

# SCAPE

## SEWERAGE AND WATER BOARD OF NEW ORLEANS

### INTEGRATED MASTER PLANNING RFI

### 18 FEBRUARY 2020

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February 18, 2020

Re: "Sewerage and Water Board of New Orleans—Integrated Master Planning RFI"

To the Selection Committee:

I am pleased to state our interest and submit our team's qualifications to the Sewerage and Water Board of New Orleans (SWBNO) in response to its RFI for long-term, integrated master planning.

We believe SCAPE is an ideal partner to work with the SWBNO and other stakeholders on the stormwater management and drainage components of this RFI and future RFPs. We bring a robust portfolio of experience addressing the root causes of stormwater flooding in cities across the US through transformational vision plans and implementable designs, including the integration of gray and green infrastructure systems into enhanced parks, transit corridors, and more. As an established landscape architecture and urban design firm with offices in both New Orleans and New York, we work regularly with large teams of engineers, planners, systems analysts, and climate experts to develop future-ready solutions that maximize co-benefits to open space, civic life, and the social and physical resilience of cities.

Comprised of leading practitioners in landscape architecture, urban planning, and design, our team brings technical expertise; wide-ranging experience in technical landscape and public space design, innovative public engagement, scenario-based planning, and post-storm resilience planning. We believe that direct engagement with urban water systems is a key element of planning in a changing climate.

Please find enclosed our response to question (a) in the RFI, accompanied by original graphics; and a firm profile, including a summary of SCAPE's leadership group and relevant qualifications.

We hope to work with you to advance this absolutely critical conversation around the management of New Orleans' water resources in the century to come, and hope our qualifications, innovative approach to urban water systems and public engagement, and enthusiasm convey how excited we are about the possibility of collaborating.

Should you require any additional information, please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Kate Orff", followed by a period.

Kate Orff, RLA, FASLA  
Founding Principal

# (A) "WHAT WILL BE NEW ORLEANS' BIGGEST STORMWATER AND DRAINAGE CHALLENGES IN 50 YEARS ..."

**Water management in New Orleans is bound in a self-perpetuating cycle where current techniques for water management increase reliance on an existing system that perpetuates flood risk rather than improving it.**

Today, the city relies on a network of single-purpose drainage infrastructure constructed a century ago. A single rain event can be enough to overwhelm it, triggering nuisance flooding, property damage, gridlock, and potential impacts to public health. Bound by levees, the city must actively discharge water from the system through forced drainage. Rainwater is discharged via a system of catch basins, pipes, canals, and pumping stations under the jurisdiction of different entities: the Sewerage and Water Board of New Orleans (SWBNO) (Major systems) and Department of Public Works (DPW) (Minor systems).

Pumping intentionally lowers the groundwater table to create freeboard, but compacts the city's deltaic soils and leads to subsidence. Writ large, this puts the city at greater risk, frequently damaging infrastructure in the process—pipes, roads, levees, and other utilities. In the lowest parts of the city, increased flooding as a result of this subsidence increases the demand for pumping capacity, overtaxing the system even further. The cycle repeats, exacerbating the root issues with each recurrence.

**The primary drainage and stormwater management challenge New Orleans faces in 50 years is that with rising sea levels and increased precipitation, the current system will become untenable.**

The City's critical dependence on a network of physical infrastructure that is rapidly becoming obsolete—and the complex jurisdictional, political, and funding conditions that underpin it—stem from physical, jurisdictional, and social disconnects that collectively generate large physical costs, risk, and erode trust. This is a shared challenge across agencies and all those dependent on the system.

- **Physical disconnects** include a disparity between available power sources and pumping systems that fail when their energy requirements are not met; insufficient conveyance and discharge of rainwater due to compromised catch basins and pipes;
- **Jurisdictional disconnects** include a discrepancy between operations and maintenance approaches for Major and Minor systems; the absence of readily available funding / financing mechanisms to address this costly challenge, make near-term repairs or address long-term issues; the fact that there is no entity responsible for managing groundwater levels or their associated impacts on subsidence rates across the city—when this is a key part of the problem;
- **Social disconnects** include a disparity between public engagement practices and the concerns of stakeholders and communities; and the physical division between communities and water systems—New Orleans is a water-saturated city, but much of it is literally walled off from public access by canals, levees, and floodwalls, regarded as a threat rather than a resource.

