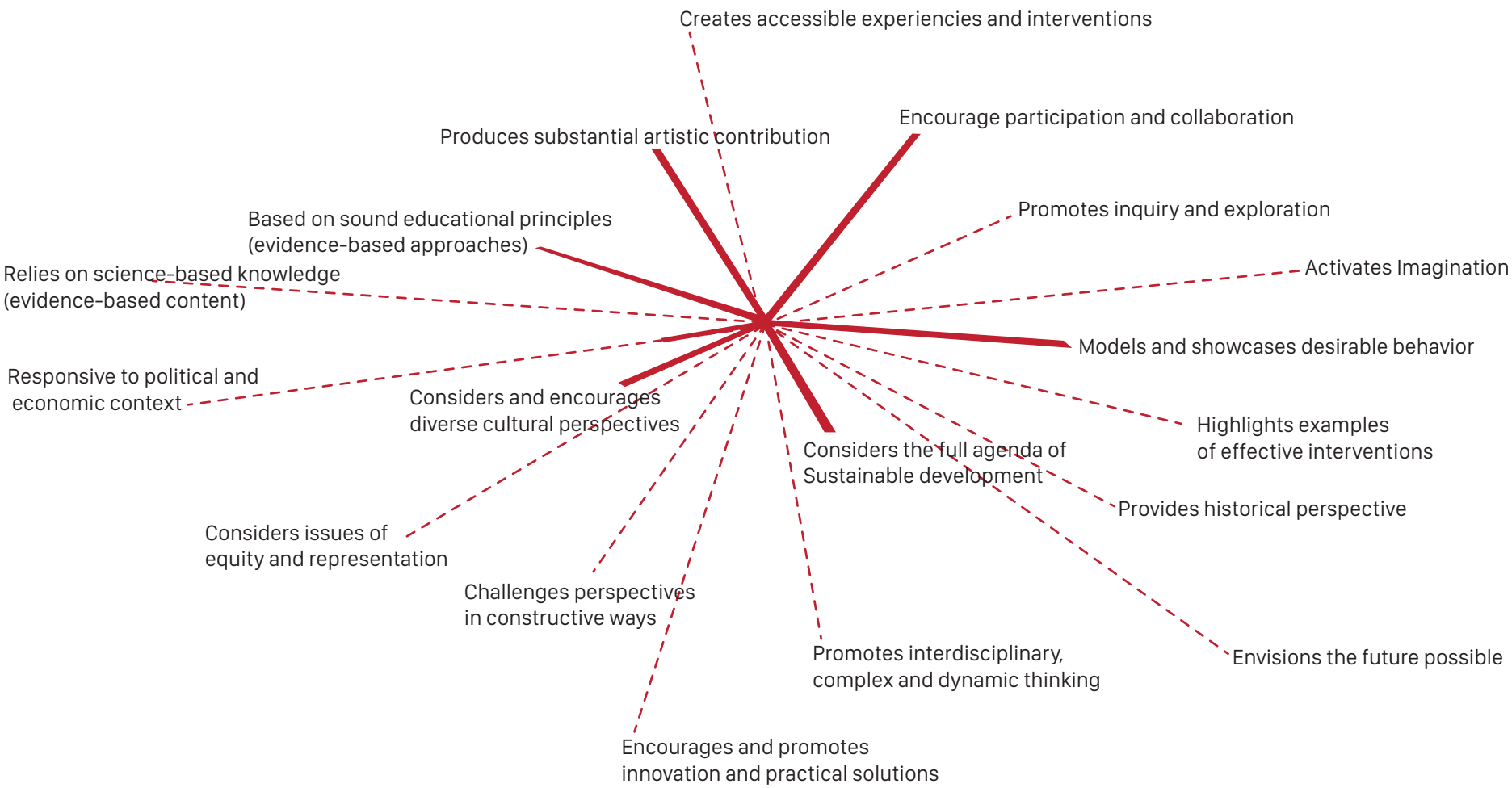
These efforts will result in the creation of:

1. Significant artistic contributions by community-based artists and other artists that contribute to the quality of life in Milwaukee;
2. A platform for transdisciplinary artistic exploration and collaboration in the context of Milwaukee's vital water resources;
3. A framework for community-based learning, research and collaboration that supports the community engagement goals of Marquette University (and other academic institutions in the Milwaukee context;
4. Methods to understand, explain and embrace and manage the complexity inherent in the larger movement towards Sustainable Development;
5. Spaces and experiences for citizens of Milwaukee to move beyond cognitive dissonance (that is created by conflicting ideas or solutions that seem unachievable, which create stress and disincentives) and consider, imagine, invent and enact possible sustainable futures;
6. Spaces and experiences for Milwaukee citizens to consider, invent, imagine, and enact different ways of relating to nature as well as other people (and highlighting the importance of relations themselves); and
7. Sites and experiences for Milwaukee citizens to consider, invent, imagine, and enact practices that support democratic, inclusive, equitable, etc., societies and fundamental human rights.

The principals that will guide the execution of Watermarks are:

- Produces a substantial artistic contribution
- Accessible and place-based
- Encourages participation and collaboration
- Promotes inquiry and exploration
- Activates the imagination
- Models and showcases desirable behavior
- Highlights examples of effective interventions
- Provides historical perspective
- Envisions the future possible
- Considers the full agenda of Sustainable Development
- Promotes interdisciplinary, complex and dynamic thinking
- Encourages and promotes innovation and practical solutions
- Challenges perspectives in constructive ways
- Considers issues of equity and representation
- Considers and encourages diverse cultural perspectives
- Responsive to political and economic context
- Relies on science-based knowledge
- Based on sound educational principals (evidence-based approaches)

Principles for connecting knowledge, perspectives, artistic interventions with actions to promote sustainable development



Climate Action, Justice and Equality are Interwoven

When we think about environmental issues, we tend to concentrate our concern around one issue or problem (such as climate change or biodiversity conservation). The Sustainable Development Goals, adopted unanimously by the United Nations members in 2015 embody the idea that sustainable development is a complex, interwoven and dynamic system where all elements are equally relevant. **The Sustainable Development Goals** challenge us to consider that human and social development are important for a sustainable world as climate change actions and wildlife conservation. With 17 goals, that reflect hundreds of targets and indicators; the Sustainable Development agenda is a project of unprecedented scope, aspiration and complexity.

Constructing the agenda for sustainable development, understanding it in its full, irreducible complexity, and imagining ourselves in a sustainable world is a challenge. The chances of meeting this challenge will improve if we draw upon all the capacity of art to help us imagine, understand and be inspired to reach further than what seems humanly possible. Never has the role of art been more important than now, when the questions are the most complex and we are challenged to imagine truly new paths forward. Our artistic impulse can help us make sense of the ineffable, and invite us to become our best selves.

In more specific terms, the socially minded artistic practice of the CALL/City as Living Laboratory establishes and nurtures relationships and networks of partners so all elements of sustainable development in a city can be considered and all key actors can participate in creatively understanding and addressing this unprecedented agenda.

There is little that an individual organization can do, no matter how large and how well funded, to take on this ambitious and complex agenda. The success of the sustainable development agenda requires a large network of interdisciplinary institutions bringing forth their best effort, while being aware of, and supporting the efforts of others. City as Living Laboratory develops city wide projects that help draw attention to key sustainability concerns, but most importantly, create a platform for a diversity of actors/stakeholders (in the community, education, culture, scientific, environmental, government and for profit sectors) to become active and aware of each other in the shared project of building communities or nurturance.

The Sustainable Development Goals

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Ensure healthy lives and promote well-being for all at all ages
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

The Haggerty Museum of Art's WaterMarks Role

The Haggerty Museum of Art is in the unique position of advancing Marquette University's Jesuit commitment to social justice, community engagement, and interdisciplinary learning through the arts. Marquette's strategic priorities include water-related research, as evidenced by its prominent presence at the Global Water Center, where artist Mary Miss is in residence alongside other research and development cohorts studying wastewater treatment, rainwater harvesting, desalination, water law and policy.

Given WaterMarks' strong alignment with the Haggerty and Marquette's priorities, then, the museum is well-positioned to act as the art-based programming partner to this broad-based community effort. The museum has the ability to aggregate and mobilize its resources, including relationships with local artists, as well as the science, engineering, humanities, and social science students and faculty—and other academic resources of Marquette University—in support of this project. As a public-facing unit of the university, the Haggerty also has a strong track record of working across disciplines within and outside of the campus community.

The museum works closely with Marquette's Office of Community Engagement, led by Executive Director Dan Bergen, to identify opportunities for bidirectional, community-based research partnerships, and to leverage partnerships within communities where Marquette has established strong relationships. With the creation of a new Manager of Community Engagement position, the Haggerty will be equipped to manage the opportunities and resources that the diverse set of WaterMarks partners have presented, and to connect this project with traditional and non-traditional museum audiences.

Primary Partners' WaterMarks Role

Mary Miss / City as Living Laboratory's (CALL) artistic process is by design durational, intensely collaborative, and reliant on the acquisition of new knowledge through extensive research, field work and network-building. From the outset of the WaterMarks project Miss / CALL have engaged in conversation with local organizations throughout the city such as Milwaukee Water Commons, Urban Ecology Center and Reflo with the goal of understanding how WaterMarks can amplify those efforts. Having these dialogues was a critical first step in the process, laying the foundation for community engagement activities and collaborative programming that will inform and activate the field of Markers.

Programming at each location will be developed in close collaboration with each partner, and will build on that partner's existing outreach efforts. Miss's flexible CALL methodology—which pairs local visual artists with residents, scientists, engineers, or businesses engaged in water research—will serve as the model for these bi-directional programming partnerships. These important programming partners will enable WaterMarks to seek out new voices and "water stories" from the city's residential communities.

