



# National Urban Ecosystems Forum

2017 OKLAHOMA CITY

SUMMARY REPORT

American Architectural Foundation

 KIRKPATRICK  
FOUNDATION



## Dear Reader,

As people expand the footprints of their cities and encroach upon wilderness, the ways in which they encourage plant and animal growth through interconnected green spaces will determine whether those non-human species thrive or perish.

Looking to the future of urban ecosystems, a group of thought leaders met for the first ever National Urban Ecosystems Forum, co-convened by The American Architectural Foundation (AAF), a national nonprofit headquartered in Washington, D.C., and the Kirkpatrick Foundation, an Oklahoma City-based charitable organization. Over the course of the two-day summit, 22 of the nation's thought leaders and innovators from government, institutions of higher learning, urban design and landscape architecture practice, and ecology met in intensive work sessions to develop actionable, practical, and meaningful strategies for city leaders across North America.

Delegates developed clearer definitions of urban ecosystem management and discussed key strategies that will ensure that cities will more proactively integrate the needs of plants and animals into planning processes for their communities. Oklahoma City played both host and example, as the city undertakes ambitious park projects to bolster citizen engagement and well-being and connect the City's rich open space network. This report serves as a record of the Forum discussion, and we hope it will serve as a tool for city leaders of cities large and small that seek to improve connections between and habitat for people, plants, and animals.

On behalf of AAF and the Kirkpatrick Foundation, we are truly grateful to the Forum delegates for lending their time and expertise to this important convening.

Sincerely,

Ronald E. Bogle, Hon. AIA  
President & CEO  
American Architectural Foundation

Louisa McCune  
Executive Director  
Kirkpatrick Foundation

American Architectural Foundation

 KIRKPATRICK  
FOUNDATION

# National Urban Ecosystems Forum

Introduction.....	5
Participants .....	6
Summary	
The Process .....	8
Defining Urban Ecosystems .....	9
Small Group Discussions .....	10
Outcomes	
Emergent Themes .....	14
Critical Steps Forward .....	15
Appendix	
Why Oklahoma City? .....	18
Participant Biographies .....	23
Forum Terms .....	38
Case Studies Reviewed.....	39
Top 10 Take-Aways .....	83
The Partnership.....	84



# INTRODUCTION

As U.S. cities experience increasing instances of dramatic climate-related changes and population pressures, city leaders need holistic and multi-disciplinary strategies to maintain healthy urban ecosystems for all species. This is no easy task, and how cities develop context sensitive solutions to restore, preserve, and grow their built and natural environments is not only challenging, but time sensitive.

Significant research supports the urgency of addressing the inextricable and important coexistence of nature and the city with better planning and implementation. During the last 50 years, major organizations such as the Public Broadcasting Service (PBS), the U.S. Environmental Protection Agency, the National Audubon Society, and the Biomimicry Institute have concluded that the understanding of our relationship between the built and natural environments is critical to our understanding of how cities and regions further develop with humans, plants, and animals in mind. This will make or break our collective success.

But what comprises an urban ecosystem? In a popular context, Bill Moyers' PBS series "Earth on Edge" provided the following definition for an urban ecosystem as:

"...simply the community of plants, animals, and humans that inhabit the urban environment. It is an area physically dominated by built structures like buildings, roads, sewers, and power lines. But it also contains a rich patchwork of green spaces — parks, yards, street plantings, greenways, urban streams, commercial landscaping, and un-built lots."

In the series, Moyers outlines a few of the goods and services urban ecosystems provide cities such as shade and temperature control, air filtering, noise reduction, stormwater control, biodiversity and wildlife habitat, recreation, aesthetic, and spiritual values, food production – all important and, in some cases, necessary functions to sustain urban life. If we consider this definition and through it recognize the important role urban ecosystems should play in city design and planning, then we can realize and implement projects that will contribute to sustainable growth and net positive change in our cities for years to come. But what contemporary examples can leaders learn from that incorporate holistic visioning, strategic implementation, and sound maintenance solutions that not only restore and sustain, but positively transform their settings?

To answer this question, AAF, with support from the Kirkpatrick Foundation, convened the National Urban Ecosystems Forum in Oklahoma City, Oklahoma on September 28 and 29, 2017. During this two-day workshop, 22 multi-disciplinary thought leaders discussed U.S. projects that successfully address the opportunities and the ongoing challenges for the coexistence of nature and the city as well as best approaches to achieve holistic planning and design solutions that include ecologists, designers, and developers amidst financial constraints and environmental changes. Finally, participants discussed the tenets designers and decision makers must uphold to restore and maintain healthy and beautiful urban ecosystems for all species in cities. The following summary captures those ideas and provides next steps for this burgeoning conversation.



# PARTICIPANTS

Mami Hara



David Drake



Liza Lehrer



Seth Magle



Molly McCabe



Cinda Gilliland



Mary Margaret Jones



Susan Atkinson



Hans Butzer



Shane Hampton



Maureen Heffernan

# PARTICIPANTS

Amy Coffman Phillips



Liz Guthrie



Gina Ford



Ted Landmark



Matt Arnn



Ignacio Bunster-Ossa



Clark Wilson



Dwight Lawson



Aubrey McDermid



Brent Wall



Kristy Wicker

# SUMMARY

## The Process

At this first National Urban Ecosystems Forum, Louisa McCune, Executive Director of the Kirkpatrick Foundation, kicked-off the meeting with a challenge for Forum participants; create a manifesto for cities like Oklahoma City and beyond that lays-out the tenets that leaders must apply when maintaining and sustaining healthy urban ecosystems and the framework to activate those tenets. This was quite a mandate, but the 22 thought leaders assembled tackled this charge through rigorous discussion and iterative process. Throughout the two-day workshop, participants defined the often used terms of urban and ecosystem and examined their unique experiences city design and development initiatives and the partners that have joined together to solve often complex problems. Recognizing that the challenges of urban ecosystems integration are being answered in a variety of ways in cities around the world, participants reflected on case studies that peers submitted for review prior to the Forum and offered questions and comments regarding the furthering of techniques and processes used in the implementation of those projects.

To provide real world examples of multi-disciplinary projects that are planned to improve the condition of the urban natural environment and connections to the built environment, participants toured eight of Oklahoma City's catalytic development sites.

Projects highlighted opportunities for linking green infrastructure systems within traditionally gray infrastructure systems on varied scales, educational and recreational open spaces that engage a variety of species, and innovative strategies to maintain and restore native habitats throughout the urban core.

Upon return, moderator Ted Landmark guided participants through a full-day of large and small group discussions. The varied formats produced a wealth of realizations, clearer definitions, and emergent themes, chief among which is that wildlife or plant and animal species often do not have representation in municipal planning processes. Consequently specific advocacy and communications outreach were discussed to ensure that eco-diversity and resilient landscapes that foster growth and symbiosis, especially within urban terrains, are nurtured and protected and considered at the onset of any urban development project. Additionally, participants concluded that in order to achieve holistic success in place-based projects, new models of financing and project execution that engage multiple disciplines from earliest stages must be explored and enacted.



# SUMMARY

## Defining Urban Ecosystems

With the broad range of subject matter expertise present at the Forum, it was crucial for participants to hone in on a shared understanding of exactly how they promote healthy and balanced urban ecosystems through their work. To that end, moderator Ted Landsmark led Forum participants in an introductory conversation about the definition of the term urban ecosystem and how the term is applied to current ecological field work and design and development practice.

Starting from Moyers' definition—that the urban ecosystem is “the community of plants, animals, and humans that inhabit the urban environment”—as a baseline, Forum participants expanded the definition's scope to include that community's interdependence and collocation. Dwight Lawson of the Oklahoma City Zoological Park described urban ecosystems as the “interaction of biotic and abiotic along the continuum of human density. Yet the urban ecosystem is not just interaction between plant and animal species with humans, but collaboration.” Liza Lehrer of the Urban Wildlife Institute further explored this definition by adding that “the benefits for humans and wildlife are not mutually exclusive at all, but aligned with each other.”

Participants continued on this term exploration by addressing that as cities continue to grow, both in size and in population, the paths of humans and other species appear to diverge as people encroach more and more into the landscapes upon which these cities rest. Plants and animals tend to adapt to their surroundings, but every new roadway shifts the edge of the ecosystem it borders: “As our settlements are forming, I'm concerned that we're blocking paths for flora & fauna to adapt and retreat,” Clark Wilson of the U.S. EPA stated.

Participants also agreed that all too often, plants and animals are overlooked in the planning process with several participants stressing that in order to avoid this issue, ecologists and biologists need to be at the table during the urban and regional planning process to give voice to species' needs that may not be addressed otherwise. David Drake of the University of Wisconsin-Madison noted that this advocacy is necessary in order, “to work toward restoration of native palettes of flora and fauna.”



# SMALL GROUP DISCUSSIONS

## Small Group Discussion Framing Questions

After defining urban ecosystems, the full participant group broke into smaller discussion groups to attempt to develop answers to a series of process questions that could lead toward a better understanding of best practices for creating healthy and vibrant urban ecosystems. Questions included:

- What are the steps that helped create successful visioning, planning, and implementation?
- What are the major hurdles to make successful projects happen, and how do project decision-makers overcome those hurdles?
- Which partners should be consulted along the way, and what would the engagement process look like for constituent groups?
- How would these efforts be funded, and what regulatory obstacles might arise?



David Drake



Ignacio Bunster-Ossa



Aubrey McDermid



Brent Wall



Amy Coffman Phillips

## Steps for Successful Visioning

- Articulate the need (leadership obligation)

## Four criteria to mobilize a vision:

- Localized
- Contemporary
- Personal impact
- Certain (not hypothetical)

## Hurdles

- Funding
- Political will
- Technical feasibility
- Matching resource with need

## Potential Partners

- Political leadership (mayor, governor, etc.)
- Philanthropic community
- Local institutions and businesses
- Residents
- Schools

## Engagement Process

- Multi-tiered
- Engage diverse audiences
- Listen meaningfully
- Clearly defined problem and process
- Training and education
- Use targeted tools based on audience
- Expand options (i.e. public meeting times, technology tools, real time FaceTime / Skype / email)

## Opportunities

- Political leadership
- Capitalize on crisis
- Local control of regulations / policy
- Proper staffing and knowledge (e.g., Ecologists on city staff)

# SMALL GROUP DISCUSSIONS



Susan Atkinson



Gina Ford



Cinda Gilliland



Liz Guthrie



Dwight Lawson



Liza Lehrer

## Steps for Successful Visioning

- Build the right team
- Establish a vision
- Identify the stakeholders (expand group / make everyone a stakeholder and identify personal value added)
- Create a mission statement
- Identify the tool and metrics that will support the mission
- Ecological review committee (as a resource)
- Implementation and founding plan
- Identify why people should care
- Scaling: Community impact, neighborhood vs. city-wide

## Hurdles

- Science timeline vs. design timeline vs. political timeline
- Balancing short-term and long-term gains
- Funding
- Community attitudes
- Balancing needs of community, wildlife, and investors
- Public/private partnerships
- Having right group frame problems to be solved

## Opportunities

- Community outreach
- Involvement in process builds ownership
- Rewilding initiative
- Ecotones
- Validating approach of bringing varied disciplines to table
- Take into consideration other societal issues in design
- Linkages and metrics to human health and happiness benefits
- Create spaces for activities not usually welcome in public space (homeless, smokers, drug users)
- Look for low hanging fruit
- Encourage maintenance
- Instill sense of ownership through community volunteer stewards, children / student installations
- Integration and layering of uses: Infrastructure, human amenity, habitat, food production.

# SMALL GROUP DISCUSSIONS



Mami Hara



Shane Hampton



Maureen Heffernan



Kristy Wicker



Clark Wilson

## Steps for Successful Visioning

- Initial definition of questions, problems, and scale
- Determine whom to include in visioning and who finances
- Find key leaders and visionaries
- Review of precedents and data
- Temperature taking - assessment of community desires
- Determine regulatory drivers
- Assessment of baseline conditions (economic, financial, etc.)
- Determine engagement approaches and degree of decision-making and sharing
- Scheduling and inclusion of iterative adaptive approaches
- Design for maximum benefits:  
Achieving intended impacts + forestalling unintended negative impacts

## Hurdles

- Community, leader apathy / disengagement
- Technical, data, regulatory constraints
- Perceived competition for resources
- Alignment and aggregation of funding streams
- Capacity, persistence, and continuity

## Steps toward Success

- Pre-Plan: Assess baseline
- Vision: Identify stakeholders and partners for each stage
- Program: Identify data for inclusion across each stage

- Scale and scalability - could be bigger than you think. What opportunities allow for scalability and modeling practices?
- Connectivity: Principle for adaptation
- Flexible frameworks for adaptive management
- Plan, implement, manage, maintain, and monitor adaptively across these stages.
- Invest in and cultivate capacity continuously and inclusively across sectors

## Opportunities

- Creating multiple engagement pathways designed for all types of stakeholders
- Changing the regulatory context and / or regulatory agreements and interpretations
- Partnership models
- Alignment and aggregation of funding w/ in high leverage financing structures

# SMALL GROUP DISCUSSIONS



Matt Arnn



Mary Margaret Jones



Seth Magle



Molly McCabe

## Steps for Successful Visioning

- Setting mission and setting goals:  
Look broadly
  - Build the right team
  - Understand stakeholders
  - Shared interests
  - Feedback / successes =  
Engagement and buy-in
  - Listening
  - Learning
  - Responding (leading)
- Getting people in the same room,  
building empathy: Give time and  
space to understand  
differing agendas
  - Understand responsibilities
  - Understand issues, e.g., habitat analogues
  - Can we build multiple solutions, e.g.,  
infrastructure and habitat /  
maintenance and animals

## Hurdles

- Limiting beliefs, narrow thinking
- Wrong timing
- Narrow constituency
- Poor communication of vision
- Tunnel vision/single-issue thinking
- Language / define what we mean
- Arrogance / preconceptions , i.e.,  
“the way we always do it”
- Fear, laziness, and complacency
- Resistance to change

## Potential Partners

- U.S. Forest Service, universities
- Wildlife biologists, zoos
- Nonprofits, private sector
- Airlines, credit card companies, energy  
companies (need good press for  
noble causes)

## Overcoming Obstacles

- Open minds / communication
- Partnership building
- Comfort with uncertainty; use “lanes”  
to build comfort
- Right steps lead to momentum
- Collaboration, not just coordination:  
Paying / giving attention

## Financing Strategies

- Bonds, taxation, e.g., self-taxing, penny tax,  
hotel tax, vice tax, credits
- Public/private partnerships
- Lottery
- Foundations (estate planning)
- Earned income, endowments
- Resource trading: Mitigation credits  
and land bank trading
- Transportation departments
- Tax Increment Financing (TIFs) or Business  
Improvement Districting (BIDs)

# OUTCOMES

## Emergent Themes

Each small group took much thought and care when answering the presented questions. When presenting each groups' responses to each other, several key themes emerged through consensus:

- Crafting a mission statement based on community need is a critical first step toward successful implementation.
- Community need must be established through active listening to community members (including those whose voices might not typically be included).
- Funding for new projects will always present challenges, but if Oklahoma City is any example, it is proof that people are willing to tax themselves for programs that promise (and deliver) social benefit.
- Project-related promises must be backed with metrics that support the initiatives, including detailed schedules for implementation.
- Education—throughout planning and implementation stages as well as embedded within a project site through signage and programming—must be a component of development.
- Additional research and collaboration in the fields of ecology, sociology, economics, and urban design will hone the vision and support the growth of biodiverse cities and regions.
- People must be further educated on animal welfare topics, and especially in order to

promote empathy for other species dwelling among them. Brent Wall of LAUD Studio aptly stated: "Humans are the disruptor here. How do we start to fix that?"

- During the development and execution of a project, proper training is necessary for the long-term care and maintenance to ensure site integrity and positive ecological function.
- Creating connections between ecological projects spreads biodiversity among them.
- Identifying strategic partners—from local philanthropists to national government agencies; from allied nonprofits to local colleges and universities—broadens the scope of potential stakeholders to spread support for projects as widely as possible.
- Urban ecologies cannot survive on a single source of revenue, but rely on a diverse portfolio of funding strategies that can include bond measures; tax credits, initiatives, and TIFs; crowdsourcing; corporate sponsorships, and amenity adoption programs; and incentive programs such as expedited permitting and mitigation credits.
- Federal agencies must adopt policies that support more harmonious interactions between nature and cities.
- Above all, it is crucial for the public to become invested in the success of urban ecology initiatives through a shared sense of ownership; community engagement and input fosters a vital spirit of stewardship.



# OUTCOMES

## Critical Steps Forward

With these findings, the group emerged highly energized in thinking about next steps for growing and sustaining urban ecosystems.

Oklahoma City has a deep sense of pride of place that shows through in its commitment to environmental and infrastructure enhancements—backed by self-funded, public investment—that will improve quality of life for every citizen. Reflecting on this local example, participants recognized that the true challenge is for every city to commit to the same level of environmental stewardship through education, outreach, and financial support that will enable urban ecosystems to thrive.

If, after all, as Ted Landmark noted, even traditionally conservative Oklahoma City could see the social benefit inherent in this kind of work and vote to impose taxes—not just once, but three times over the course of three decades—there must be hope for other cities facing similar issues of struggling ecologies in urban settings.

Upon reflection of the day's discussion and in conclusion, a simple examination by one participant summed up that people are but one species of many. "Planning for healthy ecosystems means happy people, plants, and animals," and striving to achieve that simple goal may be the most complex challenge cities face.

Acknowledging the current climatological crises and resultant devastation in many U.S. cities following severe weather events of increasing frequency and intensity, participants concluded that embedded resiliency within cities, through strategic and comprehensive planning, multi-disciplinary problem solving, and implementation of supportive networks of green infrastructure systems will bolster healthy urban ecosystems and will form the crucial steps for the continued prosperity of our cities and all species that dwell in and amongst them.





# APPENDIX

- I. Why Oklahoma City?
- II. Participant Biographies
- III. Forum Terms
- IV. Case Studies Reviewed
  - i. Biomimicry Chicago: Deep Roots Initiative  
Submitted by Amy Coffman Phillips, The B-Collaborative
  - ii. Military Park  
Submitted by Brent Wall, LAUD Studio
  - iii. Buffalo Bayou  
Submitted by Cinda Gilliland, Reed Gilliland
  - iv. Chicago Riverwalk  
Submitted by Gina Ford, Sasaki
  - v. Southwest Brooklyn: Growing from the Waterfront Again  
Submitted by Ignacio Bunster-Ossa, AECOM
  - vi. Catalyzing an Urban Wood and Restoration Economy in Baltimore  
Submitted by Matt Arnn, U.S. Forest Service
  - vii. Swale in South Bronx: the US Forest Service NYC Urban Field Station  
Submitted by Matt Arnn, U.S. Forest Service
  - viii. Myriad Botanical Gardens: A New Era for Downtown Oklahoma City  
Submitted by Maureen Heffernan, Myriad Gardens Foundation
  - ix. Scissortail Park  
Submitted by Mary Margaret Jones, Hargreaves Associates
- V. Top 10 Take-Aways from the National Urban Ecosystems Forum
- VI. The Partnership

# WHY OKLAHOMA CITY?

"Oklahoma is thought of as a fairly conservative state. I heard that from public officials and planners and people who live here. Yet, in this self-defined conservative state, Oklahoma City is doing some of the most innovative and radical things in terms of intervening in urban systems and ecosystems—some of the most radical things I've seen anywhere. Not only is Oklahoma City doing this, but the City is doing it on the basis of a sequence of public initiatives to raise taxes. How the heck did that happen?"—Ted Landsmark

Oklahoma City might not be the first place that comes to mind when one thinks of cities that are investing heavily in green infrastructure—and that's precisely why it was the perfect venue for the inaugural National Urban Ecosystems Forum. The Kirkpatrick Foundation, based in Oklahoma City, recognized that the financial model the City employed over three decades to realize urban ecosystems could serve as a template—or at least a conversation starter—for other cities looking to improve their own green interconnectivity.

Oklahoma City has a long history of publicly funding parks, dating almost to its founding in 1889. Firmly at the middle of the United States (equidistant from New York and Los Angeles), Oklahoma City became the capital of the State of Oklahoma in 1910, and, in the same year, landscape architect W.H. Dunn prepared a park plan for the Oklahoma City Parks Commission. Dunn's plan, funded by a bond measure, would encircle the city with a 26-mile boulevard, anchored at its ordinal points by parks. Even while the City has grown to spread across 621 square miles, making it the fourth largest city in land area in the U.S., its inhabitants are still self-funding efforts at city beautification and parkland expansion.

Oklahoma City's history has seen spurts of rapid growth as well as periods of slow decline in both its economy and its population. In 1928, the City found itself newly oil rich with the discovery of the Oklahoma City Field downtown, and the energy sector still plays a major role in the City's economy. But economic downturn in the 1970s drained the City's downtown residential population as many fled to the suburbs. And one of the biggest factors contributing to citizen interest in green space and quality of life was a bid the City lost: In 1991, Oklahoma City was a contender to land a maintenance facility for United Airlines, with it the potential for 7,500 jobs. Anecdotally, one of the reasons United opted against the City deal was concern for the employees' quality of life in a city that did not readily embrace or activate its downtown core.