**Climate change is exacerbating issues across the water sector in ways we are already beginning to feel in everyday life.**

Louisiana is experiencing one of the highest rates of relative sea-level rise in the world and possesses one of the fastest eroding coastlines. Climate change is a compounding threat that will burden and eventually break New Orleans' water management system, in the form of more frequent and intense storm seasons, extreme heat, precipitation whiplash (periods of drought followed by periods of intense rainfall), saltwater intrusion, unpredictable strains on the levee system with shifting meltwater loads, algal blooms, and more. As the city continues to simultaneously subside and flood, there are risks to pipes and pumps, but also both Water and Sewerage Treatment Plants—systemic damage to either poses a clear and immediate threat to human and environmental health.

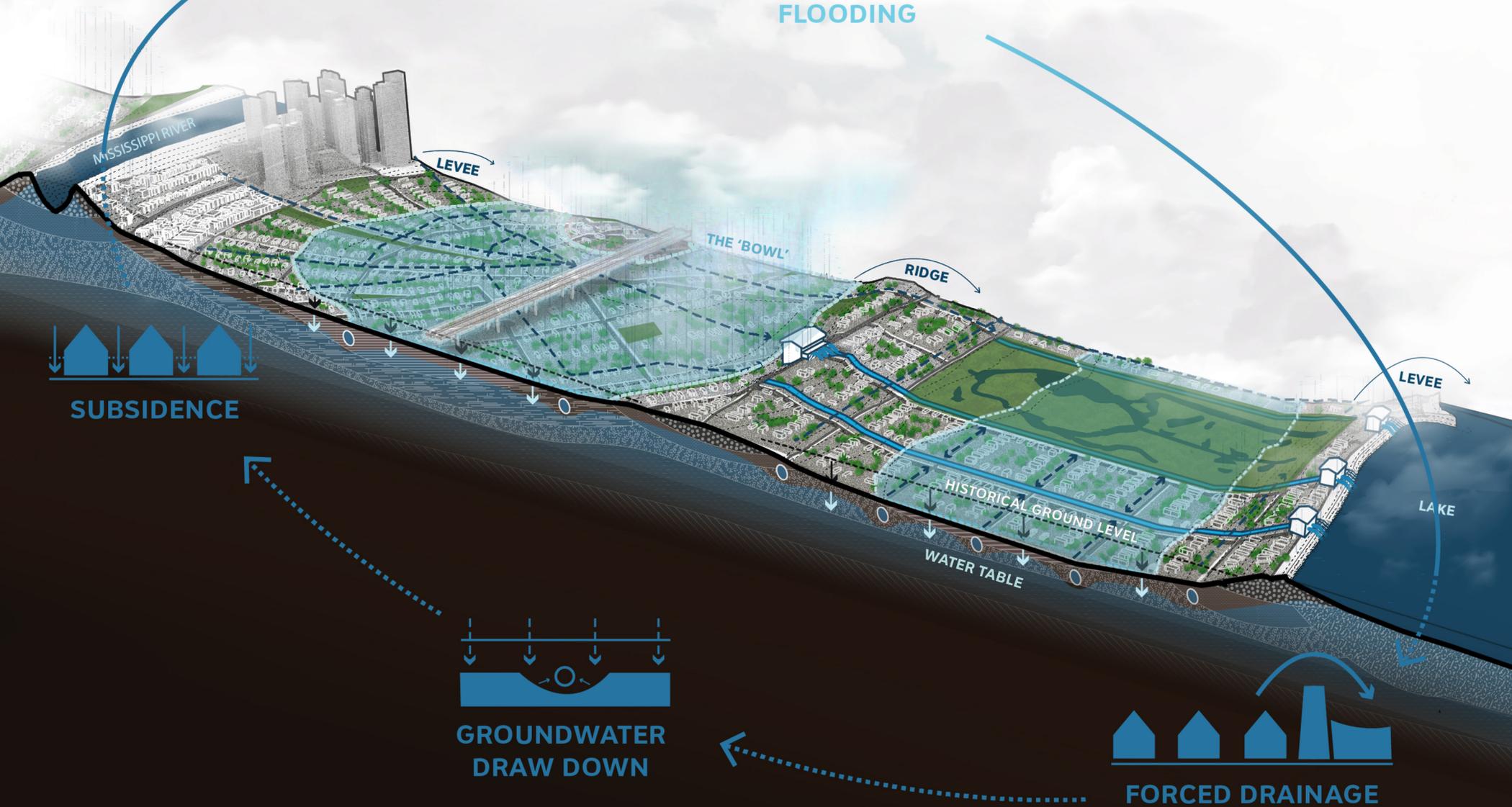
*(To right) Cycle of Hydrological Risk / During flood events, a system of forced drainage results in groundwater drawdown, soil compaction, and subsidence, deepening the low parts of the city, which then flood more easily, leading to increased reliance on a system that exacerbates the root issues.*

