Cite

The Architecture + Design Review of Houston

Summer 2015
No. 97 | $7

Spring
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Greens
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Clear
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The Future Now

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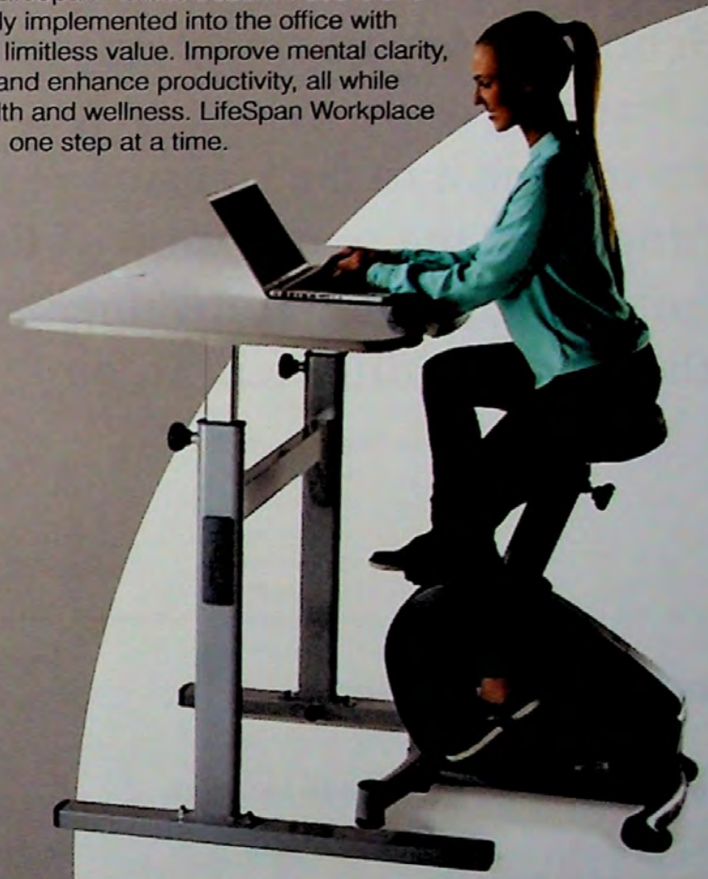

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Through our lectures, tours, publications, competitions, and programs, the Rice Design Alliance brings together people from a variety of professions and interests and focuses resources on design issues that shape our city. We've been doing this for over 40 years, and last year our programs and publications reached more than 100,000 people.

Cite

The Architecture + Design Review Of Houston

A Publication of The Rice Design Alliance

97 SUMMER 2015

Cite (ISSN: 8755-0415) is published quarterly by the Rice Design Alliance, Rice University, Anderson Hall, Room 149, 6100 Main Street, Houston, Texas 77005-1892.

Individual Subscriptions:
U.S. and its possessions: $25 for one year, $40 for two years.
Foreign: $50 for one year, $80 for two years.

Cite is indexed in the Avery Index to Architectural Periodicals.

Publication of this issue is supported in part by grants from the Susan Vaughan Foundation, the City of Houston through the Houston Arts Alliance, and the Texas Commission for the Arts.

Write for *Cite*

Cite is greater Houston's forum for architectural, design, and planning issues. Articles should address a broad audience and include reviews, essays, analyses, and commentaries. Article ideas and proposals are reviewed by the editorial committee.

For more information:

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The Future Now

From the Guest Editor, Nicola Springer

"When this issue was proposed, we looked at projects in development today that help us imagine a day in the life of Houstonians 10, 20, 30 years from now—how will they rest and relax at home, how will they move through the city, what will their work environment look like, and where will they play?"

See page 12 for full introduction

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Cover diagram by Albert Pope

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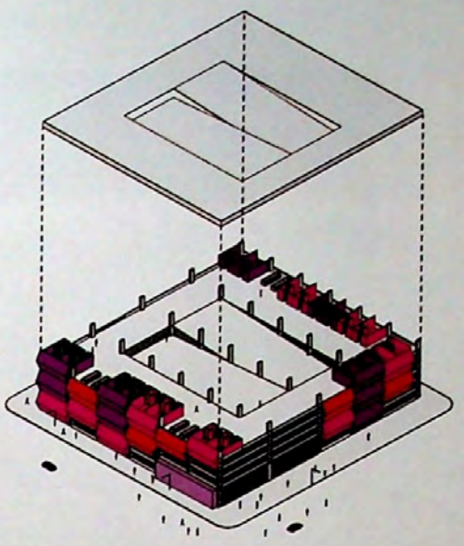


Front Matter

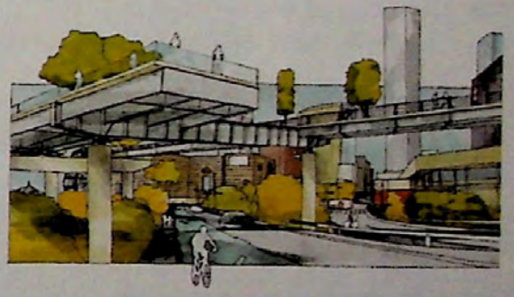
Move

Rest

Play

Work

Hindcite



It's 2025. After rock climbing in the Astrodome, take a self-driving taxi to the swimming hole for a quick dip, then B-cycle down the bayou to Big Brothers Big Sisters for a coffee with your fellow mentors, and stroll down a Skypark to your tiny house at bedtime.