## Post-Rejection Rejuvenation

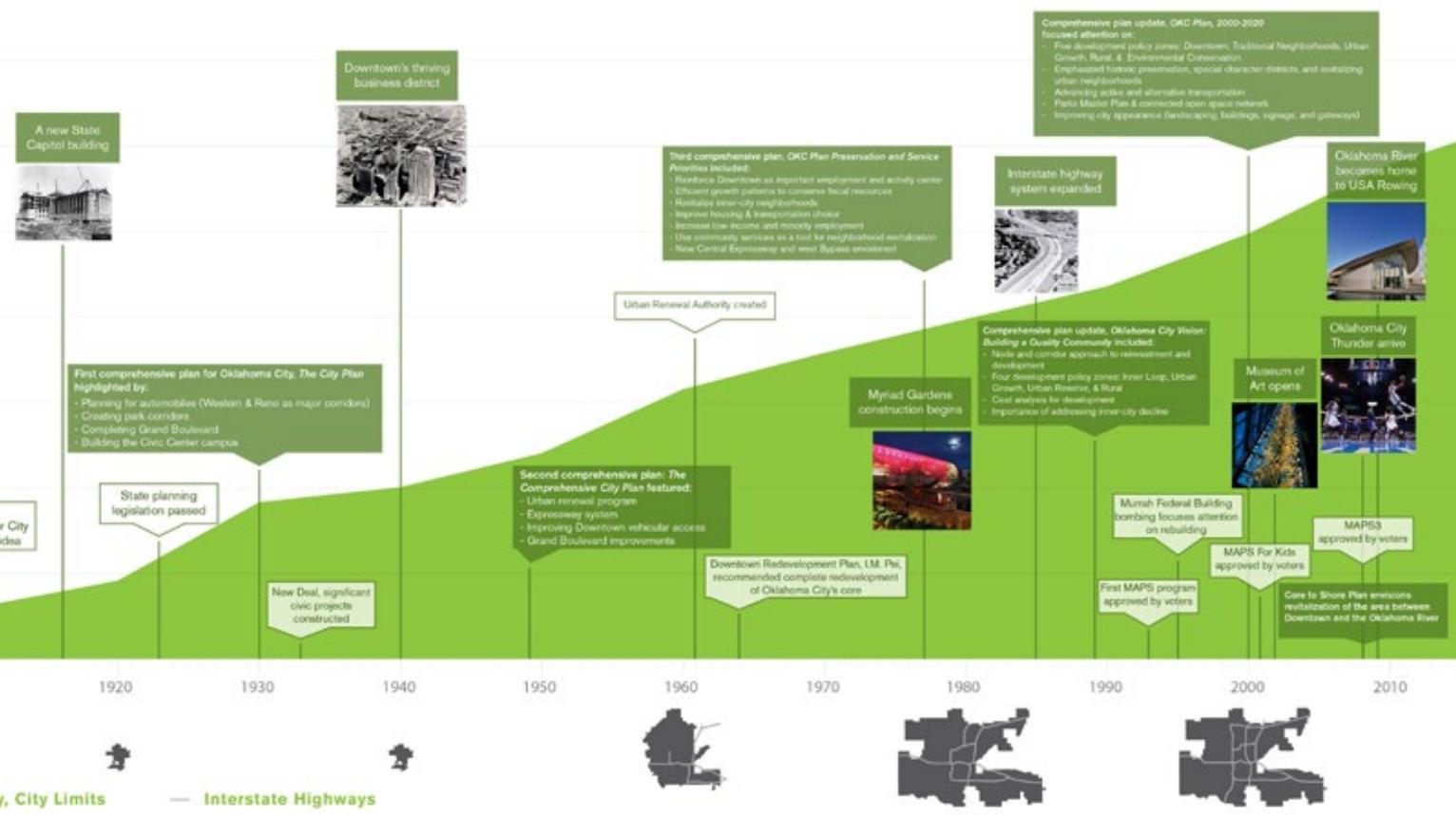
# WHY OKLAHOMA CITY?

In many ways, the rejection by United spurred the City to rethink its urban amenities. As with many cities coming to terms with the effects of sprawl, Oklahoma City has sought to channel resources toward revitalizing its downtown core, which the City improved in part through the Metropolitan Area Projects (MAPS). The MAPS sales tax initiative program began in 1993 as a direct response to quality of life concerns, with a one-cent sales tax applied over the course of six-and-a-half years, raising more than \$309 million toward new and upgraded sports, entertainment, recreation, and convention facilities. A decade later, the City's core had been revitalized through the addition of MAPS undertakings including the Bricktown Ballpark & Canal, a new convention center and music hall, and a trolley transit system along with total investments of more than \$2 billion.

A second initiative, MAPS for Kids, raised \$700

million through a similar taxation initiative to rebuild or renovate more than 70 facilities in Oklahoma City's public school system.

MAPS is now in its third iteration, which started in 2009 and is slated for a 2021 completion. The scope of MAPS 3 includes many of the new urban amenities toured by Forum participants during their stay, such as Scissortail Park (in progress) and the Riversport Rapids in the Boathouse District. Further improvements will connect the area between downtown and the Oklahoma River with a streetcar, linking the Midtown district to Bricktown and Automobile Alley, as well as replacement of the convention center.



# WHY OKLAHOMA CITY?

## Guy James Creek at Edgemere Park

Oklahoma City is the beneficiary of a U.S. Environmental Protection Agency (EPA) Greening America's Communities technical assistance award that supports cities with the implementation of green infrastructure that produces environmentally-friendly neighborhoods. Guy James Creek is a stormwater-fed tributary of the Deep Fork River, and, as one of the five focus sites of the EPA's program, Oklahoma City will mitigate repetitive flooding using green infrastructure strategies.



## Wheeler District

The Wheeler District is located immediately south of the Oklahoma River, affords unique views of the Oklahoma City skyline, and is currently activated by a programmed pop-up park that includes public passive recreation amenities such as a large Ferris Wheel, picnic areas, and lawn games. These amenities will support a planned 2,000 unit mixed-income housing development slated for delivery during the 2020s. The development will include retail, entertainment venues, and education facilities, and it is expected to drive private investment of approximately \$576 million that will also serve as a catalyst for revitalization of neighborhoods adjacent to the Wheeler District.



## Boathouse District

Established in 2006, the Boathouse District is adjacent to the Oklahoma River and hosts destination public and private water sports activities including rowing, kayaking, and whitewater rafting. The contemporary iconic architecture was designed by local architect Rand Elliott.



# WHY OKLAHOMA CITY?

## Myriad Botanical Gardens

Located at the current southern edge of downtown, Myriad Botanical Gardens is a 15-acre public amenity anchored by the 13,000-square-foot Crystal Bridge Conservatory. A significant urban oasis, Myriad Botanical Gardens offer free, public open space with a wide array of flora and fauna represented in its ornamental garden, pond, and along walking paths, and the Conservatory houses 750 plant varieties.

## Scissortail Park

The most ambitious piece of the MAPS 3 initiative, both in scale and complexity, is the 70-acre Scissortail Park, bounded by the Oklahoma River on the south and downtown at the north, and bisected by Interstate 40. The Skydance Bridge, a sculptural pedestrian linkage, crosses over I-40 to connect the north and south sections of the park with dramatic, uplifting architecture that references the Oklahoma state bird, the scissor-tailed flycatcher (from which the park also draws its name). Scissortail Park is due to open its 40-acre northern portion, which will adjoin Myriad Botanical Gardens, as its first phase in 2019; the second phase 30-acre southern portion is due for completion in 2021 (see the Scissortail Park case study in the Appendix for more information).



## Creating Links

Oklahoma City's biggest challenge might be that the incredible collection of the city's urban amenities is not physically connected. Harsh edges between habitats contribute to negative impacts on species that find themselves suddenly exposed; but the more gradual ecotones that blend neighboring habitats allows for greater ease of species movement with fewer negative impacts.

Scissortail Park will help to bridge both the natural divide of the River and the infrastructural divide of I-40. Trails along the River's edge will begin to replicate Dunn's encircling green boulevards at a larger scale to suit Oklahoma City's growth. Public and private development initiatives such as a streetcar, large open spaces (Scissortail Park, Edgemere Park), and greenways have been proposed to link several of the city's districts together.



# PARTICIPANTS

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# PARTICIPANT BIOGRAPHIES



MATT ARNN  
CHIEF LANDSCAPE ARCHITECT  
U.S. FOREST SERVICE

Matt Arnn has served as the U.S. Forest Service's Chief Landscape Architect since 2010. Matt provides professional leadership to the agency's 150+ landscape architects practicing on over 190 million acres of National Forests and Grasslands. His work focuses on creating sustainable intersections—the integration of social and ecological places and processes and includes designs for the USDA People's Garden on the National Mall, the UNESCO Gorilla Conservation Visitor Center in Bwindi, Uganda, and the Master Plan for the Wadi El Rayan World Heritage Site in the Fayoum, Egypt. His work, after September 11, 2001 with the Forest Service Living Memorials Project, has led to the creation of over 50 new parks and open spaces to help affected communities regain traction through investment in their public places.

Before joining the Forest Service in 2001, Matt was a practicing landscape architect based in New York City, with Lee Weintraub Landscape Architecture and a founding partner with I STUDIO Architects in Washington, DC. He's taught and lectured on planning and design at the Cooper Hewitt National Design Museum, the National Building Museum, Morgan State University, University of Maryland, and Cornell University. His work has been published in Metropolis Magazine, Landscape Architecture Magazine, the Washington Post, the New York Times, and Gourmet Magazine.

Matt holds undergraduate and graduate degrees in landscape architecture, urban design, and planning from the University of Texas, Austin, CCNY, and the University of Virginia School of Architecture.



SUSAN ATKINSON  
SENIOR PLANNER, PLANNING DEPARTMENT  
CITY OF OKLAHOMA CITY, OK

Susan Owen Atkinson, AICP, is a senior planner for the City of Oklahoma City, currently working on several long-range plans that harness walkability and placemaking improvements to catalyze revitalization in mid-century suburban areas adjacent to Oklahoma City's urban core. Previously, Susan served as the City of Norman, Oklahoma's historic preservation officer, co-authoring an update of the preservation design guidelines and developing a series of annual hands-on community workshops in preservation practice and technology.

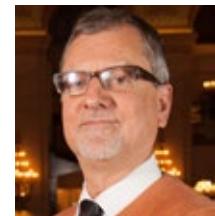
Fascinated by the nexus of urban design, economic revitalization, and historic preservation, during the past 25 years, Susan has worked in communities throughout Kansas, Alabama, and Oklahoma in public, private, and non-profit sectors. She is constantly striving to find innovative ways to connect people and enhance social, aesthetic, and economic value in urban neighborhoods and commercial districts.

Originally from Salisbury, North Carolina, Susan holds undergraduate and graduate degrees in English, anthropology, and urban planning from the University of North Carolina-Greensboro and the University of Kansas. She lives in Oklahoma City with her husband and children.

# PARTICIPANT BIOGRAPHIES

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VICE PRESIDENT & LANDSCAPE ARCHITECTURE PRACTICE LEADER (AMERICAS)  
AECOM



Ignacio Bunster-Ossa is an internationally recognized landscape architect with long-standing experience in the design of urban places. A recipient of numerous awards, Ignacio's work is noted for the design integration of green infrastructure, community engagement, and public art. Among his work is the Georgetown Waterfront Park in Washington, DC; the Steel Stacks Arts and Cultural Campus and Hoover-Mason Trestle in Bethlehem, PA, recipient of the 2014 ULI Global Award of Excellence; and the Washington Avenue Streetscape in St Louis, MO named one of the 10 best streets in the United States.

Ignacio has taught advanced design and lectured widely, and he is the author of Green Infrastructure: a Landscape Approach (with David Rouse); and Reconsidering Ian McHarg: the Future of Urban Ecology, published by Planners Press in 2013 and 2014, respectively. Ignacio is a Fellow of the American Society of Landscape Architects, a member of the American Planning Association, a board member of the Landscape Architecture Foundation and the National Complete Streets Coalition, and resource faculty at the ULI's Rose Center for Planning Leadership.

He holds a Bachelor of Architecture from the University of Miami (FL), a Master of Landscape Architecture from the University of Pennsylvania, and a Loeb Fellowship in Environmental Studies from Harvard University. Prior to joining AECOM in 2015, Ignacio was a Principal at Wallace Roberts & Todd, LLC.

AECOM

## HANS BUTZER

DEAN, COLLEGE OF ARCHITECTURE  
UNIVERSITY OF OKLAHOMA



Hans Butzer is an architect, educator, urban designer, developer, and investor who exercises his passion for crafting buildings and places for people through teaching and practice. Hans is the co-founder of Butzer Architects and Urbanism (BAU), together with his wife Torrey A. Butzer. Collaborating since 1990, the Butzers lead a multi-disciplinary team that explores place-making through award-winning architecture and urban design. Notable collaborations such as the Oklahoma City National Memorial, the Skydance Bridge, and the SLIVR exemplify Hans's ambitions for performance-based architecture that is fiscally, environmentally, and socially sustainable.

Hans is also Dean of the University of Oklahoma's College of Architecture, where he has taught since 1999, Professor of Architecture and Urban Design, and Mabrey Presidential Professor. His teaching and research focus on sustainability as an extension of ethics, efficiency, community, and high design. He recently helped dedicate the new OU OKC Design Center located in Oklahoma City's historic Film Row District. Hans is the recipient of the 2016 National American Institute of Architects Thomas Jefferson Award for Public Architecture in recognition of his long-standing efforts through his private practice and university teaching to improve Oklahoma City's urban and social environs. Hans is licensed in the State of Oklahoma and has a German architecture license from the state of North-Rhine/Westphalia. He holds a Bachelor of Architecture with High Honors from the University of Texas at Austin and a Master of Architecture from Harvard University's Graduate School of Design. Today, Hans and Torrey reside in Oklahoma City with their children.

# PARTICIPANT BIOGRAPHIES



AMY COFFMAN PHILLIPS  
FOUNDER AND PROJECT COORDINATOR  
THE B-COLLABORATIVE

Amy Coffman Phillips is a licensed architect, sustainability consultant, and workshop facilitator with expertise in biomimicry and systemic resilience. Amy is a Network Leader at Biomimicry Chicago, a local node of the global biomimicry network, and the creator of their flagship Deep Roots Initiative. This initiative seeks to establish a science-based definition of sustainability that references the local ecology of our place to set measurable performance standards for our built environment and to develop innovation tools that empower designers and inhabitants to learn from nature to solve critical sustainability and resilience challenges.

Through strategic planning facilitation, immersive innovation experiences, and hands-on project assistance, Amy brings together diverse, inter-disciplinary groups to help businesses, communities, and organizational leaders embed sustainability and resilience into strategic planning and strategy. Her work is focused on empowering individuals to make positive change in the world.

Amy holds a Master of Architecture and Master of Business Administration from the University of Illinois at Urbana-Champaign as well as a Master of Science in Biomimicry from Arizona State University. She is the founder and project coordinator for The B-Collaborative, a sustainability consultancy that assists clients in business and the design industry with resilience strategy and planning, and she actively volunteers for the Illinois Chapter of the United States Green Building Council and co-chaired their Inaugural Resilience Symposium.



DAVID DRAKE  
PROFESSOR AND EXTENSION WILDLIFE SPECIALIST  
DEPARTMENT OF FOREST AND WILDLIFE ECOLOGY  
UNIVERSITY OF WISCONSIN-MADISON

David Drake is a Professor and Extension Wildlife Specialist in the Department of Forest and Wildlife Ecology at the University of Wisconsin-Madison. David's research and extension programs primarily focus on wildlife and wildlife damage management in human-dominated landscapes. He also teaches an undergraduate course on wildlife damage management.

David received his PhD in Forestry from North Carolina State University, a MS degree in Wildlife and Fisheries Sciences from Texas A&M University, and a BA degree in Biology from Macalester College.

# PARTICIPANT BIOGRAPHIES

## GINA FORD PRINCIPAL SASAKI

Gina Ford is a principal and landscape architect in SASAKI's Urban Studio. The Urban Studio is an energized and interdisciplinary group of practitioners solely dedicated to the improvement of quality of life in cities through rigorous planning, exceptional design, and strong community partnerships.



Gina's work encompasses a wide range of scales and project types, from public parks and plazas to large-scale landscape planning and waterfront projects. She brings to each project a passion for the process of making vibrant landscape spaces—from the conceptual design to the details of implementation—with a particular focus on the life and use of urban, public environments.

Gina's experience is additionally informed by extensive research, writing, travel, teaching, and competitions. Her teaching includes guest critic and studio instructor roles at the Harvard Design School, MIT, and RISD. She holds degrees in architecture from Wellesley College and landscape architecture from the Harvard Graduate School of Design, and she was the recipient of Wellesley's Shaw Fellowship, the Janet Darling Webel Prize, the Hyde Chair at the University of Nebraska, and the Charles Eliot Travelling Fellowship. Gina was also recently elevated to the American Society of Landscape Architects (ASLA) Council of Fellows, after having been nominated by the Boston Society of Landscape Architects (BSLA).

## CINDA GILLILAND PRINCIPAL REED GILLILAND

Cinda Gilliland is Principal of Reed Gilliland, and she brings strong conceptual ideas and a highly-attuned eye for design and art to projects, ranging from academic and mixed-use to community parks in the United States, China, and India. Her interests in art, agriculture, and the environment brought her to landscape architecture after years as an artist and small business entrepreneur. Cinda is interested in integrating agriculture and nature into projects: taking cues, precedents, and inspiration from native, working, and vernacular landscapes. As her career progressed, an underlying theme has emerged of using nature, design, and the infectious energy of human creativity to catalyze social change and community cohesiveness.



As a fourth generation Californian and Bay Area resident, the centrality of the natural environment to Cinda's relationship to the world was established early. After graduating from Stanford University with a BA in Studio Art, Cinda moved to New York City, drawn, by contrast, to the urban experience with its promise of culture and diversity, and especially to the particular intensity of Manhattan's version of urbanity. Over time her growing interest in design led her to pursue a master's degree in landscape architecture at the University of Virginia. She was then offered a job at SWA in Sausalito, CA where she worked 20+ years and led the firm as Principal. In 2016, she departed the firm and, along with her husband Lawrence Reed, formed Reed Gilliland, with the hope of reinvigorating a more hands-on, personal, and adaptive approach to design opportunities.

Reed Gilliland

# PARTICIPANT BIOGRAPHIES



LIZ GUTHRIE  
ASSOCIATE DIRECTOR OF RESILIENCE PRACTICE  
100 RESILIENT CITIES

Liz Guthrie, ASLA, LEED Green Associate, is the Associate Director of Resilience Practice for 100 Resilient Cities. Liz leads the design, development and delivery of curriculum and training programming for Chief Resilience Officers and resilience practitioners.

A planner and landscape architect, Liz joined 100RC after recently leading the American Society of Landscape Architects' (ASLA) Professional Practice Programs, where she managed member and partner involvement in the development of the Sustainable Sites Initiative, a national rating system to guide practitioners' land design and development. Prior to her work with ASLA, Liz served as a designer at multidisciplinary firms in San Francisco and Washington, DC and pivoted to the training and education space while at the National Building Museum, where she oversaw the institution's outreach programs. She brings an extensive background in public-private partnerships having led Green Spaces for DC's Park Partnerships programs, helping broker relationships between the municipality and local community groups on park infrastructure improvements. Liz has also served on national design and planning juries, including the EPA's Office of Sustainable Communities' National Awards for Smart Growth Achievement and the EPA's Office of Water's Campus Rainworks Challenge.

Liz received her master's degree in Landscape Architecture from Cornell University and her bachelor's degree in the Growth and Structure of Cities program from Haverford College.



SHANE HAMPTON  
DIRECTOR, INSTITUTE FOR QUALITY COMMUNITIES  
UNIVERSITY OF OKLAHOMA

Shane Hampton, AICP, CNU-A, joined the University of Oklahoma Institute for Quality Communities in 2011 and has served as the Director since 2015. Shane leads a range of community outreach projects and courses focusing on urban design, district planning, placemaking, tactical urbanism, and transportation. Projects are completed in collaboration with partners in the College of Architecture and with community stakeholders throughout Oklahoma.

Shane is a member of the Congress for New Urbanism, Urban Land Institute, Placemaking Leadership Council, and American Planning Association. He holds a master's degree in regional & city planning and a bachelor's degree in public affairs and administration from the University of Oklahoma.

# PARTICIPANT BIOGRAPHIES

MAMI HARA  
GENERAL MANAGER / CEO  
SEATTLE PUBLIC UTILITIES

Mami Hara is the General Manager and Chief Executive Officer of Seattle Public Utilities, which provides solid waste and drainage and wastewater services for Seattle residents and businesses and drinking water for 1.3 million regional customers in 27 municipalities.

Mami is committed to advancing equitable and sustainable cities and regions through collaboration and strategic investment.



In her public sector and private practice roles, Mami has guided planning and implementation of award-winning green infrastructure, sustainability, economic development, and waterfront programs across the United States. In those efforts, she has advanced sustainable land and water management practices through cultivating leaders, partnerships, participation, planning and knowledge sharing.

Mami has degrees from the University of Pennsylvania and Harvard University and has been an advisor to several environmental, philanthropic, planning, and design advocacy organizations. She has taught at PennDesign, Temple School of Architecture, and the Department of Urban Studies and Planning at MIT. Formerly a principal with Wallace Roberts + Todd, LLC and First Deputy Commissioner of Philadelphia Water, she most currently developed a peer-to-peer network for cities and utilities advancing green infrastructure programs to promote research, innovation, and implementation of green infrastructure.