INCREASED  
PRECIPITATION

SEA LEVEL RISE  
& STORM SURGES



FLOODING



SUBSIDENCE

GROUNDWATER  
DRAW DOWN

FORCED DRAINAGE

# "... AND WHAT IS THE BEST APPROACH TO INTEGRATED, LONG-TERM PLANNING TO ADDRESS THOSE CHALLENGES?"

**Enabling and empowering SWBNO and its water management partners to innovate and effectively intervene in this cycle of risk is crucial for integrated, long-term planning.**

To achieve this, it will be important to:

**Build trust** / *Building mutual trust among stakeholders and partners is key to advance planning that will stick and move forward into implementation.*

- **Create confidence by addressing urgent needs effectively and equitably in the near term.** Success builds success; focusing on wins with multiple benefits that address existing flooding and infrastructure failure can generate confidence and trust that bigger, more complicated issues can be effectively tackled..
- **Raising public awareness around water management issues allows individuals to understand their experiences are shared and their voices are relevant—** frontline communities who have not historically been offered a seat at the planning table should be offered opportunities to contribute and express concerns.

**Cooperate and collaborate** / *Drainage in New Orleans is an all-affecting issue impacting many sectors and aspects of urban life. Creating clear frameworks for collaboration at the outset of this process is imperative to setting up pathways for long-term success.*

- **It is essential to work across water management agencies, sectors, and jurisdictional boundaries** to overcome systemic disconnects, re-structuring avenues for action around the hydrology rather than current jurisdictional boundaries.
- **Effective management should be grounded in the identity and culture of stakeholders and invested institutions,** with transparent avenues of communication allowing for equitable input, co-management, and polycentric governance around the city's water needs and assets.
- **Behavior change is an impending aspect of adapting to a changing climate.** We must all understand that, in the future, we may not be able to inhabit New Orleans with the same practices of the past. Residents, institutions, and stakeholders will need to arrive to and communicate this realization on their own terms, but leaders like the SWBNO can help initiate this conversation and ensure that it occurs equitably and constructively.