Seriously Cute

Cute architecture? How could architecture—the embodiment of order, permanence, and bigness—be cute? Then again, read any post or tweet about the influence of technology; the common refrain is that the world is getting smaller, faster, and more complicated. Design and construction are impacted; but new tools alone are no assurance of innovation. For that, architecture must find relevance in a world changed by technology.

To keep up, those strong, enduring assumptions about architecture are shifting, and a less tended pillar—delight—is staging a comeback. Even in architecture, little things have influence, the nimble need not be facile, and the big picture just might be low-res. A new repertoire for a small, complex, and dynamic world is surfacing, and some of it is Seriously Cute.

Speechbuster / 99 Chairs (2013). A commission from the Storefront for Art and Architecture under the helm of Eva Franch. It was funded by the Rauschenberg Foundation, and conceived as a collaboration between Jimenez Lai and Grayson Cox.

Seriously Cute RSA / RDA Lecture Series

Curated by Andrew Colopy, Assistant Professor, The Rice School of Architecture, this series presents three scholars and practitioners who are challenging our most basic assumptions about architecture:

Monday, September 14

Farshid Moussavi

Professor in Practice, Harvard University GSD

Principal, Farshid Moussavi Architecture

Reception Sponsor:
Sheryl Kolasinski

Wednesday, October 14

Mark Linder

Associate Professor, Syracuse University

Reception Sponsor:
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Wednesday, October 21

Jimenez Lai

Lecturer, UCLA

Leader, Bureau Spectacular

Reception Sponsor:
Perkins+Will

The Public Media Commons is a collaboration of the Nine Network of Public Media, the University of Missouri-St. Louis, and St. Louis Public Radio.

Social Media in the Built Environment

By Andrew Colopy

Certainly, we're going to see more explicit influences of social media on the built environment just as we have seen them recast the relationship between political action and the city.

Some are less conspicuous, like greater community participation in the design process. But you're likely to see more direct and visible manifestations as well.

For instance, we just completed a project called the Public Media Commons, an outdoor plaza and interactive media environment that blends physical and virtual public space. It was created to give St. Louis Public Television and Radio a real presence within their city, but also a place where the community could create content while sharing it with those around them and their online network simultaneously. The Commons brings traditional and new media together through architecture to engage the public in a new way. I expect we'll see more such places in which online social networks help to generate interactive media environments of varying scales within the city.

One aspect of this situation that I find fascinating is the way large networks can coalesce communities around minor interests. Such interests may seem inconsequential, but these groups have a newfound influence when their numbers dwarf more longstanding forms of collectivity such as the city, a condition I would describe as seriously cute. As those interests become reflected back upon the urban environment, they offer the potential to create greater diversity within cities yet greater coherence among them. And, it's worth noting, these communities are likely to be most attracted to large, indeterminate, and diverse urban spaces like Houston.

Workshop Houston

Collaboration Sets Precedent for Engaged Research and Education

By Victoria Ludwin

On May 28, Workshop Houston, a nonprofit offering innovative youth development programming, broke ground on a series of buildings on its property at Sauer Street and Holman in the Third Ward.

The organization teaches creative problem-solving and collaboration to students as they make music, bikes, and clothing in the Beats Shop, Chopper Shop, and Style Shop, and study in the Scholar Shop.

That same spirit of learning through brainstorming, trial, and revision at Workshop Houston also gave birth, over the course of four years, to the organization's new campus. In August 2011, the Rice Design Alliance conducted its annual charrette, asking several architectural teams to design a new scheme for Workshop Houston. More than 20 designers from around the city participated, and their designs were reviewed anonymously—jurors did not know who any of the participants were. One group stood out.

The winners had a natural understanding of nonprofit needs: fluid plans with an incremental approach, modular spaces that are able to change with the circumstances and growth of the organization, and minimal energy use. The winning design, chosen unanimously, turned out to be from two recent graduates of the Rice School of Architecture, Linh Dan Do and Sarah Simpson, who had participated in the Rice Building Workshop (RBW). The charrette drawings were starting points for Fall 2012 and Spring 2013 RBW elective courses with architecture students across many different levels...

RBW and Workshop Houston have an enormous amount in common—collaborative, creative problem-solving that develops over time, using real-world examples that serve the community. RBW founder and co-director Danny Samuels sees it as the future of education, noting the Oshman Engineering Design Kitchen and the forthcoming Moody Center for the Arts, both at Rice.

Read more at offcite.org/workshophouston

The Workshop Houston master plan has an incremental approach with passive solar design and materials commonly used in the historic Third Ward.

Emergency Floor

Rice Graduates Raise Funds to Improve Refugee Camps

By Raj Mankad

Last year, 38 million refugees fled conflict and natural disasters. Many live in camps where tent-like shelters provide little to no barrier to the dirt below, exposing them to parasitic infections, flooding, waterborne diseases, and freezing temperatures.

"A floor under your feet is just as important as a roof over your head," says Scott Key, who along with Sam Brisendine, developed Emergency Floor while students at the Rice School of Architecture. The project was selected as a finalist for a $150,000 grant from USAID's Development Innovation Ventures. In order to quality for the grant, they raised over $52,190 through 484 donations to an IndieGogo crowdfunding campaign.

The project's first phase, called Emergency Core, began in 2011 under the Rice Building Workshop, and received $2,500 from the Initiatives for Houston grant program of the Rice Design Alliance. The beneficiaries of the USAID and crowdfunded pilot will be in Iraq and Nepal.