MAUREEN HEFFERNAN  
EXECUTIVE DIRECTOR  
MYRIAD GARDENS FOUNDATION



Maureen Heffernan is the Executive Director of Myriad Gardens Foundation, the nonprofit organization that manages Myriad Botanical Gardens and the 70-acre Scissortail Park, currently under construction and scheduled to open in 2019. Hired in 2011, Maureen works to execute the new public-private partnership funding and management model for Myriad Botanical Gardens after the extensive redesign of the 15-acre site completed in 2011. In 2015, Myriad Gardens received the Urban Land Institute's Open Space Award, which the organization co-shared with Thousand Lantern Park in Foshen, China, recognizing the excellence of the Gardens' new landscape design, gardens, diverse public programming, and the economic development impact on downtown Oklahoma City.

Before joining Myriad Gardens Foundation, Maureen served as: Executive Director of Coastal Maine Botanical Gardens, leading the start-up development of this 240-acre botanical garden in Boothbay, ME; Director of Public Programs at Cleveland Botanical Garden, developing the award-winning Hershey Children's Garden and The Green Corps, an urban garden and farmer's market project for city teenagers; and Education Coordinator at the American Horticultural Society in Alexandria, VA.

Maureen graduated from Fordham University in New York City and studied horticulture at Ohio State University in Columbus, OH. She is a garden writer and author of books including: Seed Starter, Hershey Children's Garden: A Place to Grow, Native Plants for Maine Gardens, and Fairy Houses of the Coast of Maine.

# PARTICIPANT BIOGRAPHIES



MARY MARGARET JONES  
SENIOR PRINCIPAL, PRESIDENT  
HARGREAVES ASSOCIATES

As President and Senior Principal at Hargreaves Associates, Mary Margaret Jones has led many of the firm's award winning projects around the globe and oversees the three offices in San Francisco, California; Cambridge, Massachusetts; and Hargreaves Jones in New York, New York. Mary Margaret has served on numerous juries, lectures widely, and is active in the public forum of design and development issues.

Mary Margaret is the Prince Charitable Trust Fellow in Landscape Architecture of the American Academy in Rome and current Chairman of the Board of Trustees as well as the Vice President of the Board of ODC Dance in San Francisco. She is a past Visiting Critic in Landscape Architecture at the Harvard Design School, a Fellow of the American Society of Landscape Architects, Senior Fellow of the Design Futures Council, past member of the National Advisory Council for the Mayors' Institute on City Design, past member of the Industry Advisory Group for the U.S. State Department and Peer Professional for the General Service Administration, and Fellow of the Urban Design Forum, New York, NY.

Currently Mary Margaret leads the firm's work on Scissortail Park, a 70-acre park that will link downtown to the river in Oklahoma City, a new open space for MIT that will be the centerpiece of 1 million square feet of new development, and Penn's Landing in Philadelphia, a 12-acre park that will deck over the I-95 freeway and connect the city's center to the Delaware River.



TED LANDSMARK  
DISTINGUISHED PROFESSOR AND DIRECTOR  
NORTHEASTERN UNIVERSITY

Ted Landsmark is Distinguished Professor and Director of the Kitty and Michael Dukakis Center for Urban and Regional Policy in the School of Public Policy and Urban Affairs in the College of Social Sciences and Humanities at Northeastern University. Ted holds a Ph.D. in American and New England Studies from Boston University and professional degrees in Law and Environmental Design from Yale University.

Ted is Mayor Martin J. Walsh's first appointment to the Boston Planning and Development Agency's Board of Directors, and previously held 17-year tenure as President and CEO of the Boston Architectural College, during which he led the growth of the school into an internationally recognized, multi-disciplinary institution. Ted has served as Academic Vice President of the American College of the Building Arts in Charleston, South Carolina and as a faculty member and administrator at the Massachusetts College of Art, the Massachusetts Institute of Technology, Harvard University, and UMass Boston. He has also served as a Trustee or board member for: the Boston Museum of Fine Arts, American Architectural Foundation, the Design Futures Council, The Boston Society of Architects, Historic New England, and Historic Boston. He was also President of the National Architectural Accrediting Board and the Association of the Collegiate School of Architects.

Ted's research and practice interests include diversity in design, environmental design, design education, higher education administration, community-based economic development, historic preservation, and African American art and artisanry.

Kitty and Michael Dukakis Center for Urban and Regional Policy  
Northeastern University

# PARTICIPANT BIOGRAPHIES

DWIGHT LAWSON  
EXECUTIVE DIRECTOR & CEO  
OKLAHOMA CITY ZOOLOGICAL PARK

Dr. Dwight Lawson joined the Oklahoma City Zoological Park and Botanical Garden in May 2014 as Executive Director & CEO. As the Executive Director, Dwight plans, coordinates, and directs the day-to-day operations and long-term management of the Zoo, overseeing the operation of all Zoo divisions and ensuring the Zoo's continued development. Dwight came to Oklahoma City from Zoo Atlanta where he served as Director, Senior Vice President of Collections and General Curator.



Dwight received his Bachelor of Arts degree in Biology from the University of Pennsylvania, and he holds a Master of Science in Biology and a PhD in Quantitative Biology from the University of Texas at Arlington. His doctoral degree is based on more than four years of field research on the diversity, evolution, and natural history of exploited rainforest reptiles in Central Africa. Much of these studies were undertaken while concurrently developing and directing a wildlife conservation project in Cameroon.

A Professional Fellow member of the American Zoo and Aquarium Association (AZA), Dwight also serves as an AZA Accreditation Commission Member and Inspector. In addition, he serves as Vice President of the nonprofit conservation organization, the Turtle Survival Alliance, and is a member of the Downtown OKC Rotary Club.

LIZA LEHRER  
ASSISTANT DIRECTOR, URBAN WILDLIFE INSTITUTE  
LINCOLN PARK ZOO

Liza Lehrer is the Assistant Director of the Urban Wildlife Institute at the Lincoln Park Zoo where she leads research on urban wildlife in the Chicago region, coordinates collaborations, and assists in strategic planning for the Institute. As part of the Chicago Wilderness Priority Species Campaign, Liza leads a region-wide effort to conserve the Little Brown Bat through coordinated monitoring, inter-agency collaboration, and public outreach. Her interests include understanding the impacts of urbanization on wildlife movement, survival, health, and behavior, and seeking ways to make cities more wildlife-friendly through policy, design, and education.



Liza is President-Elect of The Wildlife Society's Urban Wildlife Working Group and is a member of the Chicago Mayor's Committee on Nature and Wildlife. She holds a BA in Zoology from Washington University in St. Louis, Missouri and a MS in Wildlife Ecology from the University of Illinois.

# PARTICIPANT BIOGRAPHIES



MOLLY MCCABE  
FOUNDER & PRESIDENT  
HAYDENTANNER, LLC

A veteran of the real estate industry, Molly McCabe describes herself as a Scout, MapMaker, and BridgeBuilder. Molly founded HaydenTanner, LLC after spending many years in commercial real estate finance, capital markets, and development. She has spent her career cultivating practical solutions and strategies to accelerate the emergence of resilient buildings and vibrant, sustainable cities.

Currently, Molly works with clients to channel investment capital to optimize asset and portfolio level returns, enhance resiliency, community vibrancy, and livability while meeting economic objectives.

Molly is the Chair of the Urban Land Institute's (ULI) Responsible Property Investment Council and sits on its Center for Sustainability and Economic Prosperity Advisory Board and is Faculty for the Daniel Rose Fellowship Land Use Program. She is also the author of the book, Practical Greening: The Bottom Line On Sustainable Property Development, Investment and Financing and among other articles, "Driving Value: Responsible and Resilient Property Investing in the New Millennium," for Institutional Real Estate Investor. She has taught at the Boston Architectural College and has lectured at Pinchot University. Previously Molly founded VC funded, commercial mortgage backed securities firm, Bridger Commercial Funding, ran Bank of America's Real Estate Capital Markets group, and was a commercial construction lender with Wells Fargo Bank. She is a trained mediator, professional business coach, and LEED AP.



AUBREY MCDERMID  
DIRECTOR, PLANNING DEPARTMENT  
CITY OF OKLAHOMA CITY, OK

Aubrey McDermaid serves as the Director of the Planning Department for the City of Oklahoma City. This 50-person team includes the Office of Sustainability, the Office of Arts and Cultural Affairs, and divisions of Housing and Community Development, Planning and Redevelopment, Current Planning and Urban Design, Administration, and Grants Management. Aubrey began her career with the City of Oklahoma City as an Associate Planner in 2000, and during her tenure, she has served in several positions providing her a wide-range of responsibility and planning experiences. Some of her most rewarding projects include the development and implementation of long-range neighborhood, corridor, and sector plans, and the City's new citywide comprehensive plan, planokc. Aubrey has been instrumental in creating and amending zoning ordinances and design guidelines, and developing processes to support design review functions including the creation of the Downtown Design Review and Scenic River Overlay Design districts.

Aubrey is a certified planner and holds a Bachelor of Science in Environmental Design and a Master of Landscape Architecture from the University of Oklahoma. Aubrey has worked for architecture / engineering and landscape architecture firms, and she owned and operated a design-build landscaping business focused on residential, subdivision, and apartment entryways and common areas and small commercial projects. She is a Leadership OKC alumna and serves on the Professional Advisory Board for the Landscape Architecture division of the University of Oklahoma's College of Architecture, which honored her with the Distinguished Alumni Award.

Oklahoma City Planning Department

# PARTICIPANT BIOGRAPHIES

SETH MAGLE  
DIRECTOR, URBAN WILDLIFE INSTITUTE  
LINCOLN PARK ZOO

Seth Magle is the Director of the Urban Wildlife Institute and the Executive Director of the Urban Wildlife Information Network. Seth first became interested in conservation and ecology as a college student in 1997, while observing black-tailed prairie dogs living in sidewalk median strips near his home in Boulder, Colorado. Daily interactions with these resilient animals made him wonder what adaptations enabled these small mammals to persist in highly urban habitats and which factors contributed to their distribution and abundance. Eventually he completed an honors thesis on the behavior of this urban-adapted keystone species, and he ultimately expanded on that research for both a master's degree and a doctorate.



However, Seth's interests go far beyond prairie dogs to encompass all wildlife species impacted by urbanization and human development. He has also engaged in research on movement behavior of white-tailed deer in a rural landscape characterized by high prevalence of disease outbreaks, assessments of the diversity of bird communities residing in agricultural habitat, and the conservation of Canada lynx reintroduced to the southern edge of their historical range, where they are threatened by roads and traffic. Seth strongly believes that if rare and imperiled species are to be conserved in our modern world, we must understand and mitigate all potential impacts of urban areas on wildlife. To that end, he engages in studies of urban wildlife that span a broad range of scientific disciplines, including behavioral ecology, conservation genetics, landscape ecology, environmental education and human dimensions of wildlife.

Urban Wildllife Institute at Lincoln Park Zoo

BRENT WALL  
STUDIO DIRECTOR  
LAUD STUDIO

Brent Wall is a professional landscape architect and horticulturist based in Oklahoma City, Oklahoma. Over the last 15 years, Brent has conceived and constructed meaningful and sustainable landscapes across Oklahoma and the Central Plains. As the Director of LAUD Studio, a landscape architecture practice focused on creating places reflective of and responsive to the environments from which they are born, Brent treats built works as habitat for people and the natural creatures inhabiting our urban constructs.



Brent has served as an adjunct faculty member for both the University of Oklahoma Landscape Architecture program as well as the Oklahoma State University - Oklahoma City Horticulture program, teaching courses in design, plant materials, and computer technology.

Brent's service to his profession and community include a position on the OU Board of Visitors for the Landscape Architecture Program, Past-President of the Oklahoma Chapter of the American Society of Landscape Architects, the Bricktown Urban Design Committee, and the General Council for the Kaw Nation of Oklahoma.

# PARTICIPANT BIOGRAPHIES



KRISTY WICKER  
COMMUNITY LIAISON  
WILDCARE FOUNDATION

Kristy Wicker is the Community Liaison for WildCare Foundation, the oldest and largest wildlife rehabilitation facility in Oklahoma, accepting over 7,000 wild animals annually. WildCare's mission is to provide people a place to bring native wildlife struggling to survive with the goal of releasing healthy individuals back into the wild. As Community Liaison, Kristy works with the public to effectively and compassionately handle wildlife emergencies and human-wildlife interactions in mostly urban environments.

Kristy also works as an independent researcher and has been researching issues on animal welfare and animal/human interactions for nearly two decades. Her most recent project includes work as principal investigator and co-author for The Oklahoma Animal Study, which explores the status of companion animals, wildlife, and livestock in Oklahoma for the Kirkpatrick Foundation. She believes that understanding the relationships and interconnectedness between humans and animals is the best way to improve the lives of both.

Originally from Illinois, Kristy earned a bachelor's degree in social work from the University of Illinois in 1988 and worked for several years in counseling and foster care before returning to school in 1993 to pursue a graduate degree from Texas A&M University. She received her master's degree in wildlife and fisheries sciences in 1996 from Texas A&M University.



CLARK WILSON  
ACTING DIVISION DIRECTOR  
OFFICE OF COMMUNITY REVITALIZATION  
U.S. ENVIRONMENTAL PROTECTION AGENCY

Clark Wilson is an urban designer and an Acting Division Director in the U.S. Environmental Protection Agency's (EPA) Office of Community Revitalization (formerly the Office of Sustainable Communities). Clark focuses his research and policy work on integrating green infrastructure into street and neighborhood design and improving walkability in communities while also supporting local economies and resiliency efforts. He manages several of the office's technical assistance programs including EPA's Greening America's Communities which has provided 36 communities with design assistance to incorporate smart growth and green infrastructure strategies in their planning and development efforts.

Clark also developed a technical assistance program with the General Services Administration that helps communities leverage federal investments they receive so as to improve local environmental and economic outcomes. Prior to joining the EPA in 2007, he was an Associate Principal with Community Design + Architecture (CD+A), an urban design firm in Oakland, CA and worked to incorporate ecological systems into urban and street design projects. Additionally, Clark has taught urban design studios at UC Berkeley in the departments of Architecture, Landscape Architecture, and City Planning, and has spoken at over 100 state and national conferences and eight universities. He has an undergraduate degree in fine arts from the University of Lethbridge and graduate degrees in architecture from the University of British Columbia, and landscape architecture and city planning degrees from UC Berkeley.

# PLANNING TEAM

AMERICAN ARCHITECTURAL FOUNDATION

## RONALD E. BOGLE, HON. AIA

Ron Bogle is the President & CEO of AAF. During Ron's 15 years at AAF, he has served as managing partner for the Mayors' Institute on City Design, led a Gates Foundation initiative creating Next Gen Urban Schools, and was appointed US Commissioner for the United Nations Education, Science & Culture Organization. During Ron's tenure, AAF has become a force for good in city design.



## MEGAN CANNING

Megan Canning is an artist, design enthusiast, and independent brand strategy & communications consultant. For nearly 15 years, Megan has brought her passion for art and design to the nonprofit sector, most recently leading brand strategy & communications for the Robert Rauschenberg Foundation. Previously, she spent a decade working to elevate the quality of New York City's public realm at the Design Trust for Public Space. Megan holds a BFA in Art Education and an MFA in Painting. She is a practicing artist with a studio in Brooklyn, NY.



## DEANE MADSEN

Deane Madsen is an architecture critic and photographer living and working in Washington, DC. He is the founder of Brutalist DC, an appreciation society for Brutalist architecture in the nation's capital, and the former associate editor of design for Architect Magazine, where he covered architectural news and awards. Deane earned his Master of Architecture degree from UCLA's School of Architecture and Urban Design, winning the Alpha Rho Chi Medal.



## ELIZABETH OKEKE-VON BATTEN

Elizabeth Okeke-Von Batten is AAF's Director of the Center for Design & the City and leads AAF's direct technical assistance programming including the Sustainable Cities and City Managers' design academies. During her AAF tenure, Liz has worked with more than 100 city leaders directly to solve their most critical design challenges. A Cornell University Historic Preservation Planning program grad, her work has been recognized by the Design Futures Council as an Emerging Leader in Sustainability and by Next City Vanguard as a 40 Under 40 Urban Thought Leader.



# PLANNING TEAM

## KIRKPATRICK FOUNDATION

### LOUISA MCCUNE

Louisa McCune is the Executive Director of Kirkpatrick Foundation. She is a board member of Philanthropy Southwest and Animal Grantmakers and serves as an advisory trustee to the Kirkpatrick Family Fund, Oklahoma Contemporary Arts Center, and Green Box Arts Festival. She is also Editor-in-Chief and Co-Founder of ArtDesk magazine, a member and Co-Founder of the Oklahoma Roundtable for Animal Welfare, and a member of Rotary Club of Oklahoma City, Club 29. Before returning to Oklahoma, she was a contributing editor for The American Benefactor and also worked at Worth, George, Harper's Magazine, Mirabella, and New York.



### PAULETTE BLACK

Paulette Black is Senior Program Officer for the Kirkpatrick Foundation. Paulette has 20 years of experience in Oklahoma state government as a program director in two state agencies, providing grant oversight and leadership for programs in arts education. Her experience includes interpreting and implementing public policy, designing and conducting professional development for educators and school administrators, and serving as advisor to the boards of directors of numerous nonprofit organizations. She is a graduate of Oklahoma State University and completed post-graduate work at the University of Oklahoma, leading to national registration and board certification as an art therapist by the Art Therapy Credentials Board.



### MANDA OVERTURF SHANK

Manda Overturf Shank is Program Associate for the Kirkpatrick Foundation. Manda's professional experiences include developing curriculum for and teaching in educational and technology centers throughout Oklahoma. From 2010 to 2011, she managed literature and history programs for the Oklahoma Humanities Council, and in 2012, she worked as a conference coordinator for the State of Kentucky's Transportation Center. A native of Ada, Oklahoma, Manda earned an undergraduate degree at Oklahoma State University and has a Master of Arts in History from the University of Kansas and a Master of Library and Information Studies from the University of Oklahoma.



# PLANNING TEAM

CITY OF OKLAHOMA CITY, OKLAHOMA



## T.O. BOWMAN

T.O. Bowman is the City of Oklahoma City's Sustainability Manager and directs the Planning Department's Office of Sustainability. In that role, T.O. develops policy and manages grants including energy efficiency upgrades funded through the American Recovery and Reinvestment Act of 2009 and projects via the U.S. Federal Highway Authority, U.S. Department of Energy, and U.S. Environmental Protection Agency. Previously, he coordinated energy efficiency, sustainability planning, and outreach efforts for the State of Oklahoma's Department of Central Services. T.O. has served on the US Green Building Council's Market Leadership Advisory Board for Oklahoma, Board of Directors for the Oklahoma Green Schools Program, and is a past board member of SustainableOKC.



## KELLY DRISCOLL

Kelly Driscoll is an Associate Planner in the Current Planning and Urban Design Division of the Oklahoma City Planning Department. Kelly was instrumental in developing the environmental chapter of planokc, the City's comprehensive plan, and oversaw OKC's Green Infrastructure Taskforce. She currently reviews development projects for conformance with the comprehensive plan, and works with citizens, developers, and designers to assure new projects achieve the goals of the plan. She holds a master's degree in landscape architecture from the University of Oklahoma.

# FORUM TERMS

abiotic	non-living
biodiversity	variety among plant and animal species
biome	a distinct biological community within a climate zone made up of habitats
biotic	living
commensal	living with, on, or in another, without injury to either.
ecosystem	a group of interdependent elements within an environment
ecotone	a region of gradual transition between two habitats or biomes
edge	from one habitat to another; can be gradual (see ecotone) or abrupt (e.g., a field beside a sunken roadway)
habitat	natural environment of an organism or species
invasive	non-native species with a tendency to rapid proliferation
native species	an indigenous species occurring naturally within a region sometimes called introduced species, these species are outside of their naturally occurring regions
non-native species	an ecosystem's ability to recover from adverse conditions
resilience	responsible maintenance of natural assets
stewardship	

# CASE STUDIES REVIEWED

## Biomimicry Chicago: Deep Roots Initiative

Submitted by Amy Coffman Phillips, The B-Collaborative

## Military Park

Submitted by Brent Wall, LAUD Studio

## Buffalo Bayou

Submitted by Cinda Gilliland, Reed Gilliland

## Chicago Riverwalk

Submitted by Gina Ford, Sasaki

## Southwest Brooklyn: Growing from the Waterfront Again

Submitted by Ignacio Bunster-Ossa, AECOM

## Catalyzing an Urban Wood and Restoration Economy in Baltimore

Submitted by Matt Arnn, U.S. Forest Service

## Swale and the US Forest Service NYC Urban Field Station

Submitted by Matt Arnn, U.S. Forest Service

## Myriad Botanical Gardens A New Era for Downtown Oklahoma City

Submitted by Maureen Heffernan, Myriad Gardens Foundation

## Scissortail Park

Submitted by Mary Margaret Jones, Hargreaves Associates

# CASE STUDY: DEEP ROOTS INITIATIVE

## Biomimicry Chicago's Deep Roots Initiative

Chicago, IL

**Lead Project Contact:** Amy Coffman Phillips & Rachel Hahs, Network Leaders, Biomimicry Chicago,  
[info@biomimicrychicago.net](mailto:info@biomimicrychicago.net)

### Project Partners:

- Amy Coffman Phillips / Network Leader & Architect / Biomimicry Chicago
- Rachel Hahs / Network Leader & Sustainability Specialist / Biomimicry Chicago
- Jim Patchett / Founder & Landscape Architect / Conservation Design Forum
- Scott Stewart / Executive Director of the Millennium Park Foundation & Ecologist / Millennium Park Foundation

### Contributing Stakeholders:

- Brian Yeung & Alicia Ponce / Co-facilitators / Living Building Challenge Collaborative: Chicago
- Susan Heinking / Architect & Director of High Performance and Sustainable Construction / Pepper Construction
- Vuk Vujovic / Architect, Vice President, & Studio Director / Legat Architects
- Terry Guen / Principal and Landscape Architect / Terry Guen Design Associates, Inc.
- Sydney Blankers / Planner & Sustainable Urbanism / Farr Associates
- Jessie Stenftenagel / Sustainability Specialist & Biologist / DIRTT Environmental Solutions
- Linda Keane / Architect and Creative Media Artist / Next.cc

...and our diverse network of individuals representing multiple disciplines who are working to bringing this vision forward!