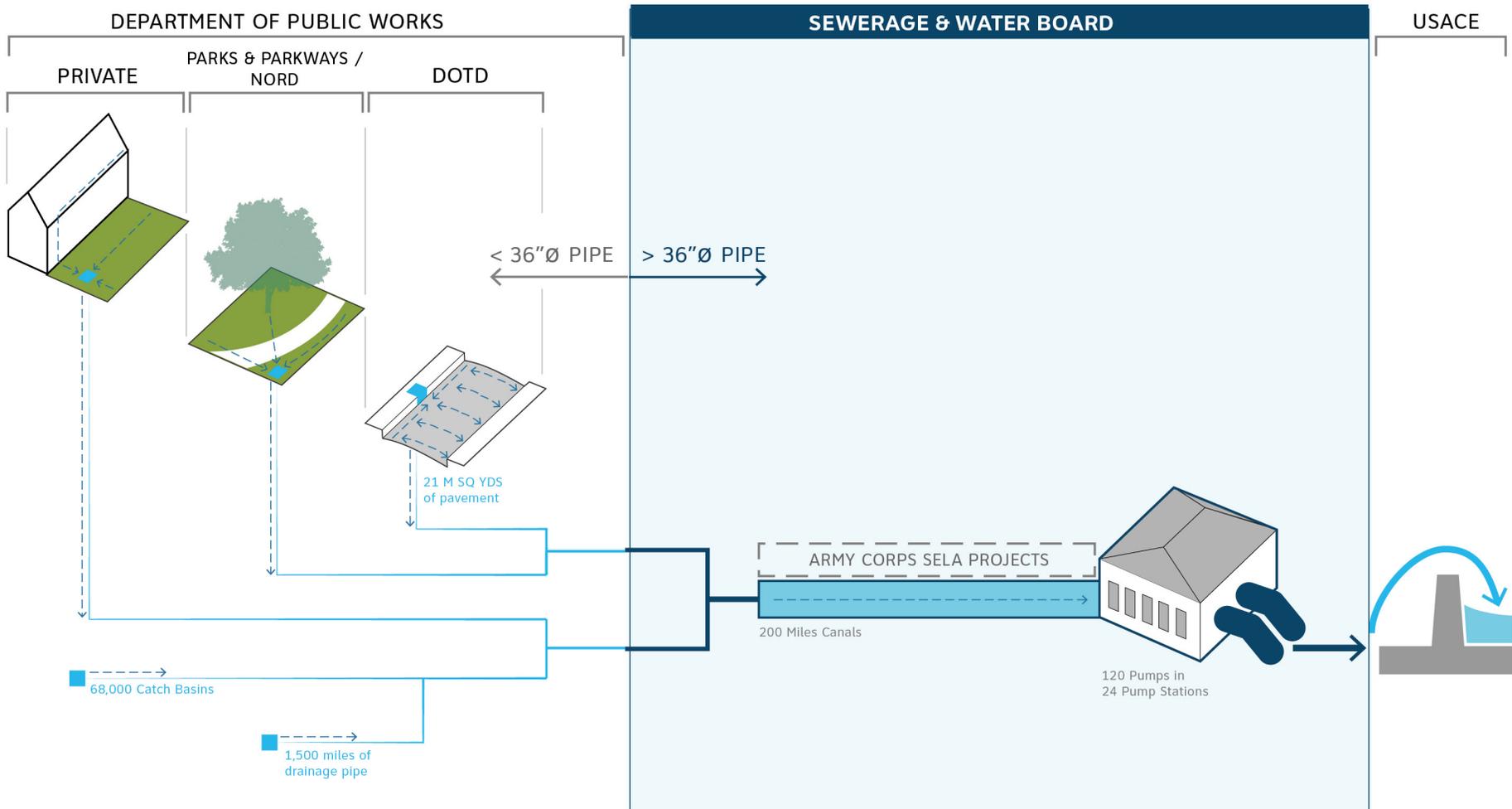
**Enable innovation** / *Before investing in large, structural and systemic changes and new technologies for water management, we need to ensure that social and institutional frameworks are in place to explore, apply, monitor, and test them on an ongoing basis.*

- **Today's planning should focus on outcomes rather than outputs—** the performance of water systems and their impact on the daily lives of community members and stakeholders—rather than the output of specific technologies—should be indicators of success. Such performance-based standards can drive planning and action towards outcomes that generate positive change across sectors.
- **Incentives are necessary for innovative ideas to be tested and flourish.** Pilot projects, innovation funds, and creating a safe space to fail are a necessary part of iterating and refining ideas before building out a set of solutions that will work for the city as a whole. By de-incentivizing restrictive design standards (even initially, for pilot projects), we can create opportunities to test and monitor new techniques before rolling them out at a larger scale.
- **Remain open to innovation in unexpected forms, not just in infrastructure and technology.** Change can come in many forms—it can be inspired by art, stem from behavior change, or be generated by collective action—but it may not just be a new water control technology allowing the system to adapt and change. Water metering and changes in water use, shifts in management structures, and even changes in land-use and density are all examples of this. Openness should be inherent to the process.