Read more at offcite.org/emergencyfloor

Scott Key and Sam Brisendine designed a flooring system for refugee camps.

Fifth Ward Renaissance

Strorefront retrofitted by UH Interior Architecture Class

By Ned Dodington

Call it a transplant, an implant, a stent—the third-year Interior Architecture students at the Gerald D. Hines College of Architecture at the University of Houston are performing not only quality design, but a kind of complex surgery—imbuing new life into a blighted plumbing supply store in Houston's Fifth Ward.

Like many operations, the building's rehabilitation won't be visible from the outside. Inside, a gently curving wood structure of slightly tipped and offset custom designed ribs will arc across the ceiling. Between the individual ribs small nooks for seating and shelving will be created for resting passers-by. In early renderings of the project, young-looking urbanites consult the gleaming screens of e-books in a softly lit and gently curving space.

UH's Interior Architecture program is brand new. This project is the program's first, and an ambitious start for sure. The program was headed by Gregory Marinic, who was awarded a Rice Design Alliance Initiatives for Houston grant to launch this project. (Marinic has since taken a teaching job elsewhere.) From the beginning it was clear that this was not going to be a typical interiors program.

"There was a desire to push the limits of the curriculum," says Jason Logan, a professor and partner in local architecture firm LO/JO. "We had a conviction that interior architecture could shape space in ways and at a scale that would be traditionally expected of larger more traditionally conceived architectural projects."

When given the challenge to teach in Spring 2014, Logan and his faculty partner Josh Robbins immediately set out to find an opportunity for the students to test these new convictions. Critical to this endeavor was the ability to build at a one-to-one scale.

But where to find such an opportunity? Susan Rogers, a professor and director of the UH Community Design Center, had just the connection. Having worked in the Fifth Ward for several years, Rogers was aware of some of the needs in the community and the appropriate people to connect. The Olivet Missionary Baptist Church, lead by Pastor Robert Thomas, had a vision for improvement, willingness to involve a student project, and several vacant properties, including the plumbing supply store.

"We asked, what could we do to transform the building for young and old—to make it safe and available for people to come and read with technology as a driving force?" explains Pastor Thomas. "Susan and her team came up with an idea for a pop-up library and that eventually lead to this idea of an e-library."

Using the 3D modeling program Rhinoceros and its parametric modeling interface Grasshopper, the students created a custom algorithm to identify the specific connection points at every joint. These connection points were then mapped to a two-dimensional file that could be computer-cut on a large router table at the Keeland Design Center. Within a fraction of the time a traditional method would have required, the students had designed and produced the precise gusset-plates to connect the straight lines of the framing timber into their sweeping curves, keeping the project in budget and on schedule.

Read more at offcite.org

HOUSTON:
ON THE RAILS









Instagram Scavenger Hunt

Mary Beth Woiccak and Allyn West

On Saturday, June 13, nearly 100 people and over 20 teams competed in the *Houston: On The Rails Instagram Scavenger Hunt* organized by rdAGENTS. Teams arrived at Market Square Park to register and receive the list of 20 clues. From 10 a.m. to 12:30 p.m., teams departed Downtown and rode all three MetroRail lines to destinations in the Near Northside, Greater East End, Midtown, Museum District, Texas Medical Center, and beyond, where they took photographs of local landmarks, public art, architectural details, and other bits of Houston's built environment and quickly posted them to their Instagram accounts.

First place went to team "Yes We Kahn" (@nationofcass) with Kathleen Barker, Janna Stover, Peter Fobel, and Cass Turner. Second went to team "Ham Sandwich" (@ham_sandwich3) with Melissa Kidonakis, Andrea Wertz, Karen Chen, and Katelyn Rossick. Third place went to team "Minority Report" (@teshtoshoo3) with Ratesh Patel, Swaroop Madhavan, Tanara Landor, and Marie Blackwell.

Read more at offcite.org/instagram

Mind the Gaps

AN INTRODUCTION TO THE SPECIAL ISSUE

Speculations on a Better Future for *All* of Houston

BY NICOLA SPRINGER

with data from the Rice University Shell Center for Sustainability's Houston Sustainability Indicators

Redraw the charts, trace the maps, shade between the lines…this was my way of making sense of all the data.

The data points come from Lester King, PhD, an urban planner and fellow at Rice University who has developed a set of sustainability indicators for Houston and has made the information available to the public along with an array of visualization tools. My hope is that these data can provide a baseline for thinking about the projects featured in this issue, projects that are just breaking ground or that are on the boards as speculative ideas for the near future.

In a conversation about Houston's future, I feel it imperative to understand where we are today. Is Houston affordable or not? Is it accessible or not? When it comes to quality of life is it equitable or not? In this introduction to the issue we ask these questions at a community level, even as we look across the entire city.

When this issue was proposed, we looked at projects in development today that help us imagine a day in the life of Houstonians 10, 20, 30 years from now—how will they rest and relax at home, how will they move through the city, what will their work environment look like, and where will they play? Before we speculate, let us deepen our understanding of the present.