**Project Website:** [biomimicrychicago.net/projects/deeproots](http://biomimicrychicago.net/projects/deeproots)

### Project Narrative:

Well-known Chicago architect Daniel Burnham famously said “make no little plans.” At Biomimicry Chicago, we seek to catalyze a paradigm shift in our Chicago region’s built environment, from one that sits upon to one that thrives within our local ecosystems.

Together with our Deep Roots Initiative partners and collaborators, we are creating a framework and process to establish a science-based definition of sustainability for our region: one that sets the audacious goal that our built environment should perform ecosystem functions at least as well as the ecosystem it inhabits.

To bridge the gap between our goals and current industry practice, we are also creating an interactive tool of place-based, nature-inspired solutions that will empower the industry to measure impact, allocate resources, and innovate toward a truly sustainable and resilient built environment. The information in this tool will be specific to the Chicago region with the hope the framework and tool will serve as a model for cities around the world.

# CASE STUDY: DEEP ROOTS INITIATIVE

## Conceptual Goals for the Deep Roots Initiative

CONNECT	LEARN	CREATE	MEASURE
Draw upon our deep ecological and cultural roots to (re)connect communities and their inhabitants with native ecologies and each other to create a shared vision.	Set audacious regional science-based goals for our built environment based on the performance of native ecosystems, and discover nature-based design principles to help bridge the gap.	Develop an interactive tool tailored to help stakeholders of the built environment hold a holistic perspective while exploring practical and innovative nature-inspired solutions.	Compare and contrast project performance against an ecosystem standard for performing ecosystem functions.

## Emulating Ecosystem Functions

Our Deep Roots Initiative is guided by the knowledge that life in the Chicago region has already figured out how to live sustainably and resiliently right here for millennia, successfully solving for the challenges we face such as flooding, water shortages, access to food, and strong communities. Our process seeks to understand what makes those native systems and species successful, and how to practically apply lessons learned from nature to our built environment to solve these challenges.

We are focusing our efforts on the following ecosystem function categories:

- Water Cycles
- Biodiversity
- Community Connections
- Carbon & Climate Cycles
- Materials Cycles

Working groups will help prioritize ecosystem functions for our region, develop ecosystem function metrics, research and translate strategies of native species and deep patterns across species, and brainstorm application ideas at interactive Design Jam! events.

## Tool Creation

Biomimicry Chicago envisions an online interactive tool designed for use by practitioners of the built environment. As we refine our ideas through the content generated by our working groups and application to case studies, Biomimicry Chicago will work with stakeholders to develop a biomimicry tool that enables practical use to achieve innovative solutions during the design process at the project, municipal, and regional scales. We aim to also include guidance within the tool on how existing

# CASE STUDY: DEEP ROOTS INITIATIVE

standards such as LEED, Living Building Challenge, Envision, and Sustainable Sites can be used to reach our audacious goals.

## Project Timeline

We successfully launched our initiative at a workshop at the Lurie Garden in Chicago's Millennium Park in April 2017. We had four sponsors and thirty diverse stakeholders attend that represented a cross-section of our local community. We will soon be launching the second phase of our initiative, where we form working groups to develop the metrics and tools to prototype our idea. Our timeline is as follows:

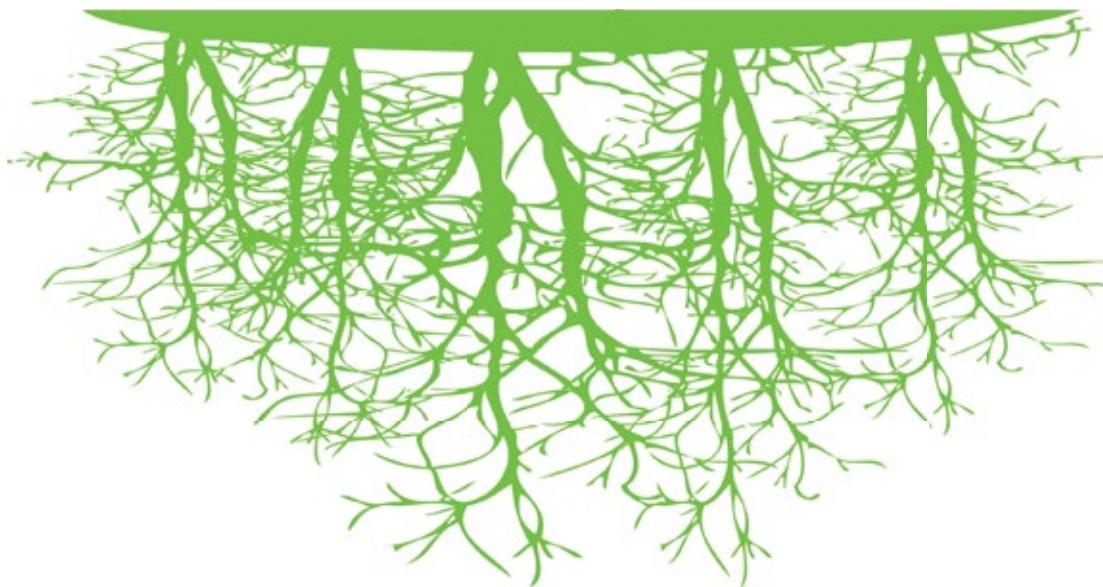
- April 21, 2017 – Kick-off workshop at Lurie Garden in Chicago's Millennium Park.  
<http://www.biomimicrychicago.net/projects/deeproots/deep-roots-workshop-summary/>
- September 21, 2017 – Kick-off working groups at DIRT Environmental Solutions. At this network gathering, we will introduce the current phase of the project and outline next steps for our community of stakeholders in the built environment to co-create a set of audacious goals and look to ecological functions for inspiration on how to achieve them.
- November 2017 - Nature's Water Strategies: A Design Jam! A fun, interactive event where network stakeholders learn from nature's water strategies developed during the working groups and play with new ideas for addressing ecosystem functions in Chicago. Co-hosted with Living Building Collaborative: Chicago.
- January 2018 - Nature's Biodiversity & Community Connections Strategies
- February 2018 - Nature's Materials Strategies
- March 2018 - Nature's Carbon and Climate Strategies
- April 2018 - Strategic workshop to summarize this phase of the project and strategize next steps. We will then package the project to apply for philanthropic funding.

We rely primarily on sponsorship, in-kind donations, and volunteer efforts to keep this initiative going right now, but our goal is that after the working groups are completed we will have a proof of concept that will attract attention from the philanthropic field to continue the work and keep it as a public service.

# CASE STUDY: DEEP ROOTS INITIATIVE



## Biomimicry Chicago **DEEP ROOTS INITIATIVE**



**Project Abstract**  
August 2017

# CASE STUDY: DEEP ROOTS INITIATIVE

## Deep Roots Leadership Team

### Project Partners

#### Biomimicry Chicago

Amy Coffman Phillips, Network Leader & Architect  
Rachel Hahs, Network Leader & Sustainability Specialist  
Lindsay James, Sustainability Strategy Leader  
Moira Albanese, Urban Sustainability Planner  
Sally Jungblut, Artist & Environmental Scientist  
Sarah O'Brien, Soil Scientist

#### Conservation Design Forum

Jim Patchett, President & Landscape Architect

#### Lurie Garden

Scott Stewart, Executive Director of the  
Millennium Park Foundation & Ecologist

### Contributing Stakeholders

#### Pepper Construction

Susan Heinking, Architect & Director of High Performance and Sustainable Construction

#### Legat Architects

Vuk Vujovic, Architect, Vice President, & Studio Director

#### Farr Associates

Sydney Blankers, Planner & Sustainable Urbanism

#### Next.cc

Linda Keane, Architect and Creative Media Artist

#### Living Building Challenge Collaborative: Chicago

Brian Yeung, Energy Consultant  
Alicia Ponce, Architect

#### DIRTT Environmental Solutions

Jessie Stenftenagel, Sustainability Specialist & Biologist

#### Terry Guen Design Associates

Terry Guen, Principal and Landscape Architect  
Aaron Elswick, Site Architect

...and our diverse network of individuals representing multiple disciplines who are working to bring this vision forward!

# CASE STUDY: DEEP ROOTS INITIATIVE

## Project Description

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To bridge the gap between our goals and current industry practice, we are also creating an interactive tool of place-based, nature-inspired solutions that will empower the industry to measure impact, allocate resources, and innovate toward a truly sustainable and resilient built environment. The information in this tool will be specific to the Chicago region with the hope the framework and tool will serve as a model for cities around the world.

### Conceptual Goals



Draw upon our deep ecological and cultural roots to (re)connect communities and their inhabitants with native ecologies and each other to create a shared vision.



Set audacious, regional, science-based goals for our built environment based on the performance of native ecosystems, and discover nature-based design principles to help bridge the gap.



Develop an interactive tool tailored to help stakeholders of the built environment hold a holistic perspective while exploring practical and innovative nature-inspired solutions .



Compare and contrast project performance against an ecosystem standard for performing ecosystem functions.

# CASE STUDY: DEEP ROOTS INITIATIVE

## Emulating Ecosystem Functions

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We are focusing our efforts on the following ecosystem function categories:



Water Cycles



Biodiversity



Community Connections



Carbon & Climate Cycles

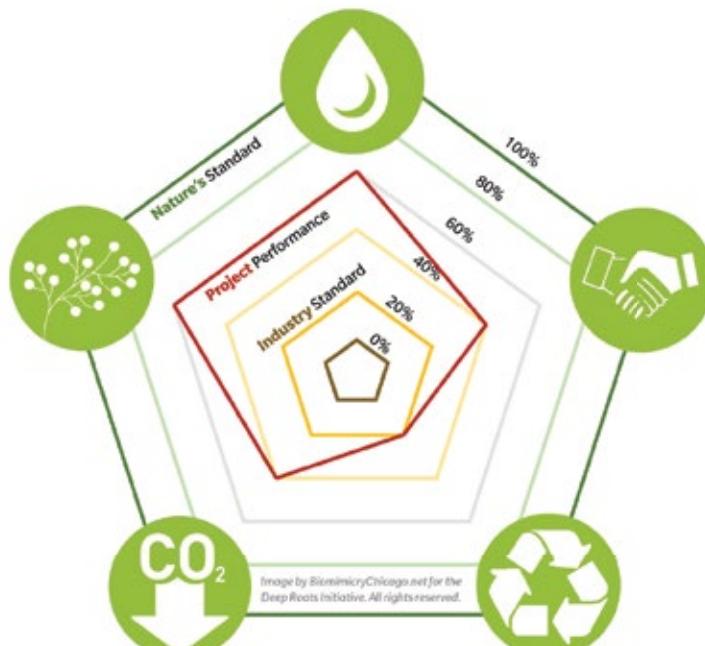


Materials Cycles

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# CASE STUDY: DEEP ROOTS INITIATIVE

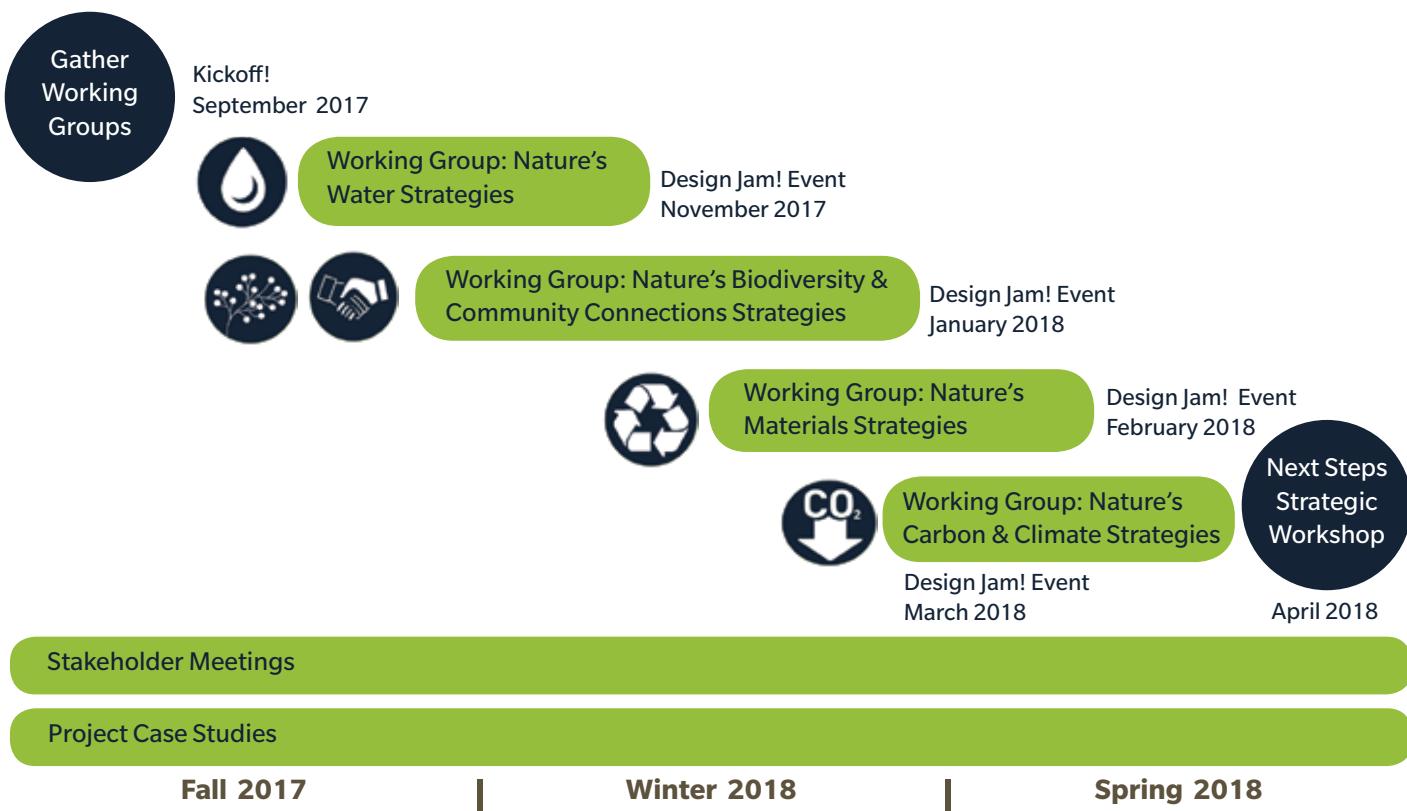
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We successfully launched our initiative at a workshop at the Lurie Garden in Chicago's Millennium Park in April 2017. We had four sponsors and thirty diverse stakeholders attend that represented a cross-section of our local community. We will soon be launching the second phase of our initiative, where we form working groups to develop the metrics and tools to prototype our idea.



**Biomimicry Chicago's Deep Roots Workshop, April 21, 2017**

Our timeline of next steps include a kickoff event, working groups with Design Jam! network gatherings after each one, and a workshop in the spring that launches the beta version of our tool.



# CASE STUDY: DEEP ROOTS INITIATIVE

## Opportunities to Collaborate

The success of the Biomimicry Chicago Network relies upon the energy and interests of our members. We are always looking for people who are interested - people who might want to simply learn more about biomimicry, who want to lend a hand to our growing movement. Please explore the current opportunities listed below for you or your organization to become involved in our network activities, from attending one-time events to joining on-going working groups.

- 1. Join a Working Group**
- 2. Participate in our Design Jam! Events**
- 3. Commission a Case Study**
- 4. Become a Sponsor**
- 5. Other Opportunities**



### 1. Join a Working Group

We are currently organizing and looking for volunteers willing to participate in the following working groups:

- **Water Cycles**
- **Biodiversity & Community Connections**
- **Carbon & Climate Cycles**
- **Materials Cycles**
- **Biomimicry Educators**
- **Stakeholder Engagement** (including existing tool analysis)

Working groups will build on the information we have currently to develop materials and research information, including the brainstorming cards. Once the information is developed, each working group will host a Design Jam! Interactive event where network participants will have the opportunity to explore how these biomimetic design principles can be integrated into the built environment at all scales. All of this information will be added to our practitioners tool.

All expertise and skill levels are welcomed including but not limited to biological and ecological research, biomimetic interpretation, graphic design, design idea generation, and facilitation. By participating in working groups, you will have the opportunity to learn from and be mentored by local leaders in the field of biomimicry, design and the sciences.

# CASE STUDY: DEEP ROOTS INITIATIVE

## 2. Participate in our Design Jam! Events

Join our Biomimicry Chicago network once a month in a fun, interactive Design Jam! Play with nature-based design principles and generate design ideas for our built environment. Content created during these gatherings will contribute to the build out of our tool. The more diverse the crowd, the better - you don't have to be an expert! Visit the events page of our website for more information.



Our original inspiration cards help participants understand nature's strategies for performing the same functions our built environment does, and they use them to brainstorm new and innovative solutions to common sustainability and resilience challenges.

**What can forests and woodlands teach us about managing stormwater?**

**strategy/mechanism:** A forest is a collection of many trees. Their canopy slows wind and protects soil from rain. Their root systems also stabilize soil and prevent erosion. Their underground mycelium network connects all the trees and allows them to share nutrients and water. This allows them to withstand flooding and drought.

**biomimicry design principle:** Rough, multi-layered surfaces break up and slow infiltration. So, water can be more readily absorbed on site.

**What can prairies teach us about fostering diversity?**

**strategy/mechanism:** This prairie is an inherently resilient ecosystem due to its low density of individual plants and its high biodiversity. 100 species could even be found in one plot. This biodiversity enables the ability to withstand extreme weather events such as fire, flood, drought, and insect infestation. When multiple species perform the same function, the system becomes more robust. If one component fails, another can take over. For example, if a single plant dies, other plants can fill its space. If a small insect eats the blossoms of one plant, it can move to another host or attract the insect's natural predators.

**biomimicry design principle:** Install the capacity to respond to disturbance by embedding functional redundancy with responder diversity into the critical functions of a system.

**What can plants and soils teach us about carbon sequestration?**

**strategy / mechanism:** Plants play a critical role in maintaining the carbon balance. Plants source carbon as a raw material from the air, and convert it into energy through photosynthesis (a光合作用). These carbon-based polymers are both a source of energy to itself and a sink for atmospheric CO<sub>2</sub>. As a result, plants are important sinks of atmospheric CO<sub>2</sub>. At the end of life, polymers are either broken down by microorganisms or left to decompose in the soil. Some polymers are more durable than others and require longer to break down.

**biomimicry design principle:** Source carbon as a raw material from the air and convert it via chemical reactions into building blocks or energy that can be broken down and recycled back into the environment.

**What can ecotones teach us about fostering social interactions?**

**strategy / mechanism:** Ecotones are areas between different ecosystems, such as a forest and a field. They are often transition zones where organisms change their habitat. Insects, birds, and mammals often travel across these boundaries. The presence of an ecotone border can allow a wider variety of species to live there. These borders are often characterized by high biodiversity, because they provide a range of resources for different species. They also provide a place for individuals to interact with one another. The diversity of habitat and interaction facilitates the ecosystem's ability to support a diversity of life.

**biomimicry design principle:** Encourage diversity and resilience by creating nested loop systems that connect people and places between diverse communities that encourage interactions at multiple scales.

**What can deciduous trees teach us about recycling materials?**

**strategy / mechanism:** Deciduous trees shed their leaves and roots to their environment every year. This is a way for them to recycle their materials. These materials are often used for fuel or compost. The leaves are often used for mulch or soil amendment. The roots are often used for soil stabilization or as a food source for microorganisms.

**biomimicry design principle:** Recycle components in nested closed loop systems, where harder to obtain materials are recycled and easier to obtain materials are reused.

# CASE STUDY: DEEP ROOTS INITIATIVE

## 3. Commission a Case Study

Because a primary goal of this initiative is to move beyond ideas and develop accessible and practical tools, Biomimicry Chicago is working with current partners to apply the Deep Roots Initiative thinking in case studies. We are using case studies to help refine and prioritize our list of ecosystem functions, develop industry baseline metrics, identify data collection needs, and apply results to our ecosystem metric framework. Please reach out to us if you have a project - either existing or in development - you would be interested in including in our initiative to further develop our ideas.

### Lurie Garden, Millennium Park Chicago, IL

During our April workshop, participants had a chance to apply what they explored about ecosystem functions and the Lurie Garden into a brainstorming of what functions the Lurie Garden does or does not perform. To take it one step further and explore our Deep Roots concept of measuring the performance of our built environment to an ecological performance standard for each function, we then as a large group conducted a quick and dirty analysis of how well the Lurie Garden performs.