**Invest in action** / *Now is a time to explore not one but many means of financing change—and ensure systems are in place to leverage and apply funding from multiple sources to support collective action.*

- **Drainage and stormwater management issues are not limited to one sector.** It is not a problem seeking an engineered solution, but one that has crept into every aspect of life in New Orleans: transportation, tourism, small businesses, port operations, historic properties, and more. Moving forward, it is important to articulate the value of effective stormwater management for each of these sectors, leveraging their resources to aid a system they all need to survive.
- **Investment cannot be piecemeal—there must be a systemic vision and plan for action that remains responsive and flexible.** Solutions developed through an integrated planning effort should not be funneled into “band-aid” projects; they should leverage and consolidate funding from different pots, with a clear mechanism to bring these monies together around larger actions.

*(To right) Jurisdictional Limitations / Diagram showing the disconnect between jurisdictional authorities over water management in New Orleans.*



# SCAPE

## ABOUT THE FIRM

SCAPE is a design-driven landscape architecture and urban design studio based in New York and New Orleans. We believe landscape architecture can enable positive change in communities through the creation of regenerative living infrastructure and public landscapes. We work to integrate natural cycles and systems into environments across all scales, from the urban pocket-park to the regional ecological plan. We do this through diverse forms of landscape architecture – built landscapes, planning frameworks, research, books, and installations – with the ultimate goal of connecting people to their immediate environment and creating dynamic and adaptive landscapes of the future.

Our team of 60 is experienced in landscape architecture, architecture, urban design, ecological design, and planning, and we integrate these skillsets as interpreters and synthetic thinkers. We lead and work with teams of engineers and architects on complex projects, from stormwater streetscapes to large public parks, translating technical expertise into legible and engaging public space. We also believe strongly in working with communities and stakeholders to translate complex visions into realizable actions.

We work with clients to ensure that the design concept remains intact through the process of building landscapes. To achieve solid, high-performing public urban landscapes, we combine new technologies with tried and true construction techniques. We aim to create landscapes of lasting significance, reconnecting neighborhood infrastructure and habitats for generations to come. Our work and collaborations have led to several national awards, including the 2019 Smithsonian Cooper Hewitt National Design Award, two national American Society of Landscape Architects awards, and several NY American Society of Landscape Architects Awards. In 2017, founder and principal Kate Orff was named a MacArthur Foundation Fellow. SCAPE was founded in 2007.

## CERTIFICATIONS

- Registered Landscape Architects: NY, TN, NJ, CT, PA, VA, SC, KY, IL, TX, MN, LA, CA, Ontario
- WBE Certified: New York City, State of New York, The Port Authority of New York and New Jersey, Kentucky
- DBE Certified: NY, KY, TX, LA, GA
- Registered with Federal Central Contractors Registry
- International Society of Arboriculture (ISGA) Certified Arborist: Martin Harwood, Technical Director

## SELECT AWARDS

2019

- Smithsonian Cooper Hewitt National Design Award
- ASLA Honor Award Planning and Analysis / “Public Sediment for Alameda Creek”
- ASLA-NY – Honor Award / “Public Sediment for Alameda Creek”
- ASLA-NY – Honor Award / “First Avenue Water Plaza”
- ASLA-NY – Merit Award / “Madison Avenue Plaza”

2018

- AIA California Council – Urban Design Merit Award / “Public Sediment: Unlock Alameda Creek”
- ASLA-NY – Merit Award / “New York-Presbyterian &
- Columbia University Medical Campus Joint Master Plan”
- ASLA-NY – Honor Award / “Gowanus Lowlands”
- ASLA-NY – Honor Award / “Hall of Science Discovery Terrace”
- Architect Magazine Progressive Architecture Award / “Helen R. Walton Children’s Enrichment Center”
- ACES New York – Gold Award for Studies, Research and Consulting Engineering Services / “Rebuild By Design Hudson River: Feasibility Study” w/ Dewberry