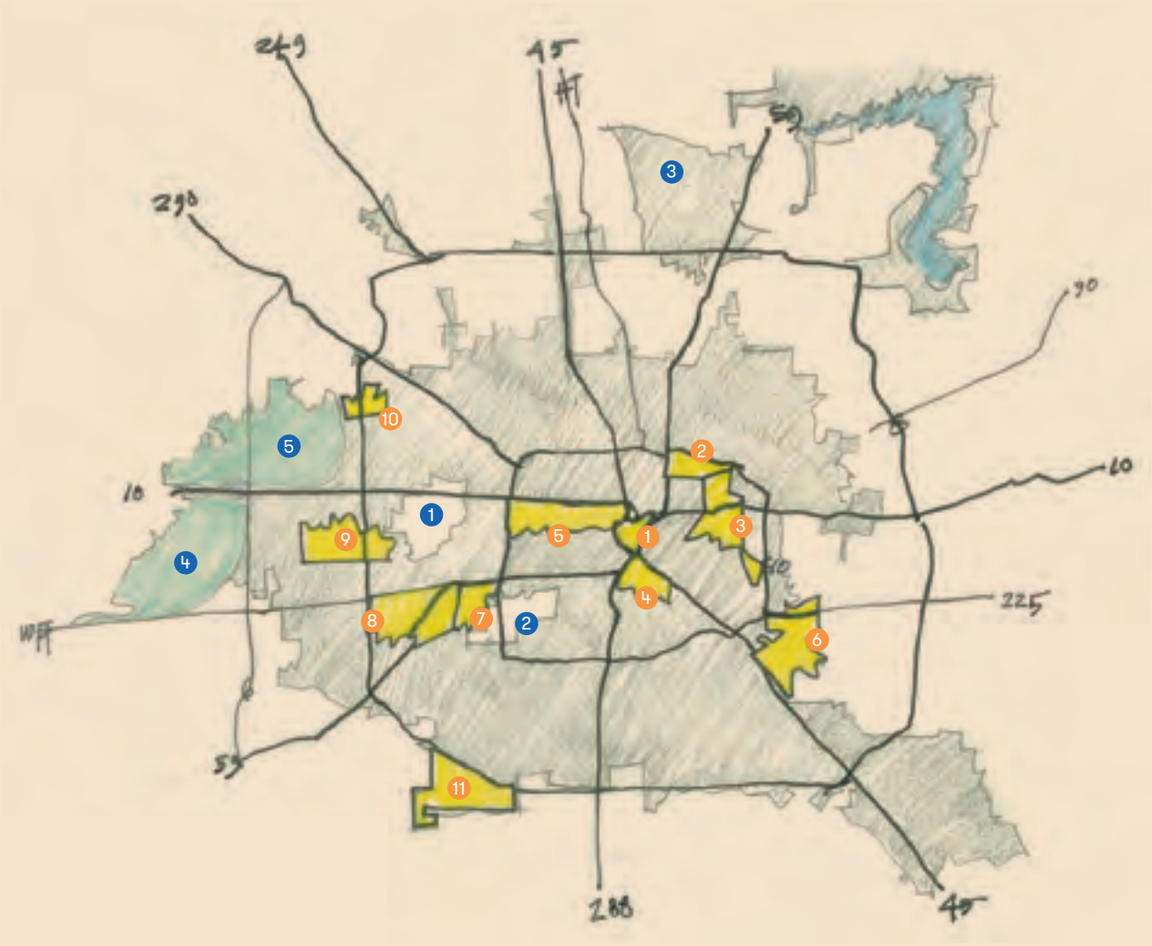
This strategy to benchmark Houston by comparing across super-neighborhoods utilizing King's sustainability indicators was a huge undertaking and opened up more questions than I expected, but in the spirit of the speculation, as this issue goes to press, I will share where my tentative thoughts are on our present challenges and our future.

A Community-Level Analysis of Houston's Strengths and Weaknesses

In the last three years, Houston has topped a dizzying number of national lists, often in contradictory ways. We are touted as having the best job market and most inequality, the most diversity and worst segregation, the tastiest food and among the most food deserts, great affordability and skyrocketing costs. The remarkable population growth is a hard fact, except that some parts of town seem to depopulate before our eyes. Every city is complex, but this vast delta seems to encompass all possibilities, all at once.

With this staggering complexity in mind, King selected ten super-neighborhood communities, one from each city council district. They loosely follow the four concentric rings of Houston—Downtown, Inner Loop, Between the Belts, and Beyond the Beltway. Houston was spatially carved up into 88 communities called super neighborhoods during the Mayor Lee Brown administration (1998-2004). These community designations were intended to offer a much-needed intermediary form of governance between neighborhood organizations (1,000 residents) and city council representatives (200,000 residents). Out of dozens of indicators we focused on those around the themes of quality of life, land use development, and socioeconomics, in the hope of painting a comprehensive, a truer, picture of what it means to live in these communities.

Downtown is a place of extremes. The numbers reflect the slow cycle of devolution and evolution



Basemap of Houston

- Houston City
- Water
- Parks
- 1 Villages/Spring Valley
- 2 West U/Bellaire
- 3 IAH
- 4 George Bush Park
- 5 Bear Creek Park

Super Neighborhoods

- 1 Downtown
- 2 Kashmere
- 3 Denver Harbor
- 4 3rd Ward
- 5 Washington Avenue
- 6 Meadowbrook/Allendale
- 7 Gulfton
- 8 Sharpstown
- 9 Briar Forest
- 10 West Branch
- 11 Fort Bend/Houston

back into a cohesive urban district. It is perhaps the most difficult of all the communities to describe with numbers.