One key takeaway participants found was that the Lurie Garden was an oasis of biodiversity within a park and city that was disconnected from other similar gardens. Exploring opportunities to create connections and wildlife corridors is a high priority for Lurie Garden staff and leadership.

### Silver City Placemaking Proposal Milwaukee WI

Biomimicry Chicago participated in a placemaking competition for a neighborhood in Milwaukee, Wisconsin, where we co-facilitated a workshop to explore the cultural, historical, and ecological deep roots of the neighborhood and sought to incorporate these “roots” into the conceptual and aesthetic approach to public space.

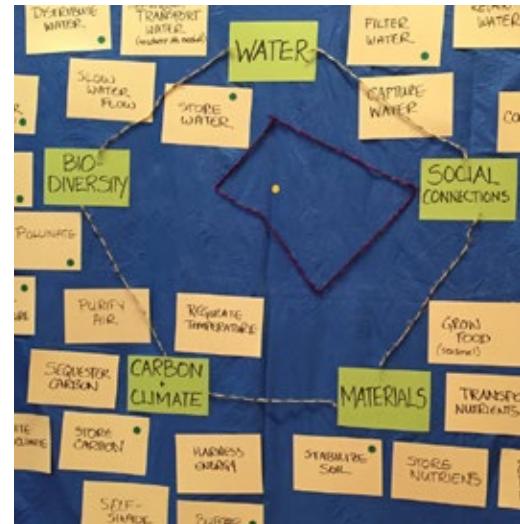


Image: metric conceptualization for Lurie Garden during April 2017 workshop

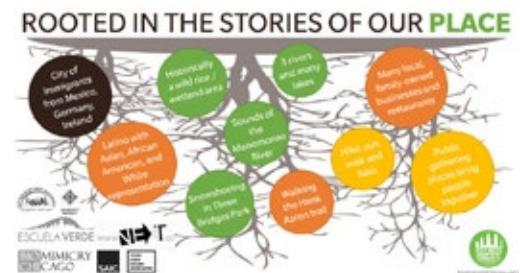
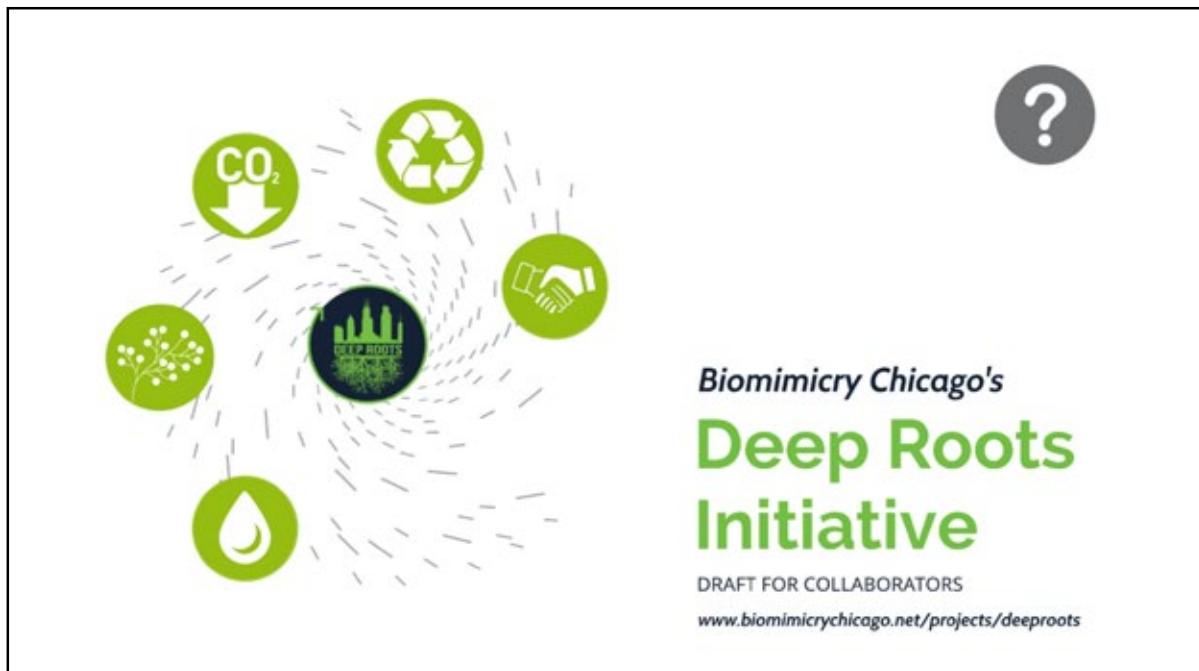


Image: stories of our place for Silver City Placemaking workshop, May 2017

# CASE STUDY: DEEP ROOTS INITIATIVE

## Other Opportunities to Collaborate

Biomimicry Chicago is open to other ideas for partnering and collaborating with local institutions and businesses on our Deep Roots Initiative, such as sponsoring and hosting more in-depth Design Jam! events, exploring a local example of an innovative built environment project through the biomimicry lens, developing place-based Deep Roots Initiative educational tools or applying biomimicry to social community innovation programs. Please contact us.



*Image: tool conceptualization, draft for collaborators*

## References

We are grateful to the following sources of information and inspiration:

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- Biomimicry3.8. [www.biomimicry.net](http://www.biomimicry.net)
- HOK's Genius of the Biome. [www.hok.com/thought-leadership/genius-of-biome/](http://www.hok.com/thought-leadership/genius-of-biome/)
- Ask Nature. [AskNature.org](http://AskNature.org)
- The Nature of Cities. [www.thenatureofcities.com/2017/08/16/imagine-ecological-certification-urban-design-certifications-key-elements/](http://www.thenatureofcities.com/2017/08/16/imagine-ecological-certification-urban-design-certifications-key-elements/)
- Living Future Institute. [www.living-future.org](http://www.living-future.org)
- Sustainable SITES Initiative. [www.sustainablesites.org/](http://www.sustainablesites.org/)

# CASE STUDY: MILITARY PARK

## Military Park

NW 24<sup>th</sup> and Classen, Oklahoma City, OK

**Lead Project Contact:** Brent Wall / Director / LAUD Studio / bwall@laudstudio.com

**Project Partners:** Terry Ash / Principal Park Planner / Oklahoma City Park and Recreation Department

## Project Narrative

Dating to circa 1900, Military Park, a 1.8-acre urban green space located within the Military Park Neighborhood and Oklahoma City Asian District, is one of Oklahoma City's oldest recreation areas. Bounded on all sides by streets, its triangular shape is unique. For most of its existence, Military Park has remained an un-programmed, open green space.

Funded by General Obligation Bonds, the park underwent a major renovation in 2016. The intent of improvements was to re-imagine the site as an activated urban park serving the needs of adjacent residential neighbors, academic institutions, and commercial land uses. Additionally, the site was designed to host a monument dedicated to the relationship between the United States and South Vietnam. Finally, low-impact development measures and native plantings were designed to minimize stormwater runoff and increase urban habitat.

Working with a potential program identified during a public engagement process and the overall desire to make the park blend into the aesthetics of the Oklahoma City Asian District, the design team undertook a series of materials studies and architectural precedent studies as inspiration for the park's design. A series of site sketches were undertaken to fully explore the site's potential. From these sketches, a host of design gestures were formed along with strategies for stormwater management and urban ecology.

Over time a concept centered on the abstraction of paper folding, or origami, emerged. Widely considered to be a Japanese art form, paper folding finds its origins in China. Using the paper folding theme allowed the design team to interject a Pan-Asian design aesthetic where numerous cultures are represented in the landscape.

The triangular shape of the site, 10 feet of grade change from South to North, and mature trees created a spatial challenge for programming. A vegetation and soil protection boundary was drawn around the existing trees to clearly define developable space versus non-developable space. Throughout construction of the project the vegetation and soil protection zone was maintained to eliminate compaction and damage to living species.

Working within the developable zone of the site, amenities such as the monument plaza, stage, activity lawn, and seating areas were disbursed and integrated into the sloping grade. The slant of the site opened opportunities to capture and direct stormwater through a series of catchments, swales, and overland flows, slowing and infiltrating along the way. A new storm sewer inlet was constructed at the lowest point of the park and serves as the only point of entry into the City's overall stormwater network.

Although the project has been successful in terms of its ability to foster social interaction and mitigate stormwater run-off, a lack of funding prevented the landscape scheme from being fully implemented. The completed landscape scheme will feature additional trees and the elimination of turf outside of the

# CASE STUDY: MILITARY PARK

## Project Timeline:

- June 2015 – October 2015: Public engagement process
- October 2015- December 2015: Final design concepts
- January 2016- March 2016: Construction Documentation
- March 2016: Urban Design Commission Approval
- June 2016: 100% plans submitted
- July 2017: Project bidding and Oklahoma City Council approval
- August 2016- February 2017: Project Construction
- July 2017: Memorial statue installed and park dedicated



# CASE STUDY: BUFFALO BAYOU

## Buffalo Bayou Park

Houston, TX

### Lead Project Contacts:

SWA Contact: Scott McCready, Principal, [smccready@swagroup.com](mailto:smccready@swagroup.com)

Client Contact: Anne Olson, President, Buffalo Bayou Partnership, [aolson@buffalobayou.org](mailto:aolson@buffalobayou.org)

**Project Partners:** Buffalo Bayou Partnership, Kinder Foundation, City of Houston, Houston Parks and Recreation Department, Harris County Flood Control District,

**Project Website:** <http://buffalobayou.org/visit/destination/buffalo-bayou-park/>

### Project Narrative:

The renewed 160-acre Buffalo Bayou Park is a critical urban green space, extending upstream of downtown Houston along Buffalo Bayou, the principal drainage system for much of the city. Stretching over 2.3 miles, the park offers Houstonians access to one of the region's last un-channelized urban waterways. Over 15 miles of pedestrian and bike paths, including 4 pedestrian bridges, offer opportunities to explore the restored ecology of the bayou while promoting healthy activities for Houston's growing population. Large event lawns, protected gardens, nature play areas, and flexible plazas provide the infrastructure to support year-round events, bringing together Houston's diverse population to the historic birthplace of the city. The park overcame many obstacles to create the right balance between hydraulic, ecological, and park-user needs. Located within one of city's primary drainage ways, Houston's floodwaters frequently submerge much of the park. Creative design techniques were employed to create a resilient park environment, able to withstand the destructive forces of the bayou while protecting the investment of these valuable public amenities. The \$58-million project was funded through a public-private partnership model, kicked off by a catalyst gift of \$30 million with additional funds raised through a capital campaign supported by over 850 local entities. The development partners include the project partners listed above.

One of the most significant improvements to Buffalo Bayou Park is the transformation of the landscape to a more natural and self-sustaining state by reintroducing native landscapes and restoring diversity and balance to the terrain. Over 14,000 trees were planted in the park over the course of construction, while 50% of the park's lawns were replaced with meadows to improve habitat, add beauty, and to minimize maintenance costs. There was a strong desire to restore and maintain the diversity of the landscapes historically found along the bayou. In collaboration with Katy Prairie Conservancy, 11 acres within the park have been seeded to create "meadows" along the bayou. The meadows consist of "pocket prairies" that showcase wildflowers and grasses throughout the year.

In addition to a more self-sustaining landscape, the park was designed to help Buffalo Bayou function in a more natural state to ensure a healthy and sinuous water channel. The park design implements principles of fluvial geomorphology to reintroduce greater sinuosity into the channel, as well as restore more of the natural section of bayou according to these principles (steeper on the outside bends and shallower with silt deposition benches on the inside bends).

Critical to the long-term success of the park, annual maintenance of \$2 million is funded through a local Tax Increment Reinvestment Zone for 30 years. Vicinity to the park has become one of Houston's most sought-after urban amenities, serving as a catalyst for real estate development and helping to re-brand the city as one that celebrates its diversity and supports a high quality of life. As our increasingly

# CASE STUDY: BUFFALO BAYOU

crowded cities search for more parkland, Buffalo Bayou Park acts as a global benchmark for applying creative design and funding to unlock critical green space in the heart of our communities.

## **Project Timeline:**

**Date Acquired:** N/A, Property owned by City of Houston

**Date Started:** Design started May, 2010

**Date Opened:** October 3, 2015

**Date Completed:** September 2015, Opening

## **Long History:**

- i. In the late 19th century there was a desire to create a linear park along Buffalo Bayou upstream of downtown Houston. Strong public support resulted in much progress through early decades of the twentieth century as hundreds of acres of parkland were acquired along Buffalo Bayou.
- ii. Major floods in 1929 and 1935 shifted the community's focus from bayou parks to flood control and resulted in the creation of the Harris County Flood Control District (HCFCD) in 1937. The new agency partnered with the Corps of Engineers to implement solutions to flooding, including channelization and clear cutting much of the native riparian forest of Buffalo Bayou.
- iii. For the remainder of the twentieth century, some additional improvements have been made to the park, including the trail, installation of several works of art and fountains, and a series of landscape and garden projects.
- iv. In the early 1980s, architect Charles Tapley sought to reawaken the city to the potential of its bayou with a "Demonstration Project" near Sabine Street.
- v. In 2002, the Buffalo Bayou Partnership unveiled its *Buffalo Bayou and Beyond* visionary plan. In 2010, the Kinder Foundation approached Buffalo Bayou Partnership with a catalyst gift of \$30 million. Harris County Flood Control District contributed \$5 million, and Buffalo Bayou Partnership raised the remaining \$23 million through a capital campaign. Over 850 local foundation, corporate and individual donors contributed to making the park a reality. A Steering Committee was formed including: Buffalo Bayou Partnership, City of Houston, Parks and Recreation Department, Harris County Flood Control District and the Kinder Foundation.
- vi. Design work started for the park in 2010, led by SWA Group, and groundbreaking for the park was in July of 2012. Buffalo Bayou Park held its official opening on October 3<sup>rd</sup>, 2015 with a full day of performances, music, activities and a procession designed in partnership with New York-based Processional Arts Workshop.
- vii. For long-term success as the key urban open space in Houston, maintenance is critical to its future. At the initial stages of the project, an in-depth Operations and Management plan was developed in concert with the design of the park. In the gift agreement with the City of Houston (which owns the land), the Kinder Foundation, and Buffalo Bayou Partnership, an annual \$2 million maintenance commitment was dedicated from the Main Street Market Square Tax Increment Reinvestment Zone (TIRZ) #3 for a period of 30 years. Buffalo Bayou Partnership oversees maintenance and operations of Buffalo Bayou Park.

# CASE STUDY: BUFFALO BAYOU

Post-Harvey Update: [Link Here](#)

## BUFFALO BAYOU ARTICLES

Houston Chronicle, "Buffalo Bayou Park an 'ambitious public space' for 2015", January 6, 2016;  
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# CASE STUDY: CHICAGO RIVERWALK

## Chicago Riverwalk – Phases 2 and 3

### CLIENT CONTACT:

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Director of Public Affairs  
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### PHASE COSTS:

Phase 2: \$ 43,058,000  
Phase 3: \$ 52,419,000

### TEAM CREDIT:

#### City Leadership

Mayor Rahm Emanuel  
Rebekah Scheinfeld, Chicago Department of Transportation (CDOT) Commissioner  
David Reynolds, Chicago Department of Fleet and Facility Management (2FM) Commissioner

#### Design Leadership

Gina Ford, ASLA, Design Principal, *Sasaki*\*  
Carol Ross Barney, FAIA, Lead Design Architect, *Ross Barney Architects*\*

#### Project Team Leadership

Dan Burke, Deputy Commissioner / Chief Engineer, *CDOT*  
Owaldo Chaves, Project Manager, *CDOT*\*  
Michelle Woods, Project Manager, *2FM*\*  
Steve Hamwey, Principal-in-Charge, *Sasaki*  
Zach Chrisco, Project Manager, *Sasaki*  
Eric Martin, Architectural Project Manager, *Ross Barney Architects*  
Ryan T. Giblin, Architect, *Ross Barney Architects*  
Mordecai Scheckter, Architect, *Ross Barney Architects*  
Kurt Naus, Project Manager, *Alfred Benesch & Company*  
Matthew F. Hellenthal, PE, SE Lead Structural Engineer, *Alfred Benesch & Company*  
Jim Nutter, Project Manager, *Alfred Benesch & Company*  
Dan Gross, Construction Manager, *Alfred Benesch & Company* \*  
Terry Warriner Ryan, Landscape Architect, *Jacobs/Ryan*\*  
\* denotes lead spokesperson for each organization/firm

#### Project Team Experts

Harish Goyal, Civil Engineer, *Infrastructure Engineering, Inc. (IEI)*  
Mohsen Farahany, Structural Engineer, *Rubinos & Mesia Engineers, Inc. (RME-I)*  
Harjit Singh, Electrical Engineer, *Delta Engineering Group (DEG)*  
Mourad Djendi, Mechanical Engineer, *Delta Engineering Group (DEG)*  
Giulio Pedota, Lighting Designer, *Schuler Shook*  
Jim Garland, Water Feature Consultant, *Fluidity Design Consultants*  
Renee Doktorczyk, Specifications, *ArchiTech Consulting, Inc.*

# CASE STUDY: CHICAGO RIVERWALK

## **Project Narrative:**

Mayor Rahm Emanuel is committed to developing healthy neighborhoods throughout Chicago where people can live, work, and play. The Chicago Riverwalk project plays a central role in enhancing the downtown Chicago public experience by giving visitors and residents of Chicago, alike, a place to engage in recreation and leisure in the heart of the city.

This design project is the latest in Chicago's long history of commitment to design excellence that touches the lives of all Chicagoans. Mayor Emanuel, through the *Building on Burnham* plan, is fulfilling a pledge: to make the river Chicago's next recreational frontier and to finally make it a part of our neighborhoods, rather than a separate part of the city. In keeping with Daniel Burnham's advocacy for keeping the lakefront and other natural assets public amenities, Mayor Emanuel's administration has long endeavored to connect Upper Wacker Drive to the river's edge to improve waterfront access from city to shore.

The ecologically sensitive design aids in improving water quality, enabling people to interact with the river as they have never been able to before. Forty years ago, there were just seven aquatic species in the river. Today, per the Friends of the Chicago River, there are 75 and counting. The floating wetlands in The Jetty will provide plenty of great habitats for aquatic life and give Chicago's children an outdoor classroom for learning about fish, fauna, and critters.

Creating park space out of underutilized industrial riverfront in a dense urban environment creates a healthier and happier environment for all Chicagoans. The Riverwalk is part of a larger city-wide initiative to develop dynamic green spaces throughout the city, including recent projects like the 606 trail, Maggie Daley Park, and Navy Pier. These public spaces collectively help to keep Chicago competitive as a beautiful destination city.

Lastly, through investment in powerful design, programmatic activation, improved access, and placemaking, Mayor Emanuel is investing in the economic vitality of the city. The Riverwalk will continue to be a draw for tourism, an attraction for local business, and a boon for real estate interests in the area.

## ***How is the City collaborating on this project?***

CDOT oversaw design and construction and The Department of Fleet and Facility Management (2FM) oversees programming, maintenance, operations and vendor agreements.

## ***How did the Riverwalk come to be?***

In the 1990s, a series of studies, plans, and guidelines were introduced and in 2001 Chicago's Department of Transportation submitted a plan for the south bank to the US Department of Transpiration's Vlope National Transportation Center, a plan which included a 25-foot extension into the river for the construction of under-bridges making it possible for pedestrians to continuously traverse the riverside, without coming up to Wacker Drive. In 2002, Ross Barney Architects began collaborating with the Chicago Department of Transportation, Collins Engineering, and Jacobs/Ryan Associates on an initial segment of the Riverwalk that began east of Michigan Avenue and extended to State Street, which was completed in 2005. Known as Phase 1, this segment includes two pedestrian connections at river level, the Bridgehouse Museum Plaza, Wabash Plaza, and Chicago's Vietnam Veterans Memorial. Continuing the framework developed during Phase 1, Phases 2 and 3 realize a continuous pedestrian connection along the river between Lake Michigan and Lake Street.

# CASE STUDY: CHICAGO RIVERWALK

## **How was this project funded?**

The City of Chicago received a Transportation Infrastructure Finance Innovation Act (TIFIA) loan from the U.S. Department of Transportation (USDOT) to complete the Chicago Riverwalk along the main branch of the Chicago River. Mayor Rahm Emanuel's office was instrumental in securing the funding.

The loan will be paid back over the course of 35 years from revenue generated by a number of vendor contracts along the river. 2FM will oversee the structuring of contracts and repayment plan for the TIFIA loans.

## **Who will cover the maintenance costs associated with the project?**

The Department of Fleet and Facility Management (2FM) is responsible for all maintenance. As part of their operation and maintenance plan they've identified sources of funding to keep the Riverwalk maintained.

## **How did the collaborative design process work?**

*In 2010, Sasaki, Ross Barney Architects, Alfred Benesch & Company, and Jacobs/Ryan Associates, supported by technical consultants, were tasked with completing the vision for Phases Two and Three of the Riverwalk: six blocks between State Street and Lake Street.*

Sasaki and Ross Barney Architects collaborated to create an overall vision for these six blocks of the River, which was presented to the City in mid-2011. Working closely together to ensure project continuity, the design team moved into detail design and documentation from 2011 - 2015.

Sasaki led the design and construction of the Marina, the Cove, the Jetty and the Riverbank and Ross Barney Architects led the design and construction of the River Theater, the Water Plaza, the under bridges and the arcade renovations.

Expert team members worked across the entire six blocks, including Alfred Benesch & Company (for the structural edge), Jacobs/Ryan Associates (planting and irrigation), Schuler Shook (lighting), and Alfred Benesch & Company (construction management and oversight) working closely with the project general contractor, Walsh Construction.