From Miss's residency space in the Global Water Center Miss / CALL have spent much of the last year in conversation with key stakeholders in the Inner Harbor, the project's geographic area of focus for the first phase of the project. With the support of IMLS grant funding the Haggerty Museum of Art and CALL will install the first project Marker in Walker Square and activate key nodes in the WaterMarks Atlas through community-based programming with three partners:

1. Milwaukee Metropolitan Sewerage District Headquarters
2. The University of Wisconsin-Milwaukee (UWM) School of Freshwater Sciences,
3. The Sixteenth Street Community Health Centers.

These initial programs will lay the groundwork for the activation of other sites with other partners in neighborhoods throughout the city.

We appreciate the time and conversations that helped shape this project contributed by the following:
(in alphabetical order)

Dan Adams
Sharon Adams
Dean Amhaus
David Antonson
Melanie Ariens
Rachel Arndt
Austin Baldwin
Melody Baker
Ian Bautista
Emily Belknap
Susan Bence
Dan Bergen
Jill Birren
Jesse Bloom
Nadia Bogue
Jennifer Bolger Breceda
Alexa Bradley
Laura Bray
Ann Brummitt
Brent Budsberg
Staphanie Calloway
Ray Chi
Pegi Christianson
Melissa Cook
Kim Cosier
Eddee Daniel
John Dargle
Raoul Deal
Karen Dettmer
Ricardo Diaz
David Dragseth
Paul Druecke
Kathryn Dunn
Dan Eagan
Tim Ehlinger
Vicki Elkin
Carolyn Esswein
Jerome Flogel
Chris Foley
David Fowler
Lilith Fowler
Ben Gramling
Brennon Garthwait
Ellen Gilligan
Gary Grunau
John Gurda
Beth Heller
Justin Hegarty
Susan Holly
Chelsea Holton
Maeve Jackson
Kim Jensen
Shajan John
Chris Johnson
Paul Jones
Sean Kiebzak
Paula Kiely
Tina Klose
Jenna Knapp
Julily Kohler
Ghassan Korban
Will Kort
Paul Krajniak
Emilia Layden
Eric Leaf
Ken Leinbach
Howard Leu
Susan Lloyd
Susan Longhenry
Mike Lovell
Jacobo Lovo
Lynn Lucius
Kristin Marek
Katie Martin
Rocky Marcoux
Natanael Martinez
Colin Matthes
Peter McAvoy
Shana McCaw
Mary McCormick
Patricia McManus
Eric Meils
Jennifer Mikulay
David Misky
Sharlen Moore
Ed Mordy
Kate Morgan
Polly Morris
Tim Murphy
Nicholas Frank
Carole Nicksin
Pat Obenauf
Steve Ohly
Mary Osmundsen
Gail Overholt
Mary Elise Papke
Marty Peck
Sylvia Peine
Jose Perez
Paige Peters
Linda Reid
Scott Royer
Beth Sahagain
Karen Sands
Kevin Schafer
Jaime Schafer
Jill Sebastian
Marsha Sehler
Erick Shambarger
Lynne Shumow
Michelle St. Amour
Keith Stachowiak
David Striffling
Rosheen Styczinski
Anne Summers
Liz Sutton
Julia Taylor
Michael Timm
Kirsten Thompson
Angie Tornes
Ursula Twombly
Maria Vento Lopez
Eric Vogel
Jim Wasley
Wayne Wiertzma
Sally Witte
Chris Young
Kayana Young
Corey Zetts
Dan Zitomer

Jones Island Stack - 60% Design Development Set

(in collaboration with DLR Group)

1 - SITE PLAN AND LIGHTING LAYOUT

1/32" = 1'-0"

No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT

Project Name

Jones Island
Treatment Plant Stack

Project No. 05-16101-00

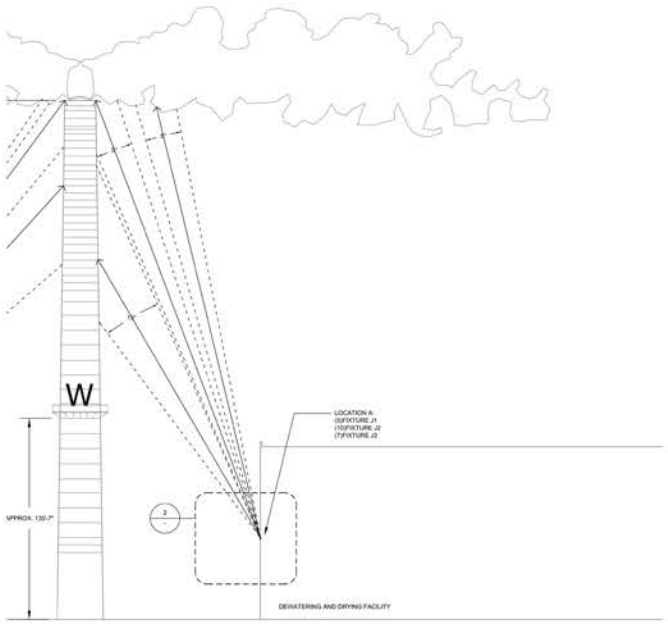
DLR Group | Westlake Reed Leskosky
1201 Broadway, Suite 1006
New York, NY 10001
T: 212.564.8705

SITE PLAN
AND LIGHTING LAYOUT

DD

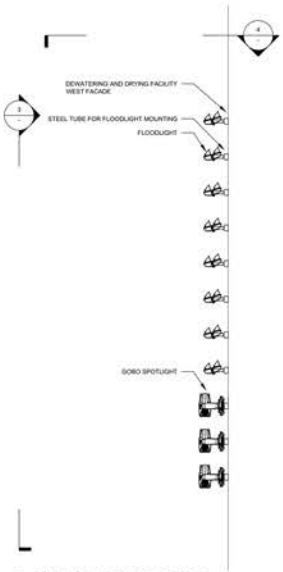
LT-001

No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT



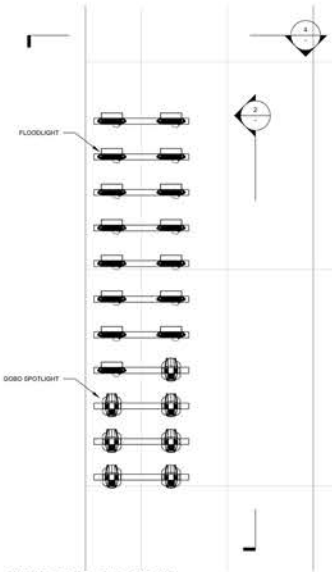
1 - SECTION

1/32" = 1'-0"



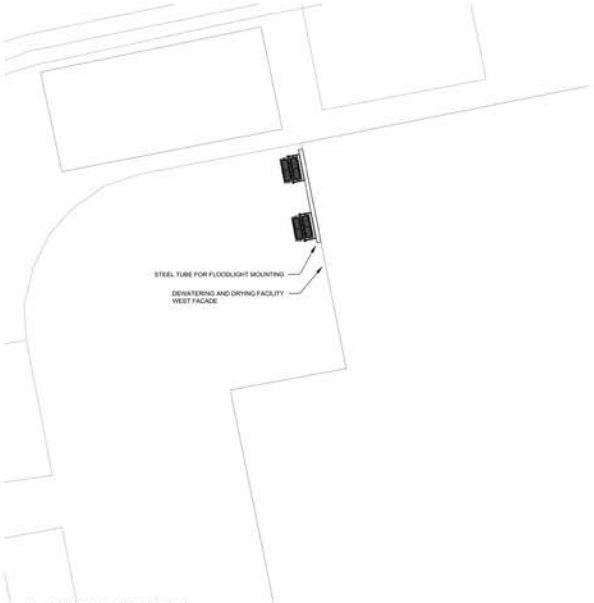
2 - ENLARGED SECTION

1/4" = 1'-0"



3 - ENLARGED SECTION

1/4" = 1'-0"



4 - ENLARGED PLAN

1/4" = 1'-0"

Project Name

Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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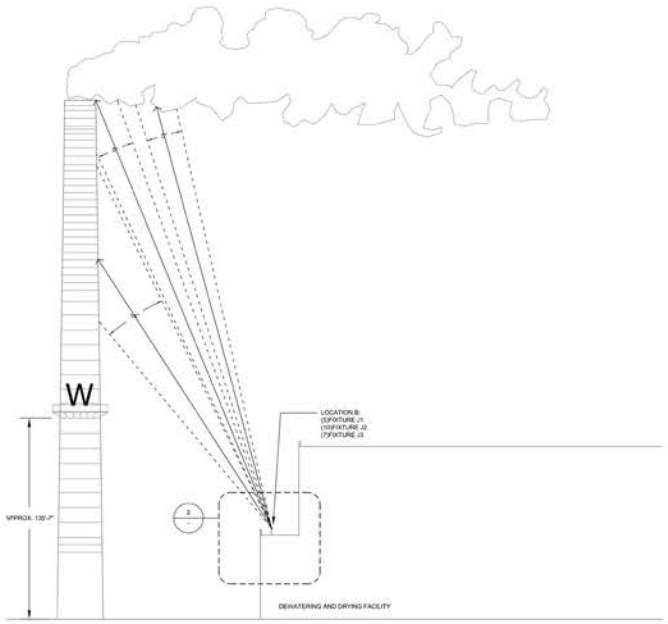
LOCATION A
SECTION AND LAYOUT

DD

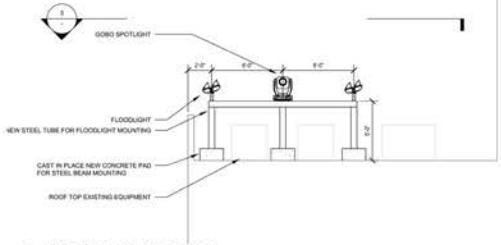
LT-002

No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT



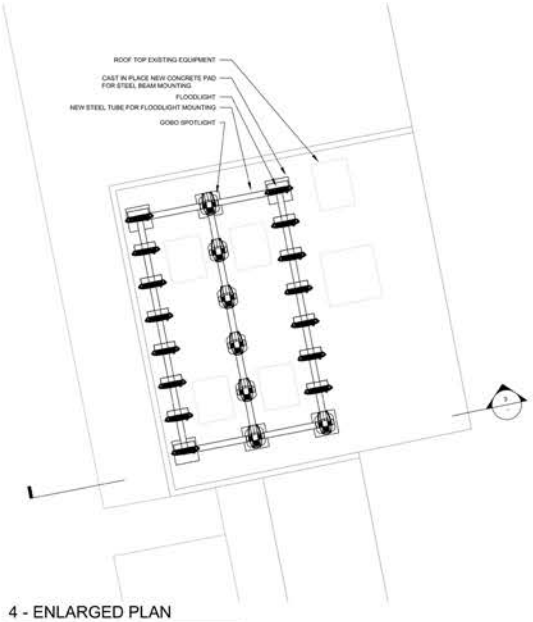
1 - SECTION

1/32" = 1'-0"



2 - ENLARGED SECTION

1/4" = 1'-0"



4 - ENLARGED PLAN

1/4" = 1'-0"

Project Name

Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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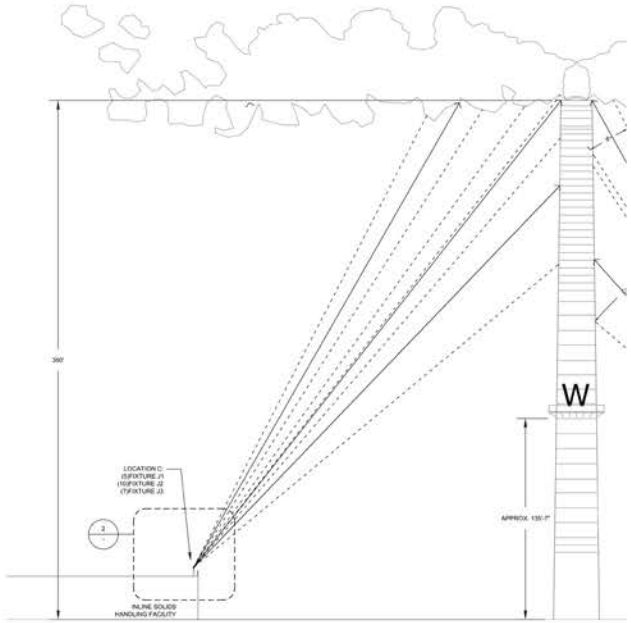
LOCATION B
SECTION AND LAYOUT

DD

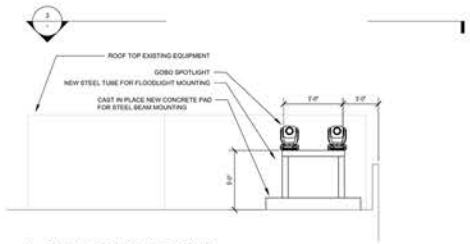
LT-003

No.	Date	Description
1	05/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT



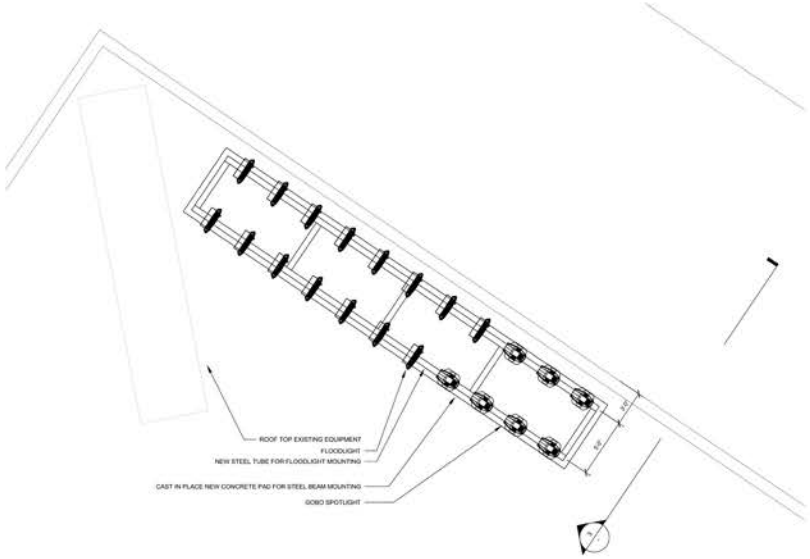
1 - SECTION

1/32" = 1'-0"



2 - ENLARGED SECTION

1/4" = 1'-0"



3 - ENLARGED PLAN

1/4" = 1'-0"

Project Name

Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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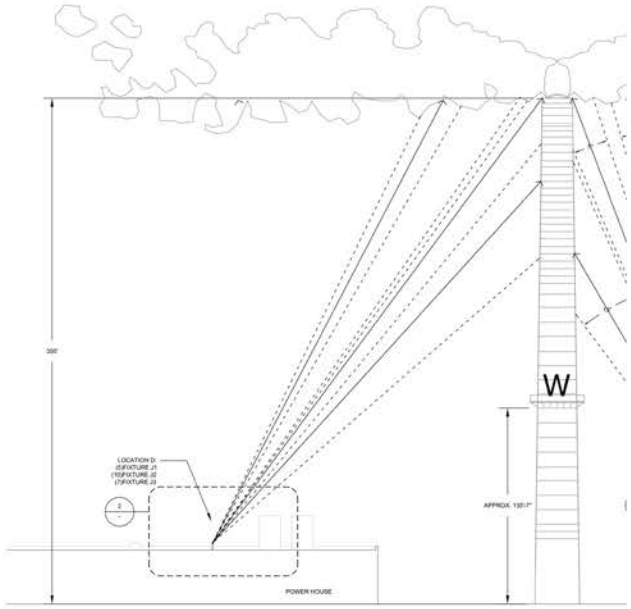
LOCATION C
SECTION AND LAYOUT

DD

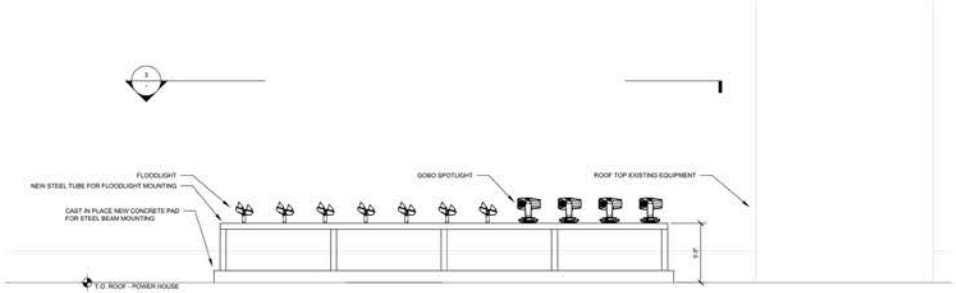
LT-004

No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT



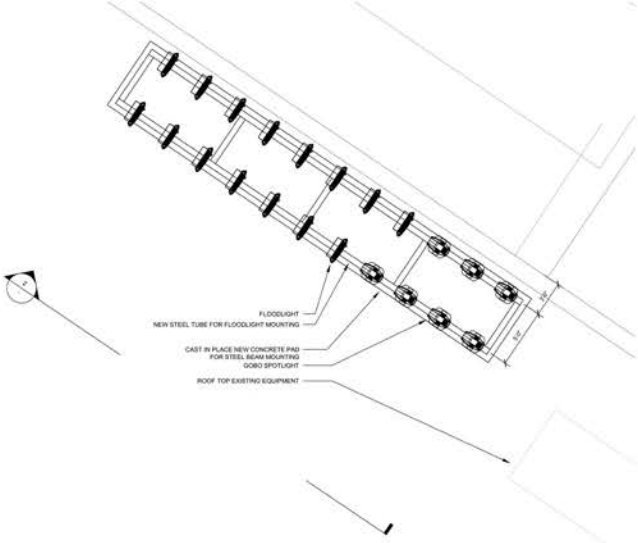
1 - SECTION

1/32" = 1'-0"



2 - ENLARGED SECTION

1/4" = 1'-0"



3 - ENLARGED PLAN

1/4" = 1'-0"

Project Name

Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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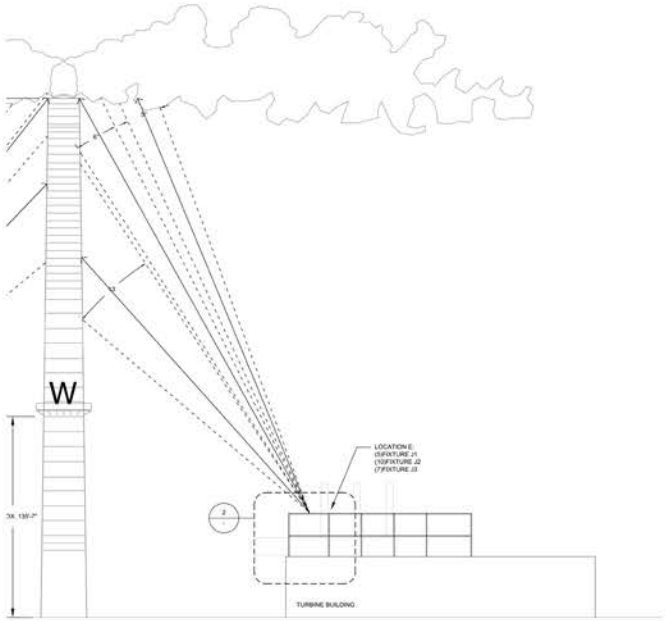
LOCATION D
SECTION AND LAYOUT

DD

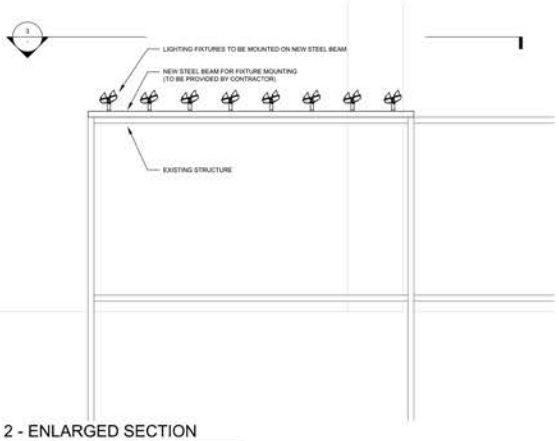
LT-005

No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT



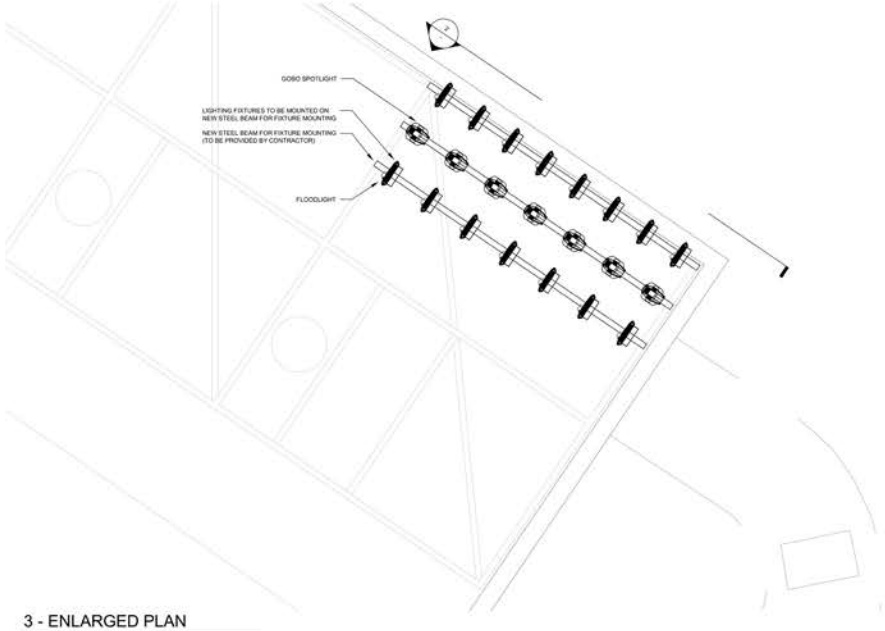
1 - SECTION

1/32" = 1'-0"



2 - ENLARGED SECTION

1/4" = 1'-0"



3 - ENLARGED PLAN

1/4" = 1'-0"

Project Name

Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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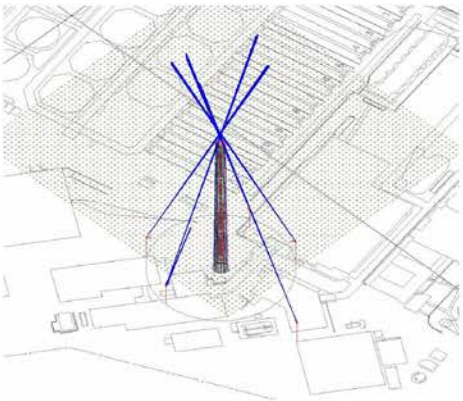
LOCATION E
SECTION AND LAYOUT

DD

LT-006

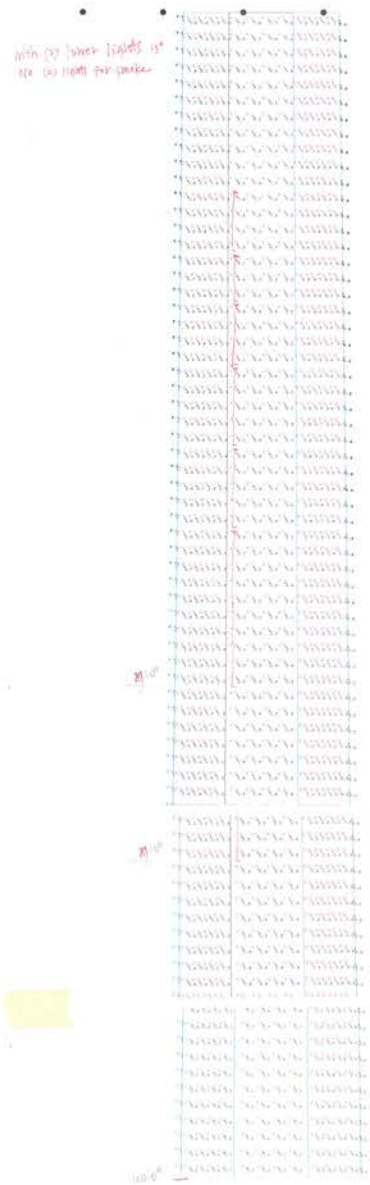
NOTE:
BELOW INFORMATION REPRESENTS THE PROGRESS STUDY. THE CALCULATION NUMBER DOESN'T REPRESENT THE FINAL RESULT.

No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT



LIGHTING CALCULATION 3D DIAGRAM

LIGHTING CALCULATION PLAN DIAGRAM



PRELIMINARY LIGHTING CALCULATION -
CALCULATION POINTS ON ELEVATION (LOOKING FROM LOCATION D)

Project Name
Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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New York, NY 10001
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LIGHTING CALCULATIONS

DD
LT-007

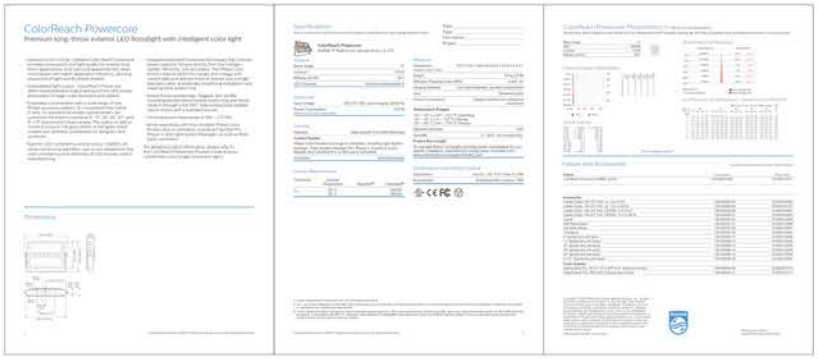
LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER: MODEL	VOLTAGE	INPUT WATTAGE	CONTROL MEANS
J1	Exterior rated surface mounted LED floodlight with 5 degree beam distribution. Provide louver and half glare shield. Provide necessary cable, mounting accessories, and control devices for proper installation. *Fixture to be mounted on steel tube. Steel tube to be provided by contractor. *Fixture aiming required.	Color Kinetics: 423-000014-00 108-000055-Length 120-000187-02 120-000187-01 106-000004-00	120-277V	270W	DMX
J2	Exterior rated surface mounted LED floodlight with 13 degree beam distribution. Provide louver and half glare shield. Provide necessary cable, mounting accessories, and control devices for proper installation. *Fixture to be mounted on steel tube. Steel tube to be provided by contractor. *Fixture aiming required.	Color Kinetics: 423-000014-00 120-000068-12 108-000055-Length 120-000187-02 120-000187-01 106-000004-00	120-277V	270W	DMX
J3	Exterior rated surface mounted LED gobo spotlight. 8 ~ 43 beam distribution. Fixture can accommodate (10)gobos and (2)independent effect wheels(Gobo effect wheel1: 5 gobos; Gobo effect wheel 2: 5 gobos). Gobo shall be custom designed (Actual Gobo design TBD). Provide necessary cable, mounting accessories, and control devices for proper installation. *Fixture to be mounted on steel tube. Steel tube to be provided by contractor. *Fixture aiming required.	SGM: G-Spot	100-240V	1100W	DMX

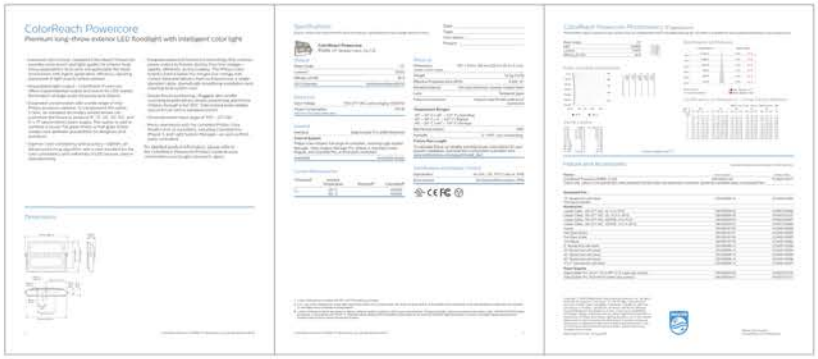
CONTROL NARRATIVE

- Lighting control system is connected to astronomical time clock. as night falls, astronomical time clock launches the lights. As twilight approaches, astronomical time clock switches the lights off.
- Lighting control system is connected to weather forecast data. When the forecast shows chances of rain, the lighting color effect changes to red throughout the night. When the forecast shows no sign of rain, the lighting color effect stays as blue throughout the night.

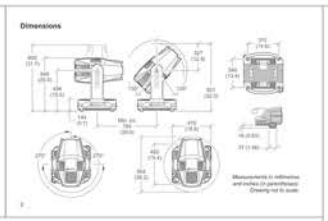
No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT



FIXTURE TYPE J1 CUTSHEET



FIXTURE TYPE J2 CUTSHEET



FIXTURE TYPE J3 CUTSHEET

Project Name
Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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LIGHTING FIXTURE SCHEDULE AND CUTSHEET

DD

LT-101

PRELIMINARY COST ESTIMATE

LOCATION	DESCRIPTION	MANUFACTURER	LAMP	CONTROL PROTOCOL	TOTAL COST (DN)*
A	Surface mounted grouped floodlights: /1 - (5)LED floodlight with 5 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for smoke illumination Surface mounted grouped gobo spotlights /3 - (7)LED gobo light	Color Kinetics SGM	LED RGBW LED RGB	DMX DMX	$52,500 $61,600
B	Surface mounted grouped floodlights: /1 - (5)LED floodlight with 5 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for smoke illumination Surface mounted grouped gobo spotlights /3 - (7)LED gobo light	Color Kinetics SGM	LED RGBW LED RGB	DMX DMX	$52,500 $61,600
C	Surface mounted grouped floodlights: /1 - (5)LED floodlight with 5 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for smoke illumination Surface mounted grouped gobo spotlights /3 - (7)LED gobo light	Color Kinetics SGM	LED RGBW LED RGB	DMX DMX	$52,500 $61,600
D	Surface mounted grouped floodlights: /1 - (5)LED floodlight with 5 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for smoke illumination Surface mounted grouped gobo spotlights /3 - (7)LED gobo light	Color Kinetics SGM	LED RGBW LED RGB	DMX DMX	$52,500 $61,600
E	Surface mounted grouped floodlights: /1 - (5)LED floodlight with 5 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for stack illumination /2 - (5)LED floodlight with 13 degree beam distribution for smoke illumination Surface mounted grouped gobo spotlights /3 - (7)LED gobo light	Color Kinetics SGM	LED RGBW LED RGB	DMX DMX	$52,500 $61,600
	Pharos LPC 1 - 1 DMX Universe Lighting Playback Controller	Pharos			$1,550
	Active Gateway	Color Kinetics			$2,000
	Data enabler	Color Kinetics			$6,980
	Power/data cable(10ft)	Color Kinetics			$4,500
	Applications Engineering Services	Color Kinetics			$4,000

Total estimated lighting equipment and installation cost (including mark-up)
$1,473,825

*DN=Distributor net cost, not including installation cost, and mark-up.

No.	Date	Description
1	06/13/2017	30% SCHEMATIC DESIGN
2	07/10/2017	60% DESIGN DEVELOPMENT

Project Name
Jones Island
Treatment Plant Stack

Project No. 05-16101-00

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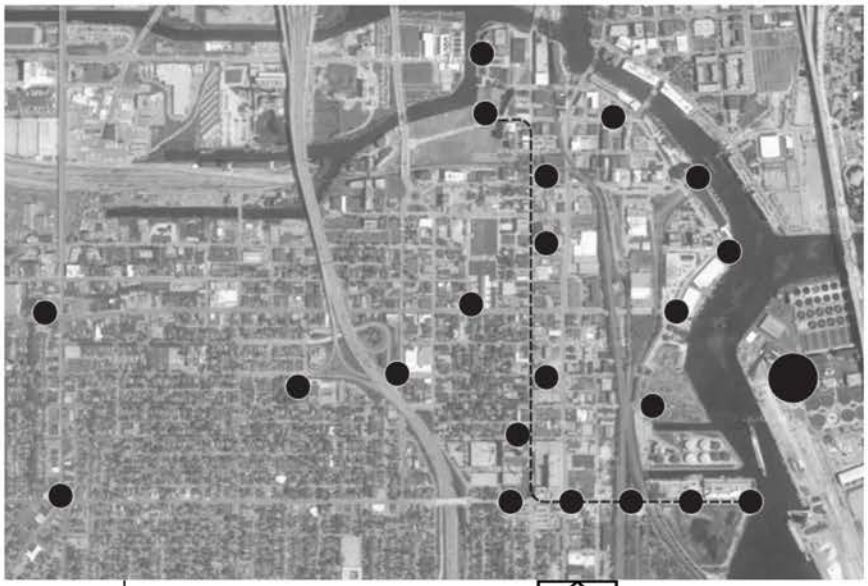
PRELIMINARY
COST ESTIMATE

DD

LT-102

Markers - 60% Design Development Set
(in collaboration with Michael Vander Ploeg & Ignition Arts)

WATERMARKS
CITY AS LIVING LABORATORY
DESIGN DEVELOPMENT
MILWAUKEE, WI



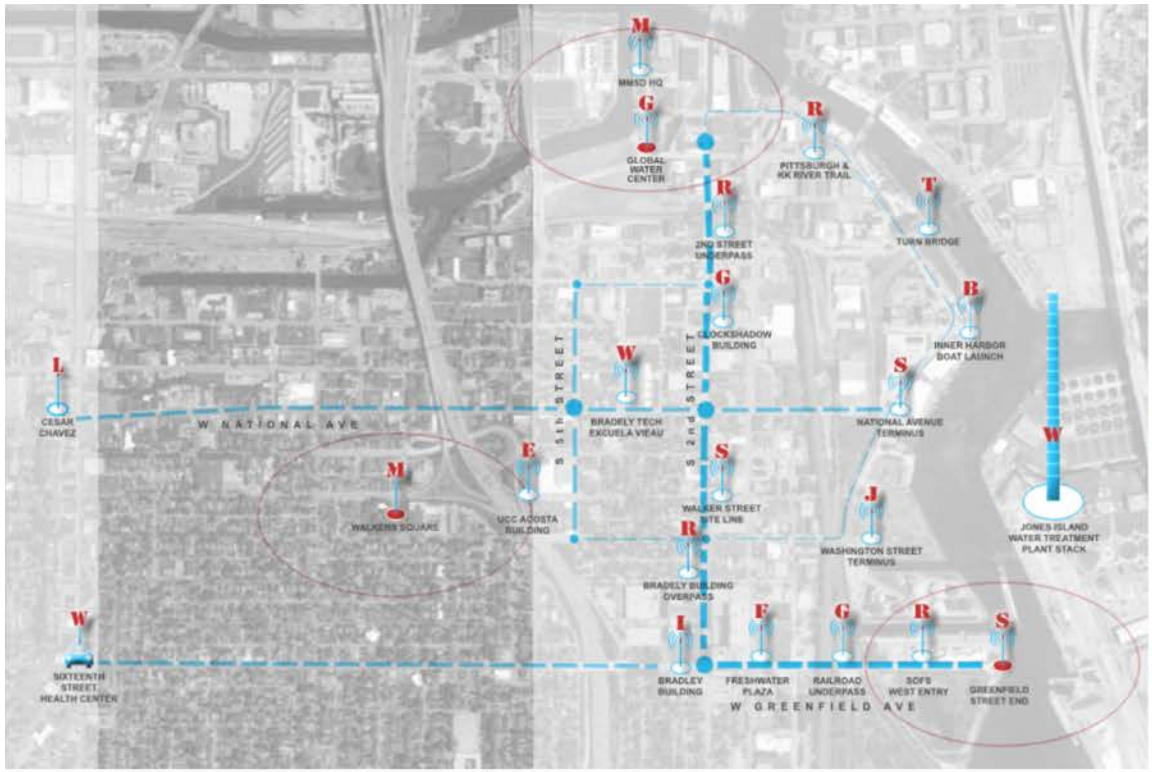
07.14.17 | 60% DESIGN DEVELOPMENT

DRAWING INDEX

GENERAL

ARCHITECTURAL

60% DESIGN DEVELOPMENT
COVER SHEET
WATERMARKS - MARKER CONCEPT
C0.0
// CITY AS LIVING LABORATORY



60% DESIGN DEVELOPMENT

SITE AND PERSPECTIVE VIEWS
WATERMARKS - MARKER CONCEPT

C0.1

CALL // CITY AS LIVING LABORATORY

1: SOLAR FILM

2.5 Watts / SF
Off Grid + 12v Recharge Battery Pack
Visible and can integrate into any form
Scalable

Basis of Design:
SoloPower
Power Film
Dunmore

2: STRUCTURE MATERIALS

Post options: Steel (powder coat finish)
Aluminum (anodized finish)

Concrete footing / paving - per structural

3: GROUND MARKERS

Brass / Stainless Steel Survey markers (stamped or machined finish)

Basis of Design:

4: CHARACTER MATERIALS

Translucent Lens: Red Polycarbonate or Acrylic
UV Resistant Coating
Low temperature crack resistant
Minimum 1/4" for small character / 3/8"-1/2" for large

Character Body: Powder Coated Steel / Aluminum Body
RAL 2012 Color Chip
Exterior Grade Finish

5: LIGHTING

Full Spectrum Marine Grade RGB Tape Light

Coordinate w/ translucent lens for power / brightness

5: Budget

Letter Extrusion Depth (G)	Letter Size (E X F)	Wattage (Total)	Solar (Total)	12v Battery (Total)	Post Size (C x D)	Drilled Pier Footing
10"	3'x2' (8 SF Average)	30x2 (60 watts)	8' Full Wrap - 20-25 SF @ 3.6 amp	TBD	6" x .188" (wall thickness)	1'-6" x 10'-0"
		2.5 watts / sf (solar)	$50 / SF ($1000 - $1250 / unit)		$1,200	$3,000
12"	4'x3' (18 SF Average)	40x2 (80 watts)	10' Full Wrap - 30-35 SF @ 3.6 amp	TBD	7" x .188" (wall thickness)	2'-0" x 8'-0"
		2.5 watts / sf (solar)	$50 / SF ($1500- $1750 / unit)		$1,500	$4,000
16"	4'x3' (18 SF Average)	40x2 (80 watts)	10' Full Wrap - 30-35 SF @ 3.6 amp	TBD	8" x .188" (wall thickness)	2'-0" x 9'-0"
		2.5 watts / sf (solar)	$50 / SF ($1500- $1750 / unit)		$2,000	$4,000
20"	5'x3'-6" (24 SF Average)	60x2 (120 watts)	15' FullWrap - 40-50 SF @ 3.6 amp	TBD	16" x .188" (wall thickness)	3'-0" x 10'-0"
		2.5 watts / sf (solar)	$50 / SF ($2000 - $2250 / unit)		$4,000	$5,000

Estimate Budget Per Pole Marker

Foundation $5,000
Light Pole$4,000
Solar Power$3,000
Illuminated Letter$8,000
Materials and Fabrication $15,000
Installation$5,000

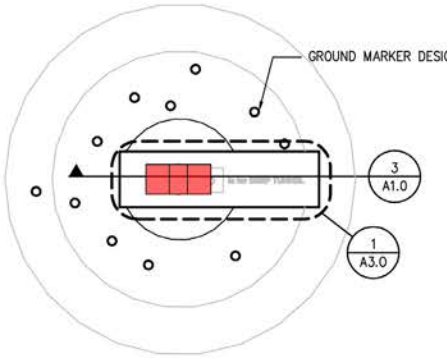
Total$40,000 each

60% DESIGN DEVELOPMENT

GENERAL NOTES AND DESCRIPTIONS
WATERMARKS - MARKER CONCEPT

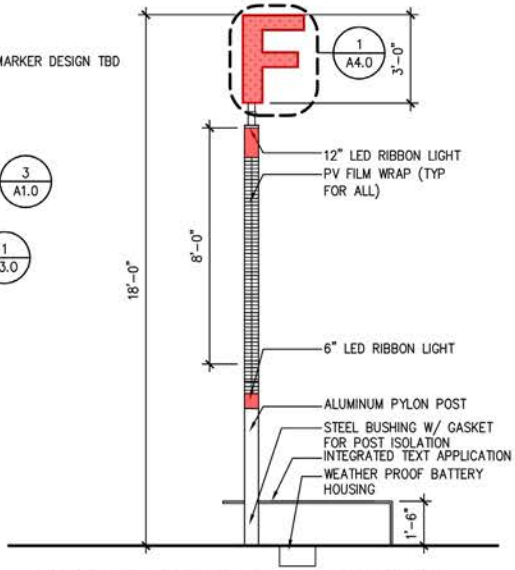
A0.0

CITY AS LIVING LABORATORY



1 A1.0 PYLON SITE PLAN

SCALE: 1/4"=1'-0"



2 A1.0 PYLON SITE ELEVATION

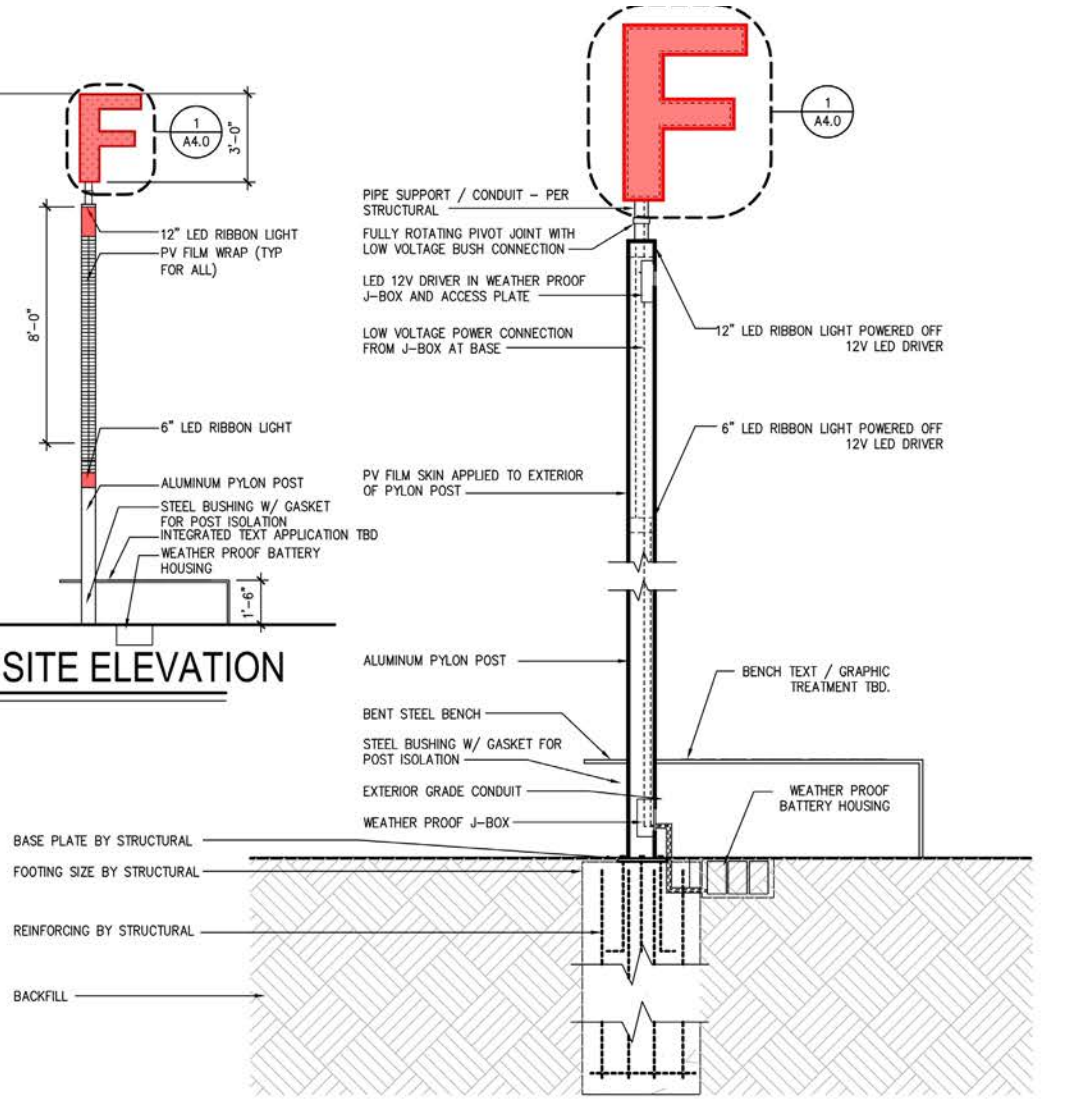
SCALE: 1/4"=1'-0"

295-505-2 Zoning

Table 295-505-2
PRINCIPAL BUILDING DESIGN STANDARDS

		Single-family Districts						Two-family Districts			
		RS1	RS2	RS3	RS4	RS5	RS6	RT1	RT2	RT3	RT4
Lot	Lot area, minimum (sq. ft.) detached housing	20,000	12,000	9,000	7,200	6,000	3,600	7,200	4,800	3,000	2,400
	Lot area, minimum (sq. ft.) attached housing	not applicable						3,600	3,000	1,800	1,800
	Lot area, maximum (sq. ft.)	none	none	none	none	none	none	none	none	none	none
	Lot width, minimum (ft.) detached housing	100	100	75	60	50	30	60	40	30	24
	Lot width, minimum (ft.) attached housing	not applicable						30	25	18	18
	Lot width, maximum (ft.)	none	none	none	none	none	none	none	none	none	none
Density	Lot area per dwelling unit, minimum (sq. ft.)	none	none	none	none	none	3,600	3,600	2,400	1,800	1,200
	Lot area per roomer or transitional housing client, minimum (sq. ft.)	NA	NA	NA	NA	NA	NA	NA	NA	NA	600
	Lot coverage, minimum interior lot	none	none	none	none	none	*	none	none	*	*
	Lot coverage, maximum interior lot	15%	30%	30%	30%	30%	60%	30%	30%	50%	70%
	Lot coverage, minimum corner lot	none	none	none	none	none	*	none	none	*	*
	Lot coverage, maximum corner lot	15%	30%	30%	30%	40%	70%	40%	40%	60%	85%
	Floor area, minimum (sq. ft.) one-story structure	1,500	1,500	1,300	1,200	900	none	none	none	none	none
	Floor area, minimum (sq. ft.) split-level or taller	1,800	1,800	1,700	1,450	1,200	none	none	none	none	none
Height	Height, minimum (ft.)	none	none	none	none	none	**	none	none	*	*
	Height, maximum (ft.)	45	45	45	45	45	45	45	45	45	45

*The requirements of table 295-505-2 apply in lieu of the minimum lot coverage and minimum height requirements of this table.
**A structure shall meet the minimum height requirements of table 295-505-2 unless it is adjacent to a lot containing a one-story house, in which case there shall be no minimum height requirement.



44 A2.3 TYPICAL PYLON SECTION

SCALE: 1/4"=1'-0"

60% DESIGN DEVELOPMENT

OVERALL PLAN & ELEVATION
WATERMARKS - MARKER CONCEPT

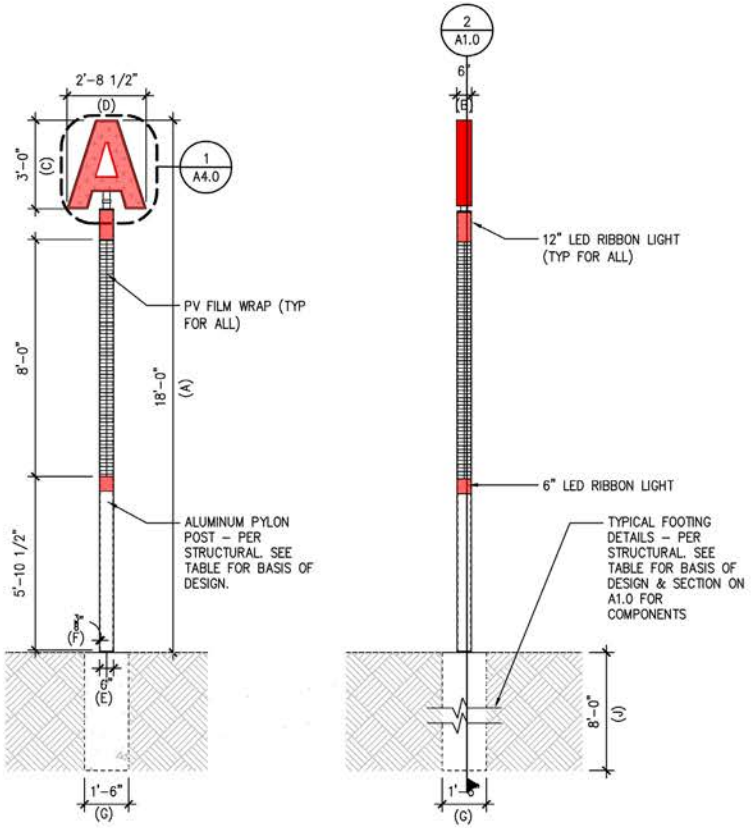
A1.0

CALL // CITY AS LIVING LABORATORY

STRUCTURAL SCHEDULE

HEIGHT (A)	LETTER DEPTH (B)	LETTER SIZE (CxD)	*ALUM POST SIZE (ExF)	*FOOTING SIZE (GxH)
18'-0"	6"	3' x ~3' (VARIES)	6" x .188" (WALL THICKNESS)	1'-6" DIA X 8'-0"DRILLED CAISSON
24'-0"	7"	4' x ~4' (VARIES)	7" x .188" (WALL THICKNESS)	2'-0" DIA X 8'-0" DRILLED CAISSON
34'-0"	8"	5' x ~5' (VARIES)	8" x .188" (WALL THICKNESS)	2'-0" DIA X 9'-0" DRILLED CAISSON
45'-0"	9"	6' x ~6' (VARIES)	9" x .188" (WALL THICKNESS)	3'-0" DIA X 10'-0" DRILLED CAISSON

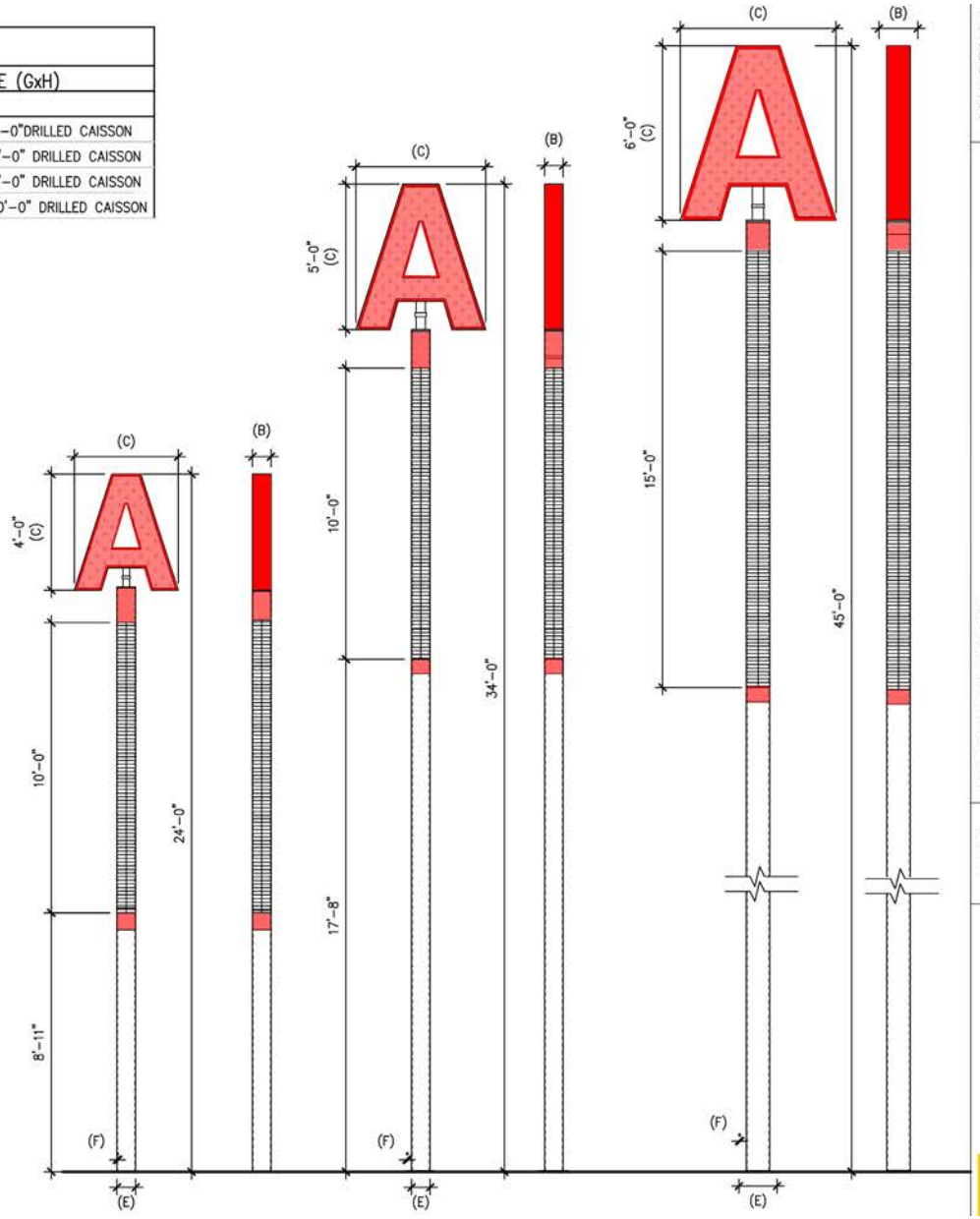
* SIGNIFIES BASIS OF DESIGN ONLY. FINAL CALCULATIONS BY STRUCTURAL ENGINEER



PYLON ELEVATIONS

1 / A2

SCALE: 1/4"=1'-0"



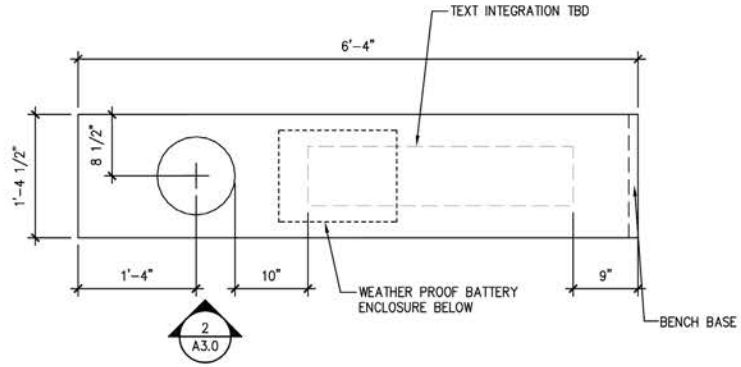
60% DESIGN DEVELOPMENT

PYLON ELEVATIONS

WATERMARKS - MARKER CONCEPT

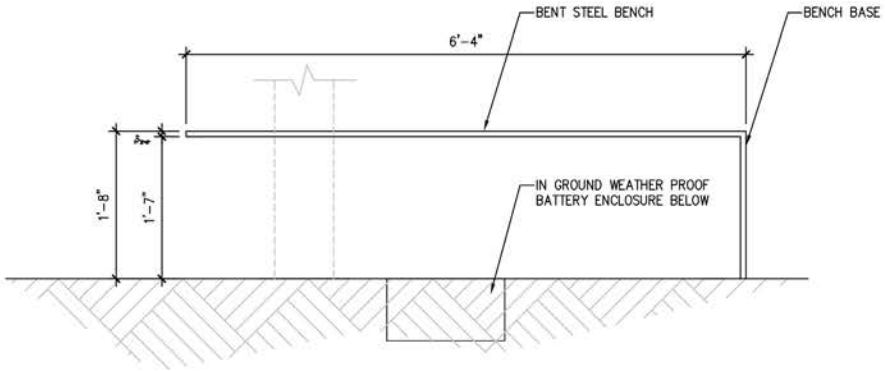
A2.0

CITY AS LIVING LABORATORY



1 A3.0 BENCH PLAN

SCALE: 3/4" = 1'-0"



2 A3.0 BENCHELEVATION

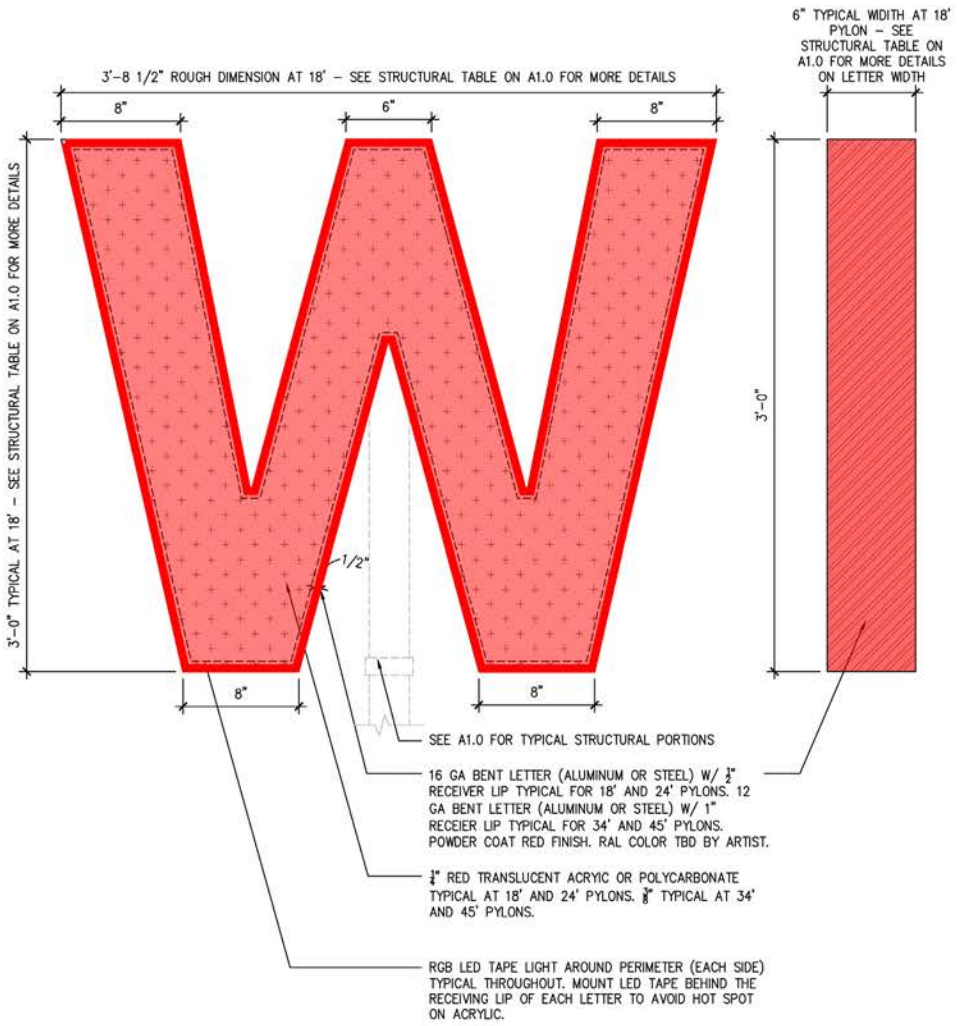
SCALE: 3/4" = 1'-0"

60% DESIGN DEVEOPMENT

BENCH DESIGN
WATERMARKS - MARKER CONCEPT

A3.0

CALL // CITY AS LIVING LABORATORY



1 A4.0 TYPICAL CHARACTER DESIGN

SCALE: 1 1/2" = 1'-0"

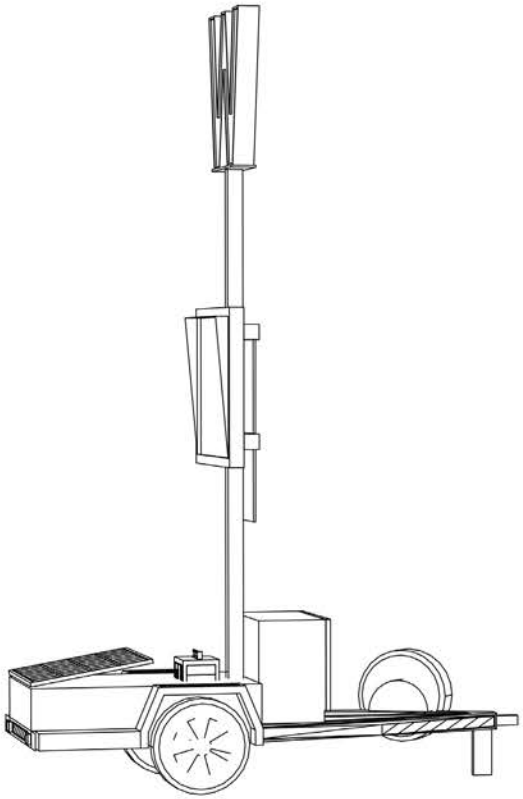
ADDITIONAL LETTER OPTIONS. LETTERS AND LOCATIONS TO BE SPECIFIED BY ARTIST AT A LATER DATE.

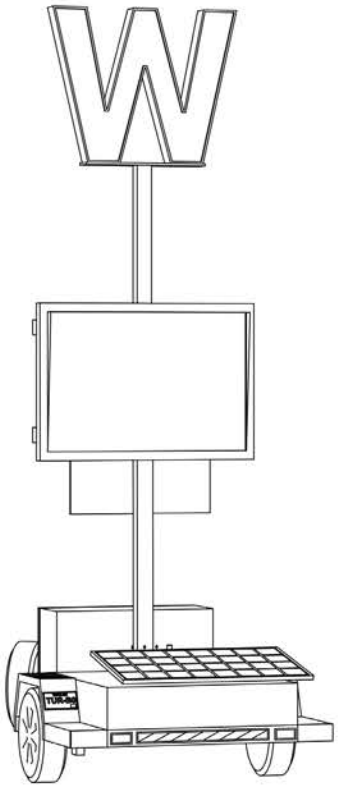
60% DESIGN DEVELOPMENT

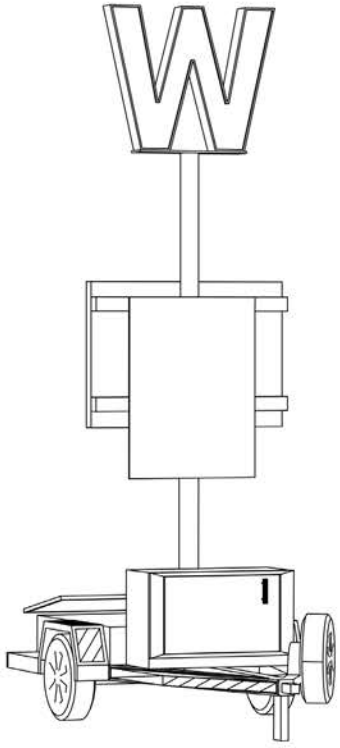
TYPICAL CHARACTER CONSTRUCTION
WATERMARKS - MARKER CONCEPT

A4.0

CALL // CITY AS LIVING LABORATORY





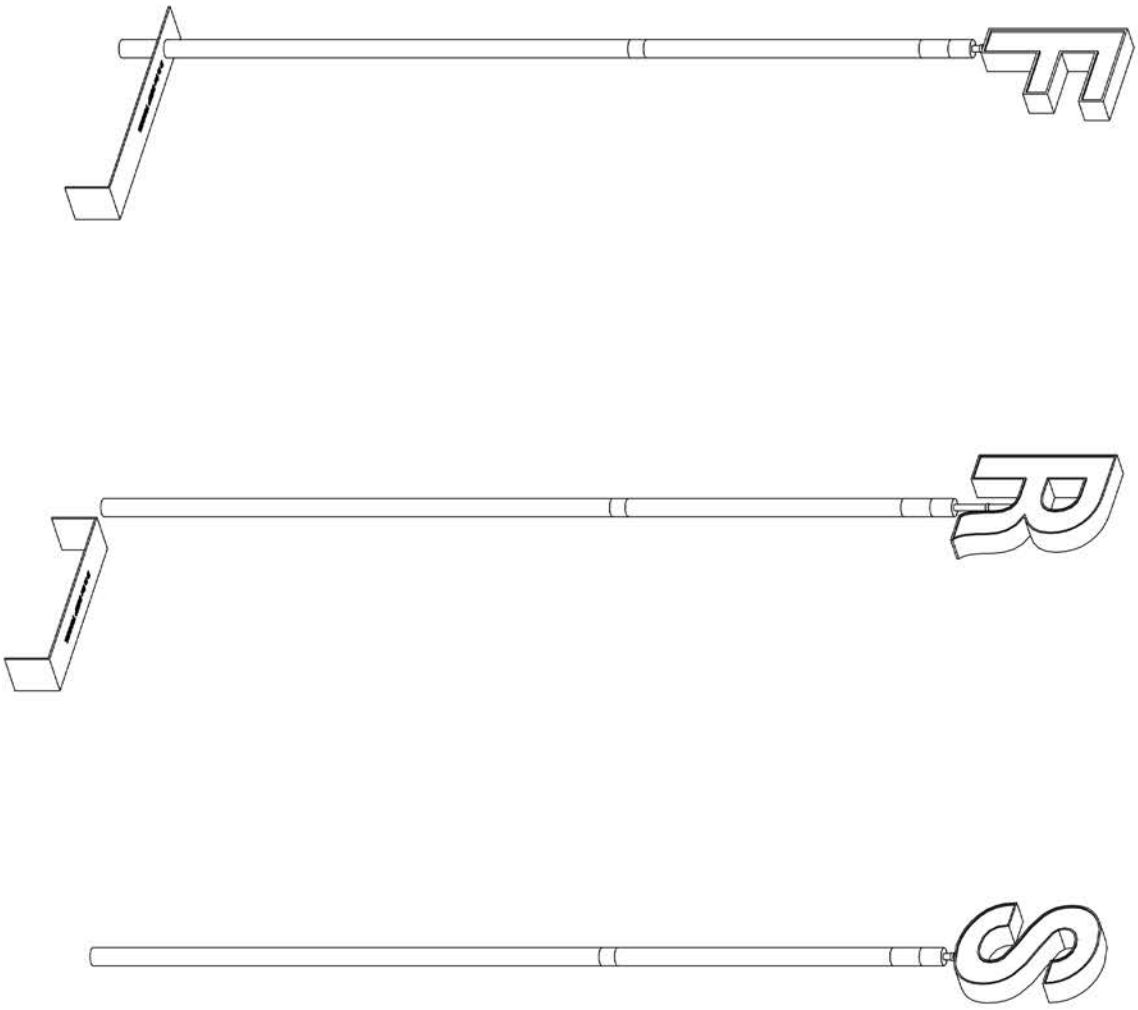


60% DESIGN DEVELOPMENT

MOBILE MARKER CONCEPT DRAWINGS
WATERMARKS - MARKER CONCEPT

A5.0

CITY AS LIVING LABORATORY



PROJECT TEAM

WaterMarks Project Team

Design Team

Mary Miss (Project Artist)
Aaron Asis (Project Designer)
Olivia Georgia (Executive Director)
Adrian Cerezo (Project Assessment)
Tom Gallagher (Lighting Principle)
Yosuke Hirawai (Lighting Designer)
Tammy Wu (Lighting Designer)
Justin Hegarty (App Content Development)
Michael Timm (App Content Development)
Ryuhei Yokokawa (Digital Developer) Michael Vander Ploeg (Architectural Designer) Brian McCutcheon (Fabrication Specialist)

Haggerty Museum of Art

Susan Longhenry (Director)
Emilia Layden (Curator)
Mary Ann Bonet (Community Engagement)

Steering Committee

Dan Bergen
Peter McAvoy
Gary Grunau
Ghassan Korban
Polly Morris
Kevin Schafer
Marsha Sehler
Jim Wasley