King writes that "[t]he Inner Loop area in Houston is the most clearly fragmented by income and affordability," and this in turns leads to the paradoxical situation in which "Houston is only truly affordable for the low to moderate income earners." How could Houston be more affordable to those with low incomes than to the rich? The technical definition of affordability for housing specialists is that 30 percent or less of a family's income is devoted to housing. If transportation costs are factored in with housing, which is especially important in a car-dependent city like Houston, the combined amount must be 46 percent or less of a family income to be considered affordable.

The Between the Belts area was the focus of a *Cite* special issue published in 2014 and guest edited by Susan Rogers. In the "beautiful periphery" between Loop 610 and Beltway 8, long stretches of 1970s garden apartments serve as de facto public housing. Rather than see the area as "blighted," Rogers argues that renovated complexes and community centers, like the Baker-Ripley Neighborhood Center, are models for an urbanism that takes the strength of close-knit immigrant communities as its starting point. Communities like Kashmere Gardens, however, illustrate the dichotomy of a suburban layout with urban infrastructural and socio economic issues, and exemplify the need for tactical non-traditional strategies to solve these patterns of sub-development.

The two communities representing Houston near or Beyond the Beltways seem alike: low rates of poverty, cul-de-sacs, high but not extreme median incomes, affordable in terms of house values but unaffordable when transportation costs are considered. These are the "traditional suburbs" of the periphery. Or not. Once again, we see the fragmentation of Houston, though not as stark as inside Loop 610. At the Beltway, majority Anglo neighborhoods have better access to fresh food and parks and housing is more expensive than where their African-American counterparts live.

With this rudimentary overview of Houston—a city riven by class, race, and ethnic divides—how do we respond? Can we imagine infrastructures that are seams instead of boundaries? Can we imagine a city where access to parks and fresh food does not require a huge housing cost premium? A city where transportation costs do not ruin our overall affordability? Where equal access will mean the chance at opportunity?

Big Data for Big Ideas

We live in a world where all of our information can be mined. Algorithms sift through data, tell us about what we want to wear, where we want to be, what we should buy, and how we should buy it. When it comes to how we are marketed to and how we spend our money, big business has figured out how to very effectively use this data to target and satisfy "our every need." How can we as architects, designers, and planners use data to create a more "fair" and healthier city?

The answers lie not just in the collection of the big data but with what you collect and, as Susan Rogers emphasizes, "what you do with it." How do you analyze the information, anticipate the greatest need, and, most importantly, make

THEME Jobs
SUBTHEME Land Use

Business Centers

1. Gulfgate
2. University of Houston
3. Downtown
4. Energy Corridor
5. Sharpstown
6. Medical Center
7. Galleria / Uptown
8. Northwest
9. Fairbanks
10. Memorial City
11. Greenspoint
12. Westchase
13. Sugar Land

Business Centers are defined primarily as places with a high density of jobs greater than 10 jobs per acre and with clusters of more than 10,000 jobs.

In 2010 there were 17 business centers, with Downtown, Galleria, and Texas Medical Center with the highest concentration of more than 75,000 jobs each.

Less than 25 percent of Houstonians live within one quarter mile of work, but on average one-third of the White population live within one-quarter mile of business centers.

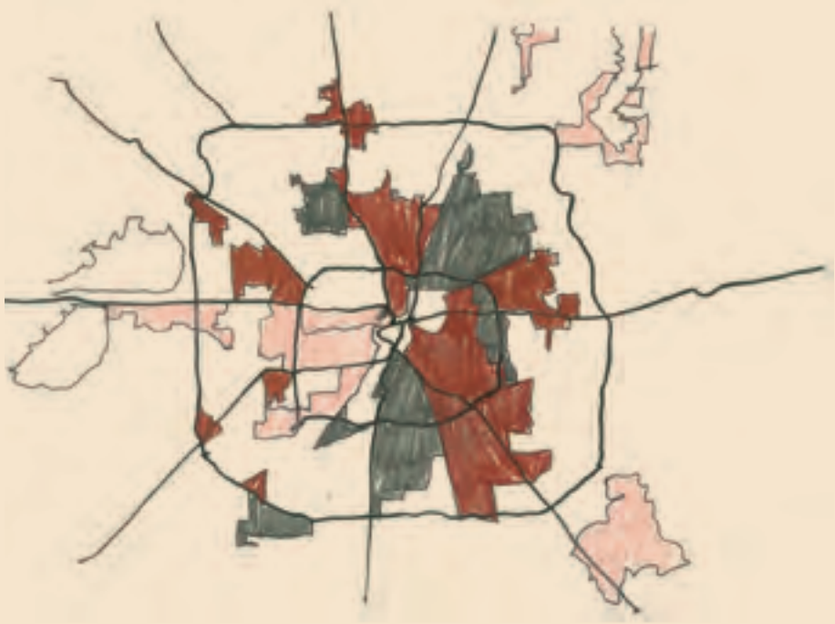
Though Whites are about one-quarter of the population they hold 46 percent of the jobs, while African Americans and other racial groups are consistent with their population distribution, Hispanics are the exact opposite with 23.5 percent of the jobs while they are 44 percent of the population.