## **What was Sasaki's role? Ross Barney Architects's role?**

Sasaki served as prime consultant, responsible for managing and overseeing the project design and delivery working closely with Ross Barney Architects. Sasaki led the design and construction of the Marina Plaza, the Cove, the Jetty and Boardwalk, and Ross Barney Architects designed and constructed the River Theater, the Water Plaza, the under-bridges and arcade renovations. The design team was joined by Alfred Benesch & Company, Jacobs/Ryan Associates, and a broader technical consultant team in the engineering and construction of this project.

# CASE STUDY: CHICAGO RIVERWALK

***Just days after the last phase of the project opened it flooded. How are you designing the Riverwalk to be resilient in the face of flooding?***

The client and design team studied intensely the impacts of flooding on the proposed project. One of the critical goals of the project was to connect people to the water, which meant bringing the Riverwalk down to the elevation of the water; inherently, it was understood there would be times when the Riverwalk would flood. All our systems were therefore designed to be resilient to flooding—from paving, to ratings of the light fixtures, to the elevations at which we put the most critical infrastructure above the flood line—were all thoughtfully considered and detailed.

It was designed so the paths along the river can be washed within minutes of flood waters receding and re-opened to the public within hours, as was demonstrated with the first flood event that occurred shortly after phase 2 opened.

***Why is public space like this valuable for the City? And what inspiration can other cities take from the project?***

Doing away with underutilized infrastructure and rethinking how these spaces can become amenities helps to maximize the valuable real estate many cities have in their city centers. Before, the river's edge was not a place people had any reason to visit, and today it's a comfortable public destination that people seek out.

Green spaces like these provide not just a place to convene, but also act as critical linkages to existing open space systems that exist in the city: now you can run up and down the lakefront and make your way directly into the heart of the city. Mayor Emanuel's administration is proud to unveil the last phases of the Riverwalk, marking the complete restoration of the river as a spine that connects many neighborhoods throughout Chicago.

There are many other towns and cities that could similarly stand to re-evaluate some of their underutilized infrastructure and opportunities for greater connectivity. The Riverwalk is poised to become a major facet of downtown life for Chicagoans as a tourist destination, a retail attraction, a performance space, and a health and wellness resource open to all.

***What issues did you face in the design and construction of the Riverwalk?***

**Dense urban context.** The project site is located within an incredibly dense urban context in which all the boundaries are already defined. There were many physical constraints to navigate as we thought about how to provide accessibility down to the Riverwalk and considered how to lower the Riverwalk further so that it could meet the river's edge.

**Weather and natural events.** Knowing that at times the project site would be inundated and anticipating those flooding events had many implications on our design and construction approach and schedule. The river froze over to depth of 4-6 inches at one point, which meant that our contractor's barge was frozen in place for a period.

**Infrastructure.** We designed above or under critical city infrastructure: over CTA tunnels, around major utility systems, and under a CTA line. We had to think about how our foundation systems could be designed with minimal impact on that infrastructure while meeting all the loading criteria specified by the coast guard.

# CASE STUDY: CHICAGO RIVERWALK

**Transportation.** There are six different types of transportation—bike, pedestrian, cars, human powered boats, motorized boats, and CTA—that utilize the river and Riverwalk. Navigating around all those vehicles and people while building an incredibly complex project was challenging.

**Getting materials onsite.** With little space to store materials or build, most the project was built from barges floating on the river. Materials were floated down the river or brought in via the barge systems.

**Residential neighborhood.** We could only work during certain hours since this is a semi-residential neighborhood.

**Unknowns.** Contractors employed divers to work underwater to identify existing conditions and perform some of the construction. They found old cars in bottom of the river, newspaper stands, and other large detritus that no one knew would be there.

## ***What impact will this public space have on native marine life?***

The water quality of the Chicago River continues to improve every year and portions of the Riverwalk design integrate deliberate plantings that support and encourage the ecological health of the river. One of the rooms, dubbed The Jetty, was designed with the philosophy in mind that truly sustainable design accounts for the whole environment—not only for humans. Through plantings and other interventions, fish and aquatic life are given environments in which they can thrive.

Boardwalk spaces intertwine with the constructed fish habitat, and provide places for pedestrians to observe, fish, and learn from the naturalized river habitat. Along with improving ecology, another goal is to provide a permanent space for ecological experimentation and educational observation along urban rivers. The Jetty landscape will be an extraordinary educational platform for local school groups to observe and understand the ecological cycles of habitat, vegetation, and water quality.

## ***Why did the project take so long to be completed in full?***

The project was implemented in multiple phases intentionally due to the funding schedule. It's an incredibly complex and detailed process to design and build and because it's a layered system, each system can't start until the other one is finished. In the end, the project was generally close to target completion dates in both phases.

## ***In what ways does this project embrace the concept of “placemaking”?***

A major consideration for the design team was how to cultivate a space that would draw people to it. The concept of having six distinct rooms was in part about creating diverse activities that respond to each portion of the river, but was also about creating memorable and distinct places along the river that would start to create an identity and personality for the riverfront:

**The Marina Plaza:** Restaurants and outdoor seating provide views of vibrant life on the water, including passing barges, patrols, water taxis, and sightseeing boats.

**The Cove:** A kayak information center and docking for human-powered crafts enable physical connections to the water through recreation.

# CASE STUDY: CHICAGO RIVERWALK

**The River Theater:** A sculptural staircase linking Upper Wacker and the Riverwalk offers pedestrian connectivity to the water's edge and seating, while trees provide greenery and shade.

**The Water Plaza:** A water feature offers an opportunity for children and families to engage with water at the river's edge.

**The Jetty:** A series of piers and floating wetland gardens offers an interactive learning environment about the ecology of the river, including opportunities for fishing and identifying native plants.

**The Riverbank:** An accessible walkway and new marine edge creates continuous access to Lake Street and sets the scene for future development in this critical space at the confluence. It provides an accessible route from lower to upper Wacker and Lake Street. It features a public lawn and the City is continuing to explore possibilities for how the room can be developed.

## ***How does this project benefit the entire city that everyone can enjoy?***

The site is designed to be universally accessible and is meant to be inviting for use by all members of the public. A good mix of vendors will help to make the retail and recreational amenities a draw to all.

## ***What's next?***

The Riverwalk is complete, though CDOT and 2FM are considering next steps for further development of the last room, The Riverbank.

The Chicago Riverwalk has provided a foundation on which to realize Mayor Emanuel's vision of turning the Chicago River into the city's next great recreational park. A recently released document, Our Great Rivers, (completed by the Metropolitan Planning Council, Ross Barney Architects, and a host of advocacy organizations) sets out a vision to unlock the potential of the Chicago, Calumet, and Des Plaines Rivers and riverfronts. The entire river system has steadily gained a vocal collective of advocates, all looking to reconnect the daily experience of the City with the dynamic and changing life of the River. With over 150 miles of riverfront and 70+ species of fish, the river is an evolving ecosystem of inestimable natural value.

Additionally, Mayor Emanuel has outlined a comprehensive plan for investment in the Lakefront, the Chicago River, natural areas, and recreational nodes in neighborhoods across the city entitled, *Building on Burnham*. This plan follows the Mayor's successful expansion of Chicago's park system in his first mayoral term, which has already added 750 acres of new parkland, 256 new playgrounds and more than \$800 million in capital investment from neighborhoods and private sources.

# CASE STUDY: CHICAGO RIVERWALK



SASAKI

ross barney architects

## Sasaki and Ross Barney Architects Complete Chicago Riverwalk

*The creation of six new 'rooms' along the river revolutionize urban connections and enrich waterfront activity*

**Chicago, IL – [October 25, 2016]** – Under the stewardship of Mayor Rahm Emanuel's administration and Chicago's Department of Transportation, Sasaki and Ross Barney Architects have completed the final phase of the [Chicago Riverwalk expansion](#), creating new connections that enrich urban life and diversify activities along the river through the design of six unique 'rooms'.

"This project capitalizes on existing infrastructure, bringing people to the water's edge and enabling them to walk along the river continuously without needing to move up to the street level to cross to the next block," said Gina Ford, design principal for Sasaki, the project's prime consultant. "The end result is an ecologically sensitive design that improves water quality, enhances visitor experiences and serves as a revenue generator for the city."

"The swampy Chicago River gave birth to arguably the greatest city of the 20th Century. In Chicago's formative years, the river was its lifeline, brimming with traffic. Burnham built his 1909 plan on a civic waterway and promenade along the river. We were entrusted with the responsibility of finally completing that vision, transforming what had become a postindustrial leftover into a 21st century urban waterfront," said Carol Ross Barney, FAIA, lead design architect for Ross Barney Architects.

The newest rooms, which opened on October 22, include:

- **The Water Plaza:** A water feature for children and families to engage with water at the river's edge.
- **The Jetty:** A series of piers and floating wetland gardens with interactive learning about the ecology of the river, including opportunities for fishing and identifying native plants.
- **The Riverbank:** Accessible walkway and new marine edge creates continuous access to Lake Street and sets the scene for future development in this critical space at the confluence. It provides an accessible route from lower to upper Wacker and Lake Street. It features a public lawn and the City is continuing to explore possibilities for how the room can be developed.

The first three rooms, which opened in May of 2015, include:

- **The Marina Plaza:** Restaurants and outdoor seating with views of vibrant life on the water, including passing barges, water taxis and sightseeing boats.
- **The Cove:** A kayak information center and docking for human-powered crafts enable physical connections to the water through recreation.
- **The River Theater:** A sculptural staircase linking Upper Wacker and the Riverwalk offers pedestrian connectivity to the water's edge and seating, while trees provide greenery and shade.

"For far too long, the riverfront was a forgotten part of our City, but we have reclaimed this space to transform the river into Chicago's next great recreational frontier," said Mayor Emanuel. "Building on Daniel Burnham's vision, the riverfront investments we're making throughout the City are increasing river access and recreational opportunities while also promoting economic growth."

"CDOT is very proud to have constructed the Riverwalk, which is the latest example of Chicago's long history of commitment to design excellence that touches the lives of all Chicagoans," adds Chicago Department of

# CASE STUDY: CHICAGO RIVERWALK

Transportation (CDOT) Commissioner Rebekah Scheinfeld. "It fulfills Daniel Burnham's plan, which envisioned a riverside promenade that would make the River accessible to residents of Chicago."

While the project is complete, CDOT, which oversaw design and construction of the project, and the Department of Fleet and Facility Management, which oversees programming, maintenance, operations and vendor agreements, are considering next steps for further development of the last room, The Riverbank.

*Download a press kit with images, full team list, and more information [here](#). Please contact [jchow@sasaki.com](mailto:jchow@sasaki.com) with further inquiries.*

###

## About Sasaki

At Sasaki ([www.sasaki.com](http://www.sasaki.com)), we believe in the transformative power of place. Places transcend physical spaces, becoming the context and the content of our experience of life. For over sixty years, Sasaki has brought together the best of architecture, interior design, landscape architecture, planning, urban design, civil engineering, graphic design, place branding, and data science to shape the places in which we live. Out of our Boston and Shanghai offices we are defining the contours of place and redefining what's possible along the way. Today we are a diverse practice of 270 professionals who share a singular passion for creating spaces and places around the world that prove human potential.

## About Ross Barney Architects

Ross Barney Architects ([www.r-barc.com](http://www.r-barc.com)) is a Chicago-based architecture and urban design studio. Established by Carol Ross Barney, the studio occupies a unique place within the panorama of contemporary practice that is characterized by a reputation for work in the public realm. From community buildings to campus buildings for premier academic and research institutions, to groundbreaking transit stations that connect vibrant neighborhoods, Ross Barney Architects has produced distinctive structures that have become community icons. The studio's ideas and projects have been recognized, published, and exhibited around the world, receiving more than 60 major awards.



# CASE STUDY: SOUTHWEST BROOKLYN

## **Southwest Brooklyn Framework**

New York City

**Lead Project Contact:** Gonzalo Cruz, Principal, AECOM; [gonzalo.cruz@aecom.com](mailto:gonzalo.cruz@aecom.com)

### **Project Narrative:**

The Southwest Brooklyn framework is based on four guiding principles (Growth, Equity, Resiliency, and Sustainability) as lenses to examine multiple community development scenarios. The purpose is to ensure that a triple bottom line thought process (social, environmental, and financial) is considered during the development of strategies for the geographic area while also incorporating priorities and goals of New York City community-vetted vision documents such as the Mayor's One NYC Plan and the Regional Plan Association's draft Fourth Regional Plan. The project asks 'What do you want your city to be', looking at major challenges facing the city today: a housing crisis and a lack of affordable housing, access to jobs, coastal flooding, and risk of gentrification.

Four density scenarios are considered using a triple bottom line economic model to explore how social infrastructure and public benefits can be leveraged with future development. The four scenarios include: In-fill development, 25 million, 35 million, and 45 million square feet of development. The model is used to understand costs and benefits of services such as a new subway line, new jobs, new annual city revenue, new affordable housing units, new market-rate housing units, miles of new streetscape improvements, miles of new coastal protection, miles of new public waterfront access, and acres of new public parks and open space.

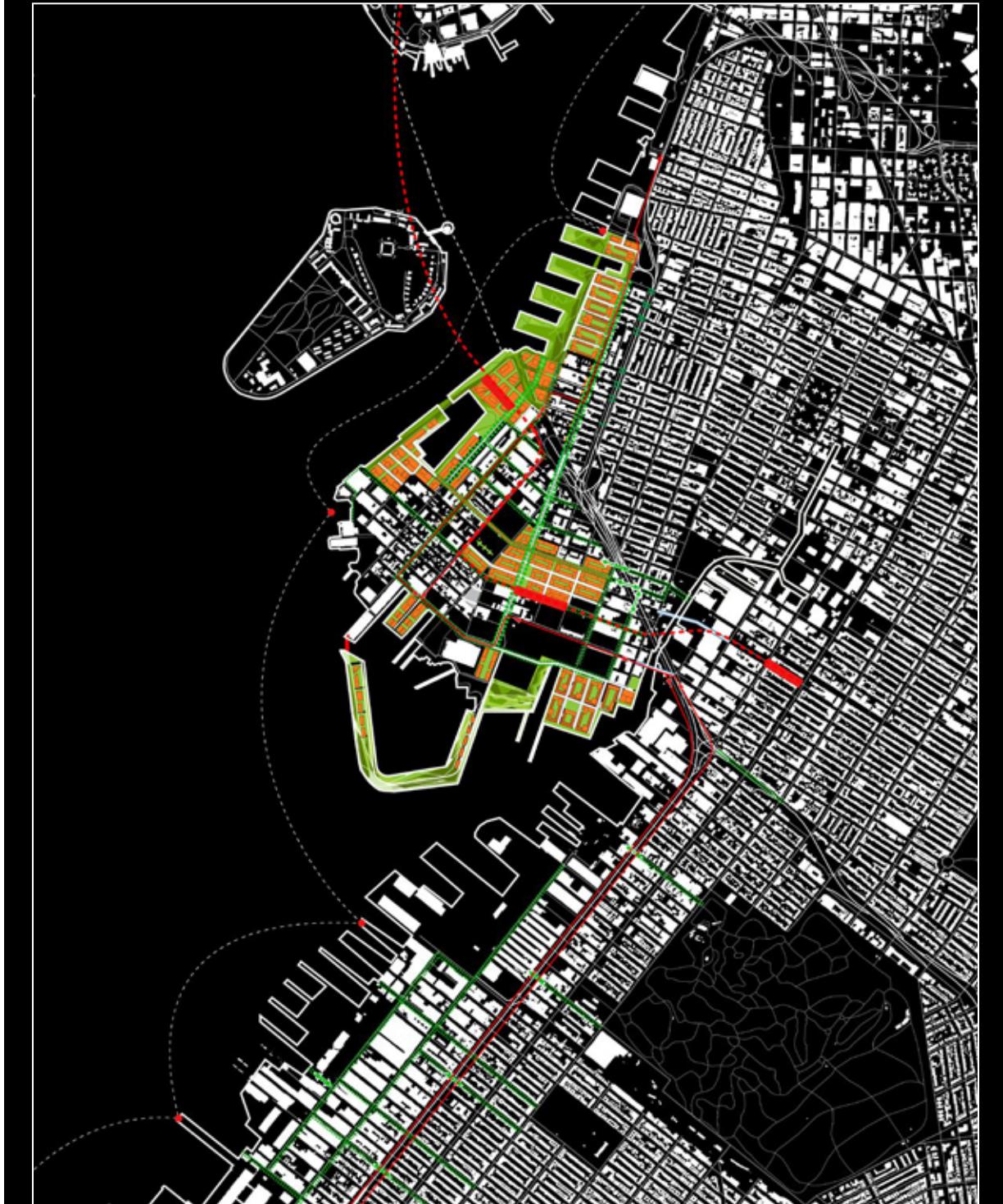
Using the four guiding principles of growth, equity, resilience, and sustainability, the Southwest Brooklyn framework uses conceptual designs to address the challenges and opportunities identified through the existing conditions analysis and issues to address. Design strategies include a proposed new subway line to connect Red Hook, making street-grid connections to improve pedestrian and vehicular circulation, new bike lanes and connection upgrades, new housing development with 25% affordable housing and concentrated density around new subway stations, new open space and existing open space improvements, creating a continuous and connected public waterfront, a toolkit of coastal protection typologies and integration of sustainable stormwater practices, micro-grid energy investments, and lowered greenhouse gas emissions.

The framework for Southwest Brooklyn explores density options with respect to the existing neighborhood context and examines architectural massing at different scales, including the potential renovation of existing affordable housing and future development in the community. The framework seeks to open the conversation within the community regarding how architecture can be constructed to help address the needs for additional transit options, access to the waterfront, and integrated flood protection.

### **Project Timeline:**

The framework was prepared as a company self-funded initiative, with the knowledge and support of the Mayor's office. It is intended to demonstrate how a process of integrated infrastructure and community design can advance the Mayor's sustainability agenda well into the future. As such it has no timeline or funding mechanism attached to it. However, as a direct result of the framework, a planning effort is now underway to more specifically address the needs of the Sunset Park community in the southern portion of the study area.

# CASE STUDY: SOUTHWEST BROOKLYN



## SOUTHWEST BROOKLYN GROWING FROM THE WATERFRONT AGAIN

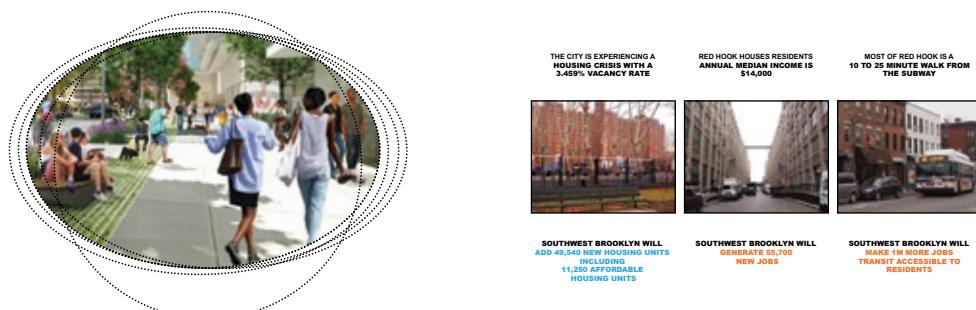
A FRAMEWORK AND TOOLS TO DRIVE AN ASCENDANT, RESILIENT,  
EQUITABLE, THRIVING NEW YORK CITY

# CASE STUDY: SOUTHWEST BROOKLYN



PREFACE

## K PREFACE



Like all great cities, New York has remade itself in the face of enormous change — from a port city to mercantile hub to industrial center to financial capital and, today, a global city, touching the entire world on a daily basis. These transformations have been driven by economic transitions, seismic migrations from inside and outside of the country, social and cultural upheaval and vast technological innovations. At times, these transitions have been chaotic and turbulent, causing social unrest and, at other times, they have been the result of purposeful strategy and public engagement, allowing for growth and accommodation. With forecasts calling for more than three million additional people living in New York in the next twenty five years, and a million new jobs needed, the City faces tremendous questions of how and where it will grow, and what that growth will mean for all New Yorkers.