2017

- MacArthur Fellow / Kate Orff, Founder & Partner
- National SARA Design Award / “Glen Oaks Branch Library”
- National ASLA Honor Award – Communications Category / “Toward an Urban Ecology
- NY SARA – Visionary Architecture Award / “Vagelos Education Center”
- NYC Public Design Commission - Award for Excellence in Design / “Greenpoint Library and Environmental Center”
- AIA New York Design Award – Best in Competition / “Vagelos Education Center”
- AIA New York Design Award – Honor in Architecture / “Vagelos Education Center”

2016

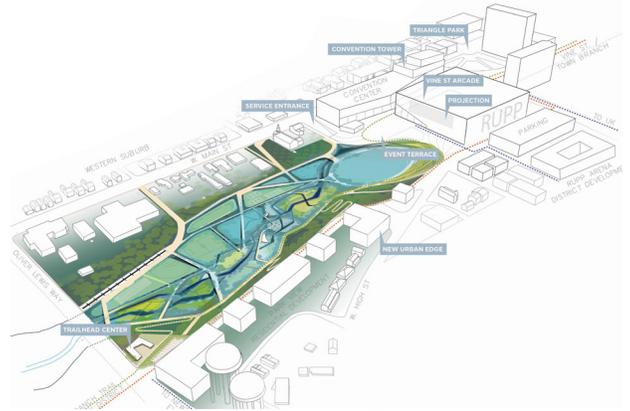
- Good Green Design Award / “Battery Park City Community Center Terrace”
- Best of Design Award – Honorable Mention, Temporary Installation / “Town Branch Water Walk”
- NYC Public Design Commission - Award for Excellence in Design / “Snug Harbor Music Hall Landscape”
- National SARA Award / “The Hudson Riverport”
- NY SARA Award / “The Hudson Riverport”
- NY ASLA Award / “Blake Hobbs Play-za”
- American Planning Association – Kentucky Chapter, Special Merit Award for Outstanding Use of Technology: Civic Engagement / “Town Branch Water Walk”

# TOWN BRANCH PARK

**LOCATION:** Lexington, Kentucky

**CLIENT:** Lexington Fayette Urban County, Government  
Division of Water Quality; Town Branch Fund

Town Branch Commons weaves a linear network of public space along the 2.5 mile path of the historic Town Branch creek in downtown Lexington, Kentucky. Once a waste canal, sewer, and water conduit for the city, the buried stream channel of Town Branch is an opportunity to reconnect the city with its Bluegrass identity and build a legacy public space network for the 21st century. Rather than introducing a single daylight stream channel into the city fabric, the design uses the local limestone (karst) geology as inspiration for a series of pools, pockets, water windows, and stream channels that brings water into the public realm. A hybrid park network, multi-modal trail system, and water filtration landscape, Town Branch Commons connects Lexington's rural and urban communities and reinvigorates the downtown. SCAPE won the Town Branch Commons competition in 2013 and the project has grown to secure \$23.1 million for design and construction for early phase design and construction. We are currently working on phase 1 implementation of the overall project. The proposal for Town Branch Park builds upon the extensive research, analysis, and design already undertaken as part of the Town Branch Commons project. The site selected for Town Branch Park presents an exciting opportunity to reveal and restore Town Branch creek, creating a new large-scale open green space within downtown Lexington. The project broke ground in the summer of 2018.



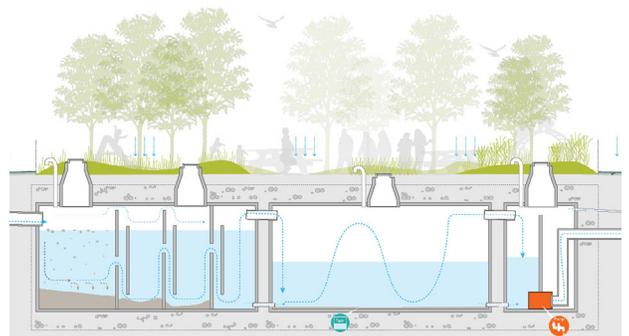
Overall view of water systems in Town Branch Park; green infrastructure streetscapes.