THEME Social Demography

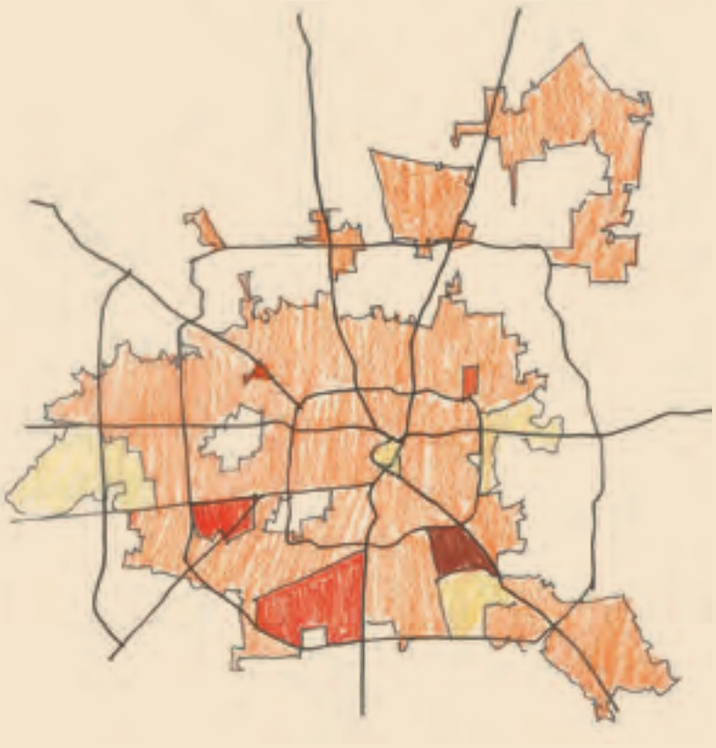
Map: Race and Ethnicity

The race and ethnicity percent composition of Houston is 43.8 percent Hispanic, 25.6 percent White, 23.1 percent Black, and 7.4 percent Other.

In 1980 the African-American population was almost half that of the White population, while most of the city's growth can be contributed to the growth of the Hispanic population, which has doubled since 1990.



- Hispanic
- Black
- White
- Mixed



THEME Atmosphere
SUBTHEME Air Quality

Map: Days Exceeding Standard Ozone

Houston is situated next to petrochemical plants, refineries, and one of the largest industrial ports in the country. Additionally, the extensive freeway system and large volume of cars contributes to the overall poor air quality. Houston is a non-attainment region as it exceeds standard ozone limits of 75 ppb.

- 2.0 – 4.1
- 4.2 – 4.9
- 5.0 – 6.8
- 6.9 – 8.0

THEME Livability
SUBTHEME Quality of Life

Map: Percent of Population Close to Parks

44 percent of Houston's population lives within one-quarter mile walking distance to parks; however more than half the population does not have access. The linearity of the bayou trails does not allow for larger scale communal and sports activities.

- < 20% pop. close to parks
- > 58% pop. close to parks
- Bayou Greenways

1. George Bush Park
2. Memorial Park
3. Hermann Park
4. Mac Gregor Park
5. Guswortham Park
6. Herman Brown park

the information relevant to policy makers and empowering to the communities that the information describes and defines?

We have a great success story for a big idea powered by big data. In proposing the Bayou Greenways, the Houston Parks Board made great use of data to show the benefits of hike-and-bike trails to a broad swath of people. In this issue, Albert Pope takes the rationale a step further, arguing that the Bayou Greenways will fundamentally shift the organization of the city because they are better suited to our polycentric city than the highway system. He rightfully urges us not to lose sight of the forest for the trees.

Small Data for Human-Scaled Design

Then again, Data with a big D must be customized (market oriented terminology), contextualized (as Susan Rogers describes), or humanized (my preference). We must attend to the leaves. If ordinary people have access to more and more fine-grained information down to their own block, will we see more bottom-up use of data?

Everyone wears their city differently. The potential of the Bayou Greenways will be realized if communities rich and poor, of every ethnic stripe, can reimagine the adjacent, under-utilized sites along the trails. Individual projects can perform what Jaime Lerner, Brazilian urban planner and former politician, calls "urban acupuncture."

The volunteer-driven campaign to build a new Big Brothers Big Sisters headquarters is transforming just such a site along Buffalo Bayou. Matthew Johnson's interview of its designer, Tei Carpenter, shows how a highly fragmented site is being inflected into a meeting point for those who serve and are served by the organization's laudable mission.

Also in this issue, Victoria Ludwin considers the Houston Needs a Swimming Hole campaign, which may be sited along a bayou. That effort shows how crowdfunding has added a new tool for changing the built environment. Even as big private donors and government funding remain essential to capital-intensive projects, small donations through Indiegogo and Kickstarter are upending business as usual.

Kinder Baumgardner ponders the probable and profound impact of autonomous cars on the landscape, connecting a "multiverse of bubbles," accelerating fragmentation and stratification as well as connection and collectivity.