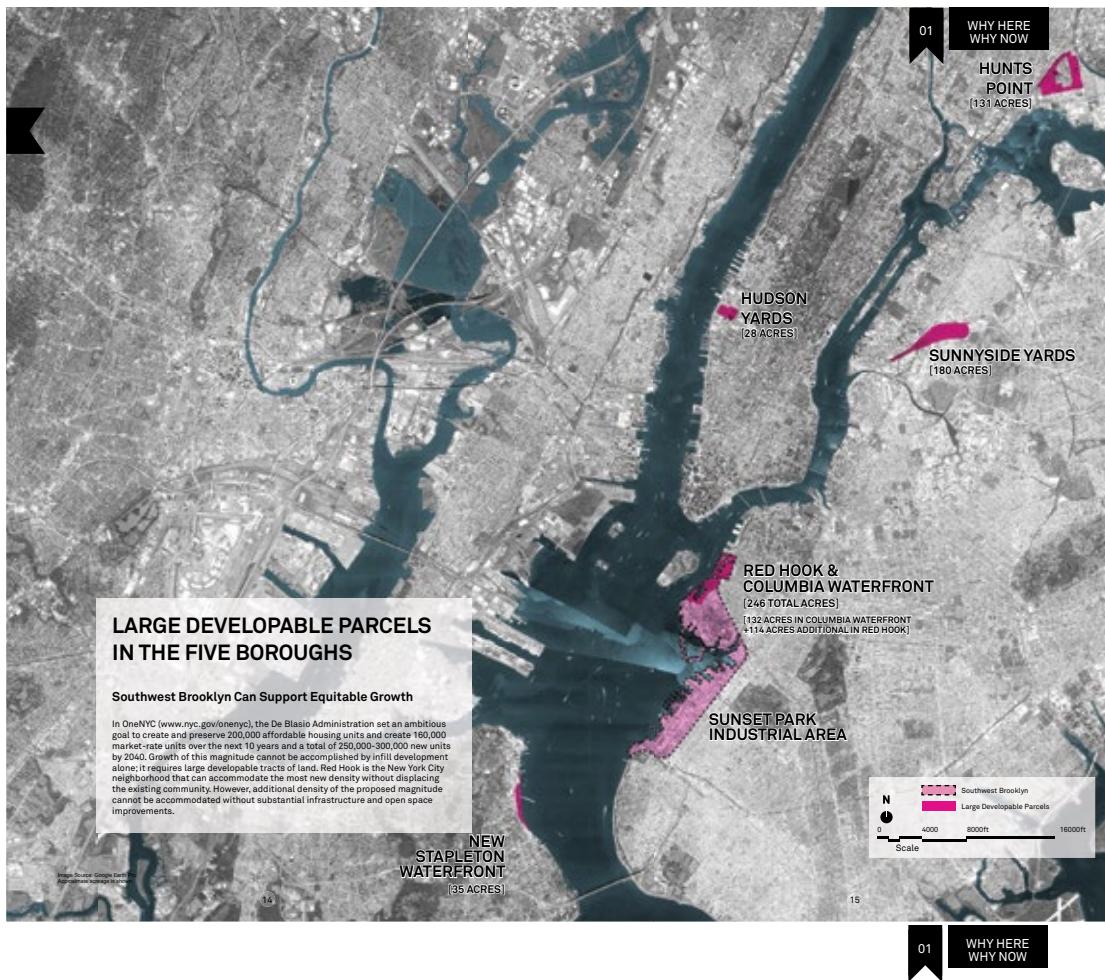
Throughout its history, three constants have formed the foundation of the City, each one a response to a challenge that threatened the very existence of the entity, at times to the point of collapse, due to long-term civic engagement and vision. First, it was the basic environmental question of delivering fresh clean drinking water to a densely settled and rapidly growing population. Second, it was the transportation system, how to get people from home to work. Finally, it was housing, the growth and contraction of the population, and the ability to accommodate the needs of the city. It has been these three pillars that have allowed the City to grow literally from a small fort at the tip of Manhattan to the global center it is today, changing and transforming, growing and contracting, but in every decade driving a new vision for a city not yet realized.

Today, the City faces a moment in time that will define its future for decades to come. Worldwide economic forces, questions of equity, the whole idea of what is a neighborhood, and dramatic climate change will drive and transform New York City regardless. Each is a given. The question becomes, can each one of these questions be answered in a way that creates an equitable, sustainable and resilient city.

This document does not provide an answer to these challenges, rather it presents a framework for a civic discussion on how the City might balance these challenges, using Southwest Brooklyn as a way to ask that most basic question: What kind of city do people want to live in? It highlights the same three pillars: the environment, now more broadly defined as climate change and sea level rise; the challenge of mobility, transportation, and the connectivity to create and maintain neighborhoods; and, a housing market that can accommodate all of the people needed to live and work in the modern economy. This document does not answer these issues through a single prism of growth, equity, resiliency and sustainability. The future of the City will not be found in a single vision. Instead, it must be the result of a constant conversation with the City as a whole. Southwest Brooklyn might be where that conversation begins.



# CASE STUDY: SOUTHWEST BROOKLYN

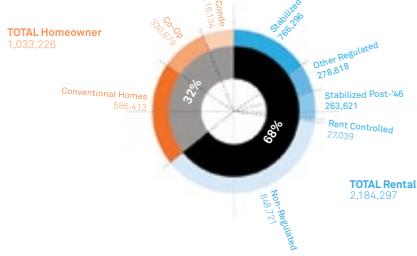


## THE CITY IS ASCENDANT – BUT ITS HOUSING IS IN CRISIS



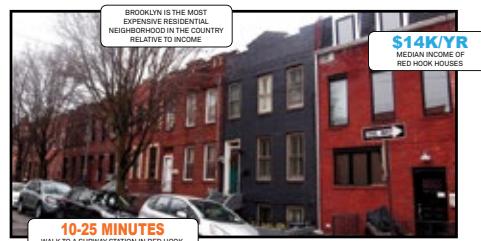
Over the last decade the City of New York has experienced unprecedented growth. The City has 8.4 million residents, the most in its history, with all indications pointing to the population growing to 9 million by 2040. Much of that growth will take place in Brooklyn where the OneNYC Regional Plan anticipates population growth will increase by 13% by 2040. The City is already experiencing a housing crisis. The legal definition of a housing emergency is a vacancy rate below 5%. In 2014, the New York City vacancy rate was 3.45%. The lack of available housing presents a particular challenge to New York's low-income and working-class families as the lack of housing supply drives prices upwards. More than half of New Yorkers are rent-burdened and over 30% are severely rent-burdened.

New York City Housing Stock



Note: Above figures exclude vacant units that are not available for sale or rent. Source: U.S. Bureau of the Census, 2014 New York City Housing and Vacancy Survey.

## EMBRACING THE RED HOOK AND SUNSET PARK COMMUNITIES

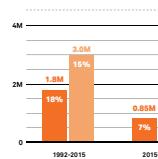


The Southwest Brooklyn waterfront communities of Red Hook and Sunset Park have strong, vibrant and engaged communities with entrepreneurial spirit, but each face their own challenges resulting at least in part from neglect and Robert Moses era infrastructure and decisions. Red Hook and Sunset Park are currently in terms of waterfront access and openness and could greatly benefit from robust local industrial sector that prioritizes head of household jobs that do not require a college degree. Red Hook residents are isolated in terms of access to public transportation, jobs, neighborhood services, cultural amenities and waterfront access. New York City's median income in Red Hook is the highest, median household income is \$14,000 per year. They are also particularly vulnerable to flooding and energy disruption during and after extreme weather events.

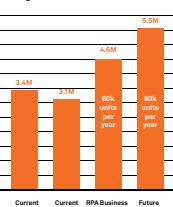
The area needs to be redeveloped with an eye towards improving the existing communities' access to jobs, open space, schools and essential services, as well as protecting them from flooding and energy blackouts.

Job Growth

6M □ Jobs Growth ■ Population Growth



Housing Demands



Data Source: The Fourth Regional Plan; Regional Planning Authority; U.S. Bureau of the Census, 2014 New York City Housing And Vacancy Survey; OneNYC

# CASE STUDY: SOUTHWEST BROOKLYN

01

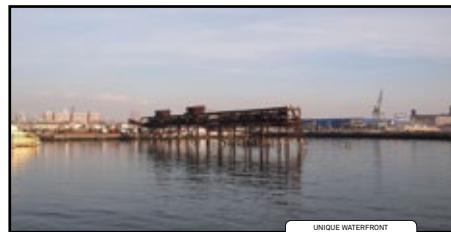
WHY HERE  
WHY NOW

## SOUTHWEST BROOKLYN NEEDS MORE OF THE RIGHT KIND OF JOBS



The residents of Southwest Brooklyn need improved access to the right kind of jobs. This means jobs similar to the shipping industry jobs that built this part of Brooklyn: industrial jobs that are often union, do not require a college degree but can support a family and provide the opportunity for advancement. As the City has shifted from manufacturing to service, traditional industrial space along the waterfront has been replaced by higher value residential. The industrial area of Sunset Park has an active industrial base and the potential to add 40,000 new jobs within the next 20 years. This needs to be protected and nurtured to provide opportunity for neighboring immigrant and/or Person of Color communities such as Red Hook and the residential portion of Sunset Park.

## DEVELOPMENT PRESSURE MEANS THAT INACTION IS NOT AN OPTION



There is an insatiable demand for new residential development in Brooklyn and along the City's post-industrial waterfront. This fact, along with the aforementioned housing crisis; the catalytic impact of the Brooklyn Queens Connector Streetcar; the full build-out of adjoining neighborhoods, and; New York City's core characteristic as a dynamic and ever evolving organism, mean that in the next few years, Southwest Brooklyn's performing arts culture development action will undergo a radical transformation. Gentrification and changes within the city that are exclusive rather than inclusive, is fraying the fabric of the city. The development can be guided and developed through One NYC, it can be done with collaborative and holistic neighborhood planning to support new mixed-income housing creation with supporting infrastructure and services. This document advocates for the latter, using the guiding principles of growth, equity, sustainability and resiliency.

01

TOOLS FOR  
CHANGE

## SOUTHWEST BROOKLYN GUIDING PRINCIPLES

This document and the framework and tools for Southwest Brooklyn were developed using four guiding principles as lenses to examine scenarios: Growth, Equity, Resiliency and Sustainability. The purpose is to ensure that a triple bottom line (social, environmental and financial) thought process is being used to develop any strategy while also incorporating the priorities and thinking of New York City community-vetted vision documents such as the Mayor's One NYC Plan and the Regional Plan Association's draft Fourth Regional Plan.



The guiding principles are informed by regional, city and local community-driven vision plans and the specific challenges facing Southwest Brooklyn.

### GROWTH

Southwest Brooklyn will experience population growth with an emphasis on preserving and maintaining affordable housing. It will see an influx of new jobs and be a center for both traditional and emerging high job-producing industries. It will see improved mobility in the form of enhanced public transportation and more walkable and bikeable streetscapes.

### EQUITY

Southwest Brooklyn will have equitable neighborhoods with ample access to good jobs, households where residents live with dignity and security. We take this to mean providing quality housing options and reliable and convenient public transit access; developing healthy neighborhoods that include quality open space and promote active living and safe streetscapes that further Vision Zero goals; and; provide good schools, daycare, and early childhood development programs as well as access to quality health care and other needed social and cultural amenities.

### RESILIENCY

Southwest Brooklyn must have the capacity to withstand and emerge stronger from disruptive events such as extreme weather events made more frequent due to climate change. This includes ensuring the availability of emergency services and essential services. Strategies could include both green and gray infrastructure that provide coastal protection and flood management as well as development of smart grids and distributed clean power generation to provide energy security and buildings that can deal with longer, hotter summers without requiring more energy use.

### SUSTAINABILITY

Southwest Brooklyn must operate in a sustainable way such that life there today does not compromise the needs of future generations. A sustainable framework for the area must be grounded in a triple bottom line approach, meaning that social, environmental and economic considerations are all interconnected. This means future development in Southwest Brooklyn should prioritize enhancing and expanding public open space, reducing greenhouse gas emissions, reducing waste, protecting air and water quality, and remediating brownfields.

OneNYC



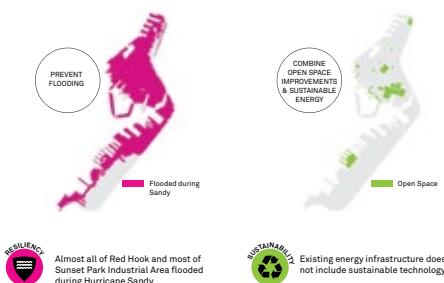
OneNYC

# CASE STUDY: SOUTHWEST BROOKLYN

02

ISSUES TO ADDRESS

## SOUTHWEST BROOKLYN ISSUES TO ADDRESS



## SOUTHWEST BROOKLYN FRAMEWORK

In the flexible framework and tools for change developed for Southwest Brooklyn, Red Hook, Columbia Waterfront, and the Sunset Park Industrial Area share a continuous section of the Southwest Brooklyn Waterfront. The neighborhoods can and must work together to support and encourage local facilities and environmental priorities. Using the flexible toolkit of parts, the areas can be re-connected to the larger borough with a linear waterfront park, new connections along the street grid, pedestrian promenades and bike routes, and new transit lines. Red Hook can provide mixed-income housing, additional schools and community support facilities, creative, maker spaces, regional rail connections, and new green and open spaces within a walkable neighborhood and easy access to multiple modes of transportation. To the south, Industry City and the Sunset Park can continue to serve as a hub for industrial, maritime and innovative industry jobs. The neighborhoods can integrate sustainable technologies and flood protection elements.

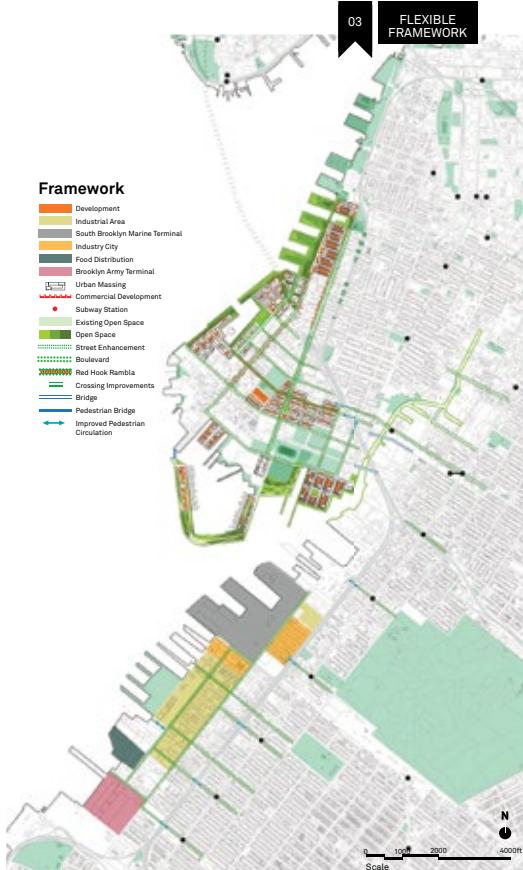


### Framework

- Development
- Industrial Area
- South Brooklyn Marine Terminal
- Food Distribution
- Brooklyn Army Terminal
- Urban Massing
- Commercial Development
- Subway Station
- Existing Open Space
- Open Space
- Street Enhancement
- Boulevard
- Ridgeline Ramble
- Corridor Improvements
- Bridge
- Pedestrian Bridge
- Improved Pedestrian Circulation

03

FLEXIBLE FRAMEWORK



## CASE STUDY: SOUTHWEST BROOKLYN



118

119

# CASE STUDIES: CATALYZING BALTIMORE

## Catalyzing an Urban Wood and Restoration Economy in Baltimore

Baltimore, MD

**Lead Project Contact:** Sarah Hines, Urban Field Station Network Coordinator, 443-543-5390, [shines@fs.fed.us](mailto:shines@fs.fed.us); Matt Arnn, Chief Landscape Architect, [marnn@fs.fed.us](mailto:marnn@fs.fed.us)

**Project Partners:** Humanim Details Deconstruction, Brick + Board, City of Baltimore, Room & Board

**Project Website:** <http://baltimorewoodproject.org/>

### Project Narrative:

The Forest Service has a long history of working in and with communities to restore land and watersheds. Whereas most of this work takes place in rural or semi-rural areas, urban research by the Forest Service's Northern Research Station and Forest Products Lab is facilitating community transformation in blighted neighborhoods of Baltimore.

Our research has informed salvage operations of abandoned rowhomes, allowing diversion of valuable lumber and bricks from the landfill toward other uses. Research tools such as STEW-MAP:

<https://www.nrs.fs.fed.us/urban/monitoring/stew-map> are being used to inventory and assess how generators, processors, and producers of urban wood are connected and to grow these networks, while our social-ecological research measures the benefits of urban restoration after deconstruction – in terms of jobs, businesses, and markets, as well as environmental restoration and community revitalization. Our Green Pattern Book [https://www.fs.fed.us/nrs/baltimore/local-resources/downloads/nrs\\_inf\\_32-15-green-pattern.pdf](https://www.fs.fed.us/nrs/baltimore/local-resources/downloads/nrs_inf_32-15-green-pattern.pdf) serves as a tool and template to help restore lots where abandoned rowhomes once stood.

Beyond one-off research projects, programs, or technical assistance, the Forest Service has woven together the Urban Wood & Restoration Economy Business Model that then attracts private sector businesses willing to source and/or invest, and creates a self-reinforcing economy that enables land reclamation and ecosystem restoration, promotes economic development, and improves lives in urban areas. We are currently working with Humanim's DETAILS Deconstruction, Brick + Board, the City of Baltimore, Parks and People, the social impact investing firm Quantified Ventures, and furniture seller Room & Board to further catalyze Baltimore's Urban Wood & Restoration Economy. In addition, USFS just launched the Vibrant Cities Lab, aimed at helping make the case for a green infrastructure economy to allied professionals and helping communities build out similar models: <http://www.vibrantcitieslab.com/>

**Project Timeline:** Ongoing.

### Supplementary Materials:

<https://www.youtube.com/watch?v=kwjlkh5xeP4>

<https://www.nrs.fs.fed.us/baltimore/green/>

Urban Research Overview: <https://www.fs.fed.us/research/docs/urban/urban-research-areas.pdf>

# CASE STUDY: SWALE in SOUTH BRONX

## **Swale and the US Forest Service NYC Urban Field Station**

**Swale** - Concrete Plant Park, South Bronx. NYC Urban Field Station, Fort Totten, Queens, NYC.

**Lead Project Contact:** Mary Mattingly, Artist; Sarah Hines, Urban Field Station Network Coordinator, 443-543-5390, [shines@fs.fed.us](mailto:shines@fs.fed.us); Matt Arnn, Chief Landscape Architect, [marnn@fs.fed.us](mailto:marnn@fs.fed.us)

**Project Partners:** New York City Urban Field Station, A Blade of Grass Fellowship, The Bronx Museum of the Arts Teen Council, The Bronx River Alliance, Dwight-Englewood School, Eastern PA Permaculture Guild, Erb Food and Garden, Experimental Farm Network, Food Forest Farm, Friends of Brook Park, Hudson River Park, Kean University, Martin Ottaway, Montefiore Hospital, New York Permaculture Exchange, North Creek Nurseries, The Old Stone House, Regenerative Design Group, S.W.I.M. Coalition, Stuyvesant High School, Williams Nursery, Youth Ministries for Peace and Justice

**Project Website:** <http://www.swaleny.org/>; <https://www.nrs.fs.fed.us/nyc/>

## **Project Narrative:**

NYC Urban Field Station's (UFS) artist in residence, Mary Mattingly, created **Swale** in 2016 to bring attention to critical concerns related to NYC's food and land use policies. Swale is a collaborative floating food project dedicated to rethinking and challenging New York City's connection to the environment. It represents a partnership among artists, gardeners, landscape architects, educators, students, and several government and non-government organizations. Built on a 130-foot by 40-foot barge that was once used for hauling sand to construction sites, Swale contains an edible forest garden. Functioning as both a sculpture and a tool, Swale provides free healthy food at the intersection of public art and service. Swale is intended to reinforce both water and fresh food as a commons. It is a one-of-a-kind platform that encourages New Yorkers to connect with edible ecology and asks residents to reconsider the collective use of land and waterways

In the summer of 2016, Swale launched at Concrete Plant Park in the South Bronx, one of the largest food deserts in the United States. Food deserts are a reality in many communities in New York City; as many as three million New Yorkers live in communities with limited access to places where they can get fresh produce. Swale began as an idea to advocate for food to be grown on some of the 30,000 acres of public land in New York City, through urban stewardship initiatives led by community partners in the South Bronx. Because of the common laws of New York City's waterways (in city parks, plucking plants and foraging for food is illegal) Swale can act as a test case as an edible public food forest. Later in 2016, Swale docked at public piers in the South Bronx, Governors Island, and Brooklyn Bridge Park, hosting over 60,000 visitors, 1,000 park tours, 60 school groups, and 30 free public programs.

In 2017, Swale became an official arm of the NYC Urban Field Station (UFS). The USDA Forest Service and NYC Department of Parks and Recreation have been partnering to bring artists and writers into the fold of the NYC UFS since 2006. The UFS is both a physical place to conduct research (the research facility at Fort Totten) and a network of scientists, practitioners, university partners, and facilities that focus on urban ecology. Since its founding, the UFS has engaged over 30 non-profit, academic, and government partners creating research in action programs to support urban ecosystem management and sustainability initiatives in New York City.

**Project Timeline:** Ongoing.

**Supplementary Materials:** <http://communityfoodforests.com/swale-the-floating-food-forest-supported-by-the-usda-forest-service/>

# CASE STUDY: MYRIAD BOTANICAL GARDENS

## Myriad Botanical Gardens A New Era for Downtown Oklahoma City

### OVERVIEW

The renovation of the 17-acre Myriad Botanical Gardens is the first in a series of significant downtown street and park beautification improvement plans implemented as part of Oklahoma City's **Project180**.



A steering committee made up of local community stakeholders, City staff, Myriad Gardens Foundation board members, plus outside architects and consultants, came up with the new Gardens plan, which carefully integrates the popular botanical aspects of the original Gardens with the sophistication of new urban park design. The newly renovated site will become a key attraction in the region for visitors and locals alike. Based on feedback received in public workshops, and with input from the steering committee, the proposed design transforms this downtown green space into a world-class visitor destination.

New aspects of the Gardens include an entry plaza and Crystal Bridge visitors' information center, a Children's Garden, a grand event lawn, special event pavilion, restaurant and activity plaza, a dog release area, significant lake improvements, plus numerous water features that provide a dynamic energy to the downtown space. The new Myriad Botanical Gardens is designed to be the heart of the downtown community: a place to play, relax, learn and be inspired.