# HUDSON RIVER RBD

**LOCATION:** Hoboken, New Jersey

**CLIENT:** City of Hoboken, New Jersey

SCAPE partnered with OMA and Dewberry Engineering on the Hudson River Rebuild by Design (RBD) project, a coastal storm and stormwater management feasibility study for the City of Hoboken, New Jersey. The first stage towards implementation of the RBD Competition proposal developed in 2014, the design consists of two components—Resist, and Delay, Store, and Discharge (DSD). DSD maximizes the potential to capture, store, infiltrate, evaporate, and release stormwater in the city of Hoboken to create a sustainable stormwater system for the city to mitigate future flooding events. Through rigorous study of physical, environmental, and infrastructural constraints, the team located key sites and right-of-way opportunities where stormwater interventions would provide co-benefits to the city. New technologies and details were evolved to adapt green infrastructure techniques to the high groundwater table conditions particular to Hoboken. First stage design work culminates in a toolkit of implementable strategies that help the city of Hoboken improve civic life and manage stormwater and flooding events.



Section view and animation of underground stormwater management systems in Hoboken.





# LEADERSHIP



## FOUNDER AND PARTNER / KATE ORFF, RLA, FASLA

Kate Orff, RLA, FASLA, is the Founding Principal of SCAPE. She focuses on retooling the practice of landscape architecture relative to the uncertainty of climate change and creating spaces to foster social life, which she has explored through publications, activism, research, and projects. She is known for leading complex, creative, and collaborative work processes that advance broad environmental and social prerogatives. In 2019, Kate was elevated to the American Society of Landscape Architects (ASLA) Council of Fellows, and in 2017 was awarded the prestigious MacArthur Fellowship - the first in the field of landscape architecture.



## DESIGN PRINCIPAL / GENA WIRTH, RLA

Gena is a Registered Landscape Architect and the Design Principal at SCAPE. She works with cities, community advocates, and landowners to reveal the ecological and cultural potential of public landscapes. As Design Principal, Gena translates research into practice and leads the design of complex urban landscapes including public and private waterfronts, regional trail systems, parks, plazas, and resilience plans. Gena is an advocate for ecological systems design with the non-profit group the Dredge Research Collaborative and has taught design studios at Columbia University GSAPP, Syracuse Architecture, and Rutgers University.



## PLANNING PRINCIPAL / PIPPA BRASHEAR

Pippa is the Planning Principal at SCAPE. A leading expert on resilience planning and climate adaptation, Pippa works with large, multi-disciplinary teams to develop landscape strategies and next-century infrastructure that integrate environmental, economic, and social benefit. Pippa currently manages SCAPE's role on the Financial District and Seaport Resilience Project in Lower Manhattan for the NYC Economic Development Corporation (EDC); Climate Ready Dorchester, a neighborhood-scale resilience plan for the City of Boston; and the Design and Implementation phase of Living Breakwaters for the New York State Governor's Office of Storm Recovery (GOSR), among other projects.



## MANAGING PRINCIPAL / ALEXIS C. LANDES

Alexis is the Managing Principal at SCAPE, where she oversees business development, project development, finances, and manages firm-wide planning and growth. Alexis liaises with clients to understand their needs and works within SCAPE to develop operational strategies, project teams, and deliver exceptional design. As an experienced landscape architect and urban planner, Alexis has led the project teams for the Resilient Boston Harbor Vision and subsequent coastal resilience plan for Dorchester, the largest neighborhood in the city; she has also developed the firm's portfolio of projects in Detroit, including the Islandview Greater Villages Planning Strategy and the Greater Corktown Neighborhood Planning Framework.



## STUDIO DIRECTOR, NEW ORLEANS / CHRIS BARNES, RLA

Chris is a Registered Landscape Architect and Studio Director in SCAPE's New Orleans office. He brings an interest in the social dynamics of a landscape and believes in its power to bring people of all backgrounds together, while simultaneously addressing the environment and ecology at multiple scales. Through a diverse range of project experience, Chris brings to each project an ability to integrate regional ecologies, local community interests and resilient design strategies to develop concise solutions for complex sites. He is currently managing SCAPE's New Orleans office and leading many of our Southeast projects, including the Chattahoochee River Greenway Study and McCoy's Creek Recreation and Restoration Plan.