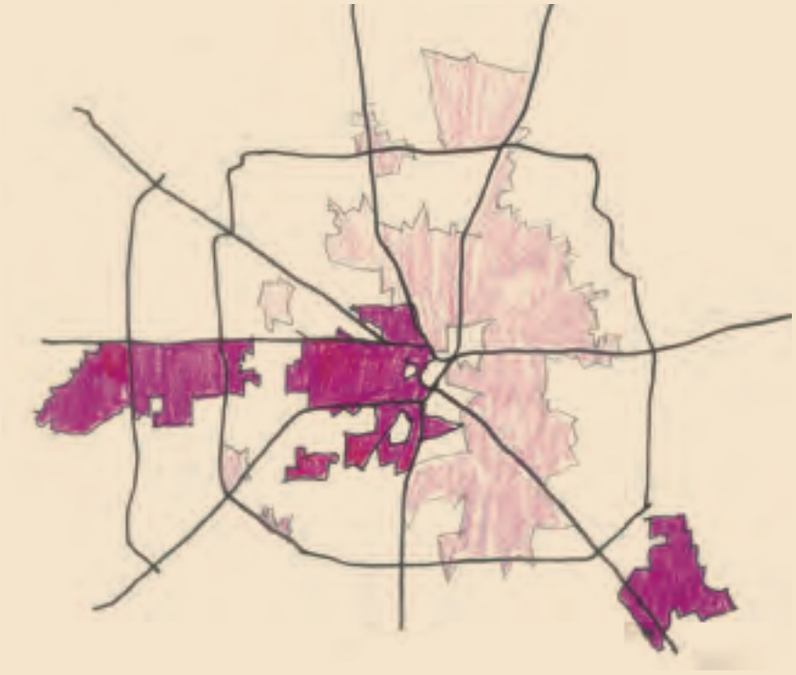
When Allyn West digs into the tiny house movement in Texas, he comes out as skeptical about their workability in an urban environment

THEME Social Demography
SUBTHEME Education
Master's degree

Map: Percent Population with Master's Degrees

51.5 percent of the persons over 25 years in Houston have some level of degree after high school. Those with master's degrees are concentrated.

- 0 – 2.5%
- 2.5 – 12.6%
- 12.7 – 22.5%



THEME Social Demography
SUBTHEME Population Growth

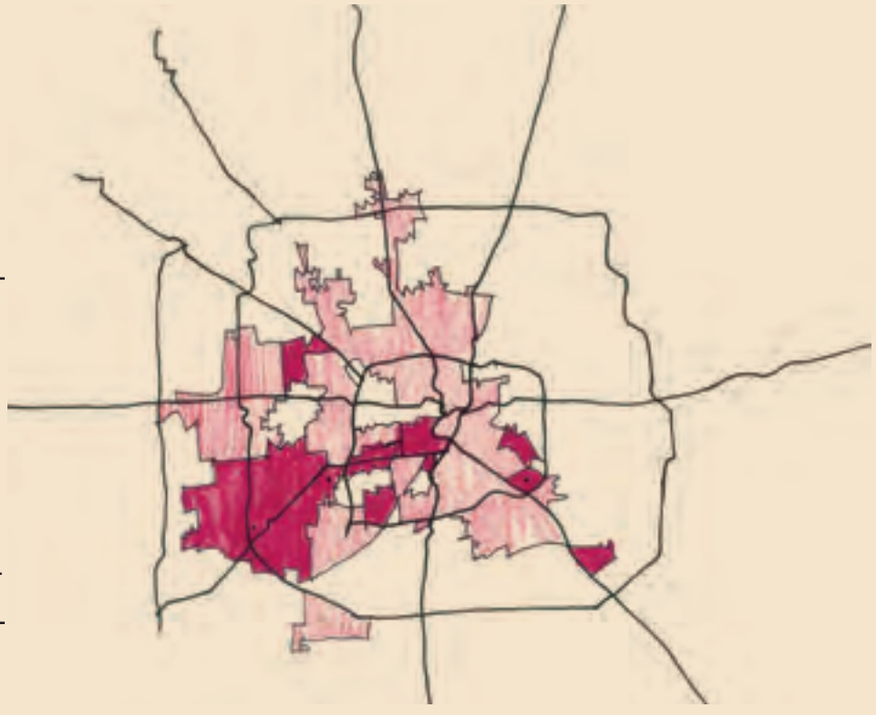
Map: Population Density

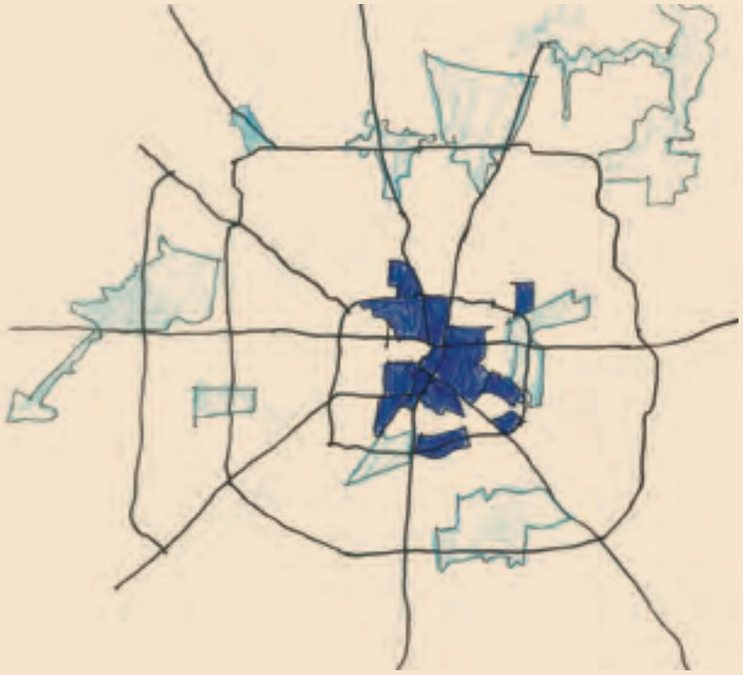
Houston is the 25th most densely populated among the 63 largest cities in the country.

Average annual growth rate projection for each year between 2010 and 2020 is 1.42 percent.

The most densely populated areas have the highest population growth.

- 3,360–6,179 people/sqmile
- 6,180–15,520





THEME Transportation
SUBTHEME Access

Map: Intersections per Square Mile

68.5 percent of Houston is within one-quarter mile of a bus stop.

Houstonians have moderate access to transit stops that are within walking distance for most areas in the city; however, poor street connectivity means neighborhoods tend to be separated from places of work and schools.

- 12–40 intersections / sq mile
- 40–100
- 100–300

THEME Poverty
SUBTHEME Poverty Level

Map: Poverty Rate

High poverty rates lead to development of social cultures, which by necessity favor private survival needs over involvement in public affairs. This suggests that public facilities, such as schools, parks, sidewalks, streets, and neighborhood businesses will suffer from neglect due to pervasive poverty. Reduction in poverty rates is important because it helps households become self-sufficient. Access to good jobs, good schools, and shopping does not occur in poor neighborhoods.

The poverty rate in 2010 was higher than it was in 1990 and 2000.

- > 30% Poverty
- > 20% Poverty

as he is provoked into thinking about urban living rooms and a new type of modular living.

In our technological fantasies, we imagine a dramatic transformation of cities through big data that will: 1) enable governments to create the large-scale infrastructural solutions, in a sensitive manner, where they are needed most; and 2) empower a groundswell of small actions—ordinary people using social media, crowdfunding, and tactical urbanism—to improve their neighborhoods in small-scale ways. We dream that this marriage of the big and small will support resilience, greater equality, and local identities within the framework of a "late capitalist" economy.

I worry, however, that those who would benefit the most do not have a computer to access Indiegogo or a credit card to pay into it. Some of our least wealthy communities are our most culturally urban in their rest and play, but these areas are infrastructurally non-urban.

King's sustainability indicators tap into a quality of life matrix that begins to get us beyond the traditional engineering aspects of city building. However, bigger data—even when it is publicly available—does not mean a bigger voice for communities.

Nonetheless, we have reason to be cautiously optimistic. The data are getting closer and closer to mapping the real issues that affect quality of life. If we ask the right questions, we can reveal the most opportune connections between infrastructural and human issues. Public Health Analysts have utilized this information to better understand chronic diseases like diabetes, and they are among the best allies of urbanists.

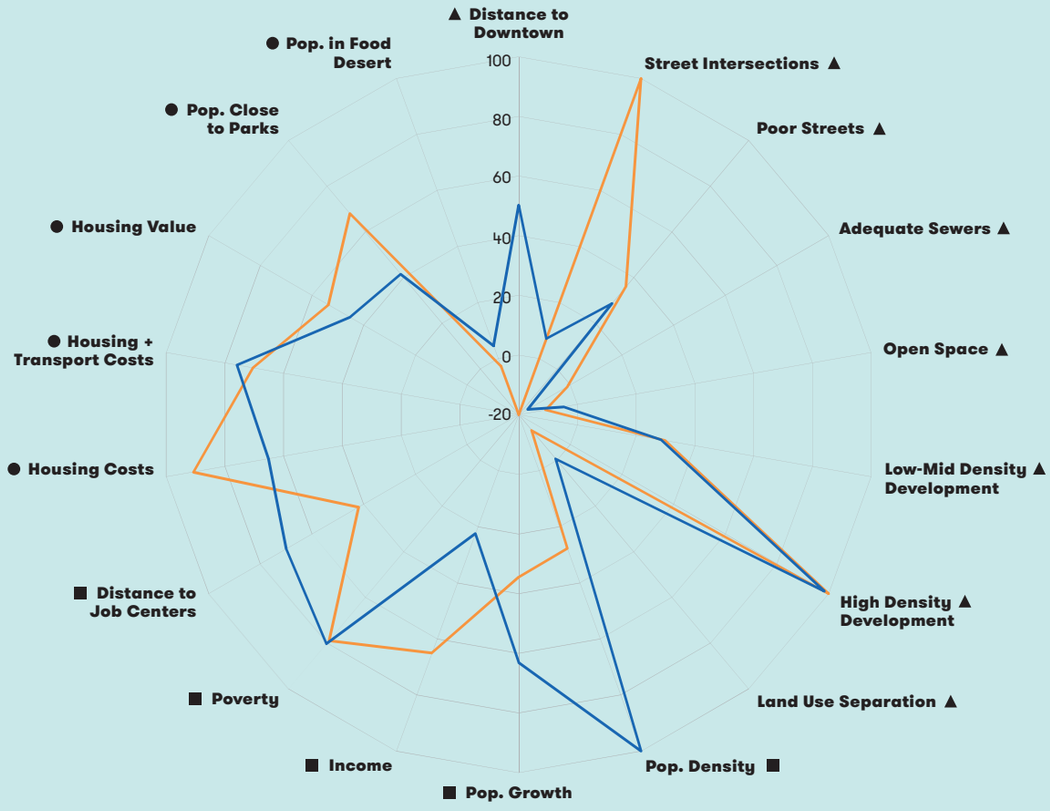
We hope you will join the conversation online at OffCite.org and on social media.

READERS CAN VISIT
HoustonCommunitySustainability.org
to analyze more data