### OPEN NOW

#### **The Groves**

The western edge of the Gardens along Hudson Avenue is a simple but elegant space where parallel rows of Sycamore trees create a welcome, shady respite over a series of inter-connected fields of decomposed granite. Populated with movable tables and chairs, the Groves, inspired by the Tuilleries Palace in Paris, provides flexible space for a variety of formal or informal activities.



#### **Grand Event Lawn and Bandshell**

The gently-sloped lawn in the northwest section of the Gardens was designed as a festive outdoor area for concerts, movie screenings and other types of outdoor entertainment. With 28,000 SF of space, the Grand Event Lawn can comfortably accommodate up to 2,500 people at a variety of community events. The focal point of the Grand Event Lawn is the sculptural band shell, which is equipped with a dynamic LED lighting system to enhance any type of performance.

The Grand Event Lawn is also an ideal space to take part in more impromptu recreation, such as picnicking, Frisbee and numerous active and passive activities.

*The Grand Lawn Band Shell*

#### **Wave Fountain**

To the east of the concert band shell sits the popular Wave Fountain. This unique elliptical-shaped structure creates a symphony of sight and sound as it simulates the crashing of ocean waves. Controlled through a computerized program, water in the fountain's raised pool is propelled across the surface, creating a cascade effect as it tumbles down a series of granite tiles before crashing into the grates below. The result is movement and sound reminiscent of the ocean itself.

# CASE STUDY: MYRIAD BOTANICAL GARDENS

Myriad Botanical Gardens  
A New Era for Downtown Oklahoma City

## OPEN NOW

### East Lake / West Lake

The renovation of the existing lake creates a variety of amenities to draw visitors into the heart of the Gardens. Multiple botanical displays cascade down the slopes surrounding the lake, while fountains, stairways and accessible paths around the perimeter allow people of all abilities to access and enjoy the water's edge.



West Lake Steps

### Water Stage

The Water Stage, home to Oklahoma Shakespeare In The Park, has been upgraded to provide better stage access, more seating and new performer dressing rooms, greatly enhancing the space's overall functionality. A popular performance venue during the annual Festival of the Arts, the Water Stage, part of the Gardens' original 1988 design, also hosts multiple weddings and special events.

### Meinders Garden / Meadow

The lush topography of far northeastern Oklahoma was the inspiration behind the redesigned Meinders Garden and Meadows, located in the northeastern section of the Gardens. This unique space offers visitors the opportunity to wander amidst native trees, flowers and meadow plants that are found in the Oklahoma Ozarks.

The fountain in the Gardens' northeast entry point marks the genesis of a continuous stream of water that meanders its way through the Meadow area before tumbling down to the Myriad Gardens' lake below. The large stones that make up the fountain were pulled from Ozark river beds and resituated in the Gardens to create a natural waterfall effect.

The Meinders Garden was named after Oklahoma City philanthropists Herman and LaDonna Meinders, who in 1996 and again in 1998, donated significant funding to complete the specialty gardens' original design.

*(continued on next page)*



The lake is dotted with pockets of wetland plants that function as biological filters to purify the lake water. With spectacular botanical displays, comfortable seating and plenty of shade, the lake will be a significant attraction during the warmer months.

### West Lake Pavilion

Situated to enjoy a postcard-perfect view of downtown Oklahoma City, the West Lake Pavilion is sure to become a popular venue for special events. The round pavilion, which mirrors the shape of the Crystal Bridge Tropical Conservatory, sits on a floor of Brazilian nut wood, and provides a shady place to rest while enjoying the Interactive Children's Fountain or nearby Children's Garden. The adjacent lawn extends the space for larger gatherings.



Water Stage and Crystal Bridge Tropical Conservatory



Meinders Garden and Band Shell

# CASE STUDY: MYRIAD BOTANTICAL GARDENS

Myriad Botanical Gardens  
A New Era for Downtown Oklahoma City



## COMING SOON

### Children's Garden

Inspired by nature, the six-acre Children's Garden located on the southwest corner of the Myriad Botanical Gardens, offers explorers of all ages a mixture of free-form adventure play with structured learning activities. Designed for inclusive play, the Children's Garden includes a "worm" landform and climbing play area for toddlers, berm and rock climbing for larger children.



Children's Garden

The more adventurous can get their hands dirty in the learning garden, observe aquatic life in the living pool, take lessons at the education pavilion, explore the council ring and Magic Forest, or delight the five senses in the specialty gardens.

For visitor convenience, stroller parking, comfortable seating and dedicated family restrooms are located inside the Children's Garden area.

### Interactive Children's Fountain

Imagine a place where color, light, sound and water join together to create an interactive aquatic experience unlike any other. That is the idea behind the Interactive Children's Fountain, the unique architectural structure located on the Crystal Bridge Plaza just outside the Children's Garden.

Inspired by Oklahoma thunderstorms, the fountain cycles through a computerized sequence of mist, rain, thunder and light that will intrigue and entertain visitors of all ages. A light mist shrouds the area before a thunderclap warns of heavier rains to come. The rain and thunder will increase in intensity until water cascades down the five support structures, creating a waterfall effect.

Dancing fountains on the plaza playfully jump across a "meadow" of Indian Blanket flowers. These colorful mosaics were hand-made using colored tumbled glass which was heat-blasted into the concrete surface.

### Crystal Bridge Visitors' Welcome Center

An important aspect of the Gardens' renovation is increased access and functionality of the Crystal Bridge Tropical Conservatory. The Crystal Bridge, which houses an impressive collection of tropical plants from the world's three primary tropic zones, has been the centerpiece of the Gardens' since its opening in 1988. With funding from the voter-approved 2007 General Obligation Bond Issue, a new information center and grand entry plaza will welcome visitors from the Conservatory's south side. A circular vehicle drop-off zone, plus renovated office space and new education areas are also included.

### Dog Release Area

Downtown residents and visitors will welcome the opportunity to bring their favorite canine companion to the Gardens for a little off-leash fun and play. The enclosed dog release area located adjacent to the south entry plaza will include a field of decomposed granite, waste removal bins, plus Fido-sized drinking fountains. Bench seating and ample shade trees will make this a comfortable spot for humans, too. Dog owners need to remember that leashes are required for all pets unless inside the enclosed dog release area.

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Orchids inside the Crystal Bridge Tropical Conservatory

# CASE STUDY: MYRIAD BOTANICAL GARDENS

Myriad Botanical Gardens  
A New Era for Downtown Oklahoma City

## COMING SOON

### Arena Plaza

The southeast corner of the Gardens will come alive with light and color in this densely-landscaped area just across from the Oklahoma City Arena. Colored LED sidewalk lighting, plus a bounty of overhead lights will create a festive courtyard atmosphere that leads to the restaurant and East Lake.

Free-standing tables and chairs under a canopy of shade trees provides space for outdoor dining or relaxation.



Myriad Botanical  
**GARDENS**



Restaurant Courtyard with Ice Skating Rink

### Restaurant and Seasonal Plaza

Nestled on the Gardens' eastern edge is a pavilion-style restaurant that will seat up to 150 guests. Built to reflect the circular structure of the Crystal Bridge Tropical Conservatory, the restaurant offers near 360-degree views of the Gardens through soaring windows. The restaurant is situated to provide easy access to and from the downtown central business district, as well as the OKC Arena.

To the north of the restaurant, the seasonal plaza creates a hub for activities throughout the year. With ample space for outdoor dining, the plaza features a long reflecting pool punctuated by undulating fountain jets. A shade trellis sits along the northern edge of the plaza, while fixed benches along the plaza's sides with provide seating for special events and activities.

During the summer, trees in large pots and movable furniture transform the space into a European piazza. In the winter months, the trees will relocate to make way for a seasonal ice rink, highlighting the Gardens role as a winter destination.

## History

Through its near 30-year history, the Gardens have been a place of welcome respite for tourists and downtown visitors alike. Conceived as part of the city's downtown revitalization plan in the 1960s, the original gardens were designed by renowned architect I.M. Pei, who patterned the Gardens after the Tivoli Gardens in Copenhagen, Denmark. Led by local businessman and oil pioneer Dean A. McGee, cultivation of the Gardens outdoor grounds and Crystal Bridge Tropical Conservatory was journey that took nearly twenty years.

In 1975, the City of Oklahoma City purchased a 17-acre plot in the heart of downtown to create the new garden space. In the same year, the Myriad Gardens Trust was formed to oversee the Gardens' development, a task that took nearly 15 years. Work on the Gardens' outdoor grounds began in November 1977.



In 1981, the Myriad Gardens Foundation was formed to raise private funds for the Crystal Bridge Tropical Conservatory. A living plant museum, the conservatory represented the capstone of the Gardens. From 1993 until 1995, work on the conservatory's unique cylindrical structure took place. Comprised of 17 steel trusses and over 3,000 acrylic tiles, the Crystal Bridge is one of Oklahoma City's iconic architectural gems. After two years for plant development and interior work, the Crystal Bridge opened its doors to the public on March 25, 1988.

With ongoing support from the Foundation, and thanks to a generous donation from Herman and LaDonna Meinders, the northeast portion of the Gardens were converted into a lush landscape representing Oklahoma native flowers and plants. The Meinders Gardens gives visitors a chance to experience Oklahoma's rich botanical heritage.

Now thanks in part to the citizens of Oklahoma City, and Devon Energy Corporation, the redeveloped Myriad Botanical Gardens present a dynamic new energy that will enhance visitors for decades to come.

# CASE STUDY: SCISSORTAIL PARK

## Scissortail Park, Oklahoma City

Hargreaves Associates, September 13, 2017

### 1. Project Narrative / Case Statement / Description:

The 70-acre Scissortail Park links the heart of Oklahoma City's downtown to its riverfront, long aspired to and set forth in the city's "Core to Shore" plan. The park design features a Great Lawn and outdoor performance venue, a lake with paddle boats, urban gardens with a café, recreational facilities, children's play areas, a civic scaled interactive fountain and multiple walking/jogging paths, all set within regionally-specific native woodland and prairie landscapes. The boathouse, stage, cafe' and pavilions by Butzer Architects recall the vernacular architecture of the settlements that dotted the Oklahoma plains, and the central promenade with unique lighting by artist Jamie Carpenter will connect the park to the river across I-40 via SkyDance Bridge. The restored historic Union Station will house weddings, a restaurant and park administration. The park will be a recreational and cultural focal point of the city and the front yard for the adjacent new convention center, Chesapeake Arena and new mixed-use developments.

The design of Scissortail Park is rooted in the environmental, economic and social values of sustainable design. Extensive community engagement revealed a high value placed on sustainable infrastructure, educational opportunities and a mix of active and passive activities. OKC does not have an abundance of natural areas within its limits and ranks poorly in comparison to other cities (33rd as documented by the Trust for Public Land for the 40 largest US cities), and this park – due to be completed in two phases in 2019 and 2021 - will provide "green lungs" for the city and a place for both people and ecological systems to flourish.

The ecological systems of the park include soil conservation, storm water management and the establishment of native plant communities. The soil management strategy was focused on amending existing soils as much as possible to conserve resources and support both the ecological and functional goals for the park.

The storm water management strategy was to: reduce runoff and sedimentation, improve water quality, conserve water, add recreation resources, mitigate flood hazards, and provide a non-potable water source for irrigation. The 3.5-acre lake is the centerpiece of the water reuse strategy, acting as a reservoir to store and clean storm water for irrigation. The wetlands at the north end of the lake filter a constant flow of storm water from the park via a pump station. Rain gardens, strategically located throughout the park, treat runoff before entering the lake and provide biodiverse landscape features.

The park will include close to 1000 new trees in the phase one upper section alone, 50% of those in the woodland zone. The 13 acres of woodland comprise the park's character-defining landscape, unifying the various spaces and amenities that are embedded within this overall landscape matrix. This woodland landscape provides welcome shade and shelter from persistent winds, while imbuing the park with the distinct character of eastern Oklahoman Cross Timbers and riparian forest ecosystems. Accent dry gardens and rain gardens provide pockets of colorful flower and foliage display.

# CASE STUDY: SCISSORTAIL PARK

## 2. Project Timeline:

- **History**  
Oklahoma offers some of the nation's most diverse terrain and natural resources. Oklahoma City is situated at the interface of the Central Great Plains and the Cross Timbers ecoregions. The Park site lies within the historic floodplain of the Oklahoma River, an area previously defined by tremendous ecological diversity and richness. The previously-meandering river was channelized by the US Army Corps of Engineers to minimize risk of flooding.
- **Core to Shore Plan – 2007**  
The Core to Shore Plan envisioned a strategy to extend downtown to the river, made possible by the relocation of I-45, with the new park as a centerpiece to mixed use development including residential, office, commercial and a new convention center. The long-held desire to engage the river as a downtown amenity was launched as an adopted plan.
- **Downtown Park Concept, Program and Budget and MAPS 3 – 2009**  
MAPS 3 (a penny tax) is determined by the Mayor and City Council and is to include the 70-acre park envisioned in the Core to Shore plan. Hargreaves Associates is hired to develop a vision for the park, program and budget to inform the MAPS 3 slate and to provide illustrative materials to facilitate the vote.
- **MAPS vote – 2009: Voters Approved MAPS 3**  
Following the successes of MAPS 1 and 2, MAPS 3 is approved, and includes a new convention center, a modern streetcar and the downtown park as the three largest projects. Other projects include wellness centers, schools, sidewalks and trails and river recreation facilities for the boathouse district.
- **Skydance Bridge Opens**  
Skydance Bridge, by Butzer Architects, is a pedestrian bridge that connects the upper and lower sections of the park over I-45. The sculptural bridge - inspired by the state bird, the Scissor Tail - with dramatic night lighting, soon becomes an icon for the city.
- **Design and Community Engagement– 2012 – 2017**  
Hargreaves Associates is hired to develop the master plan and subsequent detailed plans for the park. A robust community engagement process revealed desires for *recreation* such as bike paths, picnic areas, explorational play, paddle boats; *performance and events* such as concerts, movies and festivals; *education and interpretation* including nature walks and gardens; and *special features* such as shade structures, fountains and a café. The park plans include the reintroduction of prairie, wetland, riparian, and woodland ecologies, thereby overlapping recreational, ecological, and educational objectives.
- **Park is Named Scissortail Park – 2017**  
A public call for naming ideas results in a final selection of Scissortail Park.
- **Construction Upper Park (40 acres) – 2017**  
The northern section of the park begins construction and will be completed in 2019.
- **Construction Lower Park (30 acres) – 2019**  
Final plans will proceed for the southern section of the park with an anticipated completion date of 2021.

# CASE STUDY: SCISSORTAIL PARK

### 3. Supplementary Materials:

- Related news
  - June 30, 2017 Park Construction  
<https://www.visitokc.com/articles/post/officials-break-ground-on-maps-3s-scissortail-park/>
  - June 29, 2017 Breaking Ground/Park Naming  
<http://newsok.com/article/5554627>
  - March 23, 2017 Park Impact will be Broad  
<http://newsok.com/article/5543121>
  - April 15, 2017 Park to Revitalize Downtown  
<https://revitalizationnews.com/article/new-70-acre-132m-park-will-revitalize-downtown-oklahoma-city-reconnect-river/>
  - May 25, 2012 Park Plans are Approved  
<http://newsok.com/article/3678358>
  - Skydance Bridge Opens  
<http://newsok.com/article/3669266>
  - December 8, 2009 MAPS 3 Passes  
<http://newsok.com/article/3423551>
  - 2007 Core to Shore Proposal is Approved  
<http://www.dougloudenback.com/oklahomacity/coretoshore.htm>



# CASE STUDY: SCISSORTAIL PARK

## okc park context



MAPS 3 Park / Hargreaves Design Team

9/12/2017



# CASE STUDY: SCISSORTAIL PARK

## upper park



## upper park at a glance

### Driving Pressures:

- climate, leisure time, metropolitan population
- competition from other parks & leisure facilities
- city economic development plans
- public funds limits & accountability
- potential conservative visitation of 560,000 visits/yr

### Desired Physical State:

- 38 acre urban park classified as Metropolitan Park within OKC's open space system
- 15 unique areas created featuring boulevard gardens, oval lawn, promenade, fountain, playground, woodland, lake, robinson terrace, dog park, union station
- programmed for visitors to spend 1 to 4 hours
- predominantly softscape with <25% hardscape

### Valued Impacts:

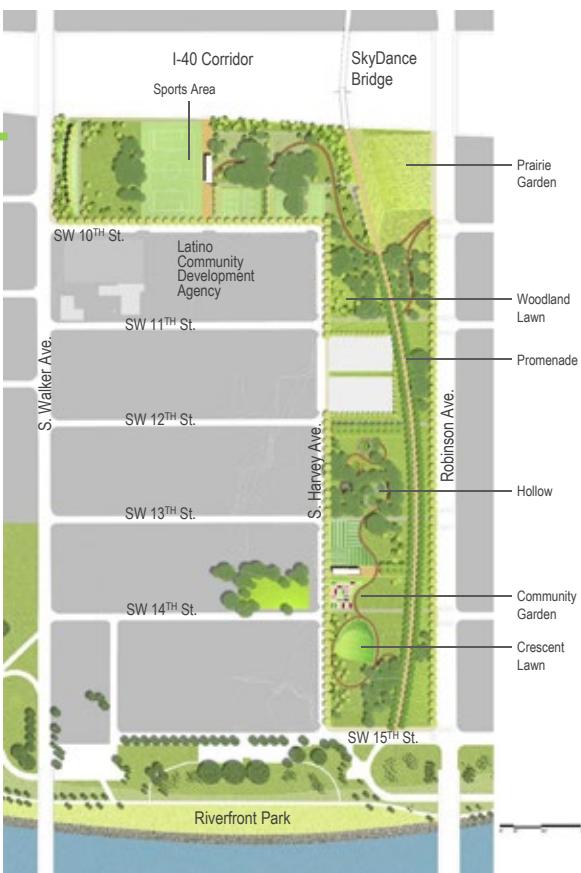
- lively year round, connected, safe, healthy & comfortable, meaningful, enterprising, sustaining, resilient and valuable
- earned income potential of 20 to 30% to offset costs

### Management Response:

- retain public ownership
- select a non-profit conservancy to manage, operate & program the park

MAPS 3 Downtown Upper Park / Hargreaves Design Team 7/15/2015 13

## lower park



## lower park at a glance

### Driving Pressures:

- climate, leisure time, metropolitan population
- competition from other parks & leisure facilities
- city economic development plans
- public funds limits & accountability
- potential conservative visitation of 100,000 visits/yr

### Desired Physical State:

- 28 acre urban park classified as Metropolitan Park within OKC's open space system
- 8 unique areas created featuring community gardens, oval lawn, promenade, woodland, prairie, and sports fields
- programmed for visitors to spend 1 to 3 hours
- predominantly softscape with <20% hardscape

### Valued Impacts:

- lively year round, connected, safe, healthy & comfortable, meaningful, enterprising, sustaining, resilient and valuable
- earned income potential of 0.5 to 10% to help offset costs

### Management Response:

- retain public ownership
- select a non-profit conservancy to manage, operate & program the park

MAPS 3 Lower Park / Hargreaves Design Team May 2017 14

## Top 10 Take-Aways

"Human beings need landscape—it feeds our souls. Whether parks are large or small, they bring people together, they have value, and they are community builders."

- Mary Margaret Jones, Senior Principal, Hargreaves Associates

"Collaboration between humans and nature yields highly cooperative systems. We need to 'fit within' instead of 'sit upon' the ecosystem. How can our human habitats fit within those of plants and animals?"

- Amy Coffman Phillips, Founder, B-Collaborative

"We have this conceptual wall between nature and cities, and we think these are very separate places. But these walls are not real. The decisions that we make are affecting each other."

- Seth Magle, Director, Urban Wildlife Initiative

"Agency and boundary are two things I think about for the design of landscapes. Multi-beneficial solutions must be part of the ecosystems approach. Having the humility [to know] that the boundary we are given as designers is never the boundary that we need to consider in order to solve the problem."

- Gina Ford, Principal, Sasaki

"How do you plan for urban ecosystems to be adaptable as our cities change? We need to have a shared vocabulary amongst designers, amongst planners, amongst wildlife ecologists."

- David Drake, Professor of Forest and Wildlife Ecology, University of Wisconsin

"Blessed are the placemakers who bring animals,

plants, and water into the planning process."

- Maureen Heffernan, Executive Director, Myriad Gardens Foundation

"There is critical importance in starting planning discussion with an assumption that wildlife has a legitimate planning role and must be represented at the table."

- Susan Atkinson, Senior Planner, City of Oklahoma City

"We must consider aligning changes and transformations of the built environment with people, plants, and animals."

- Shane Hampton, Director, Institute for Quality Communities, University of Oklahoma

"For a lot of the wildlife in cities, they are going to be there no matter what you do. My gold standard is to be able to attract wildlife that wouldn't be there normally, and can you design places that will keep them there."

- David Drake, Professor of Forest and Wildlife Ecology, University of Wisconsin

"It is clear a broader approach to projects needs to include more thought and action to include animals. Ecology needs to be at the top of list of priorities."

- Brent Wall, Studio Director, LAUD Studio



# National Urban Ecosystems Forum

2017 OKLAHOMA CITY

# THE PARTNERSHIP

## American Architectural Foundation

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Learn more at: [archfoundation.org](http://archfoundation.org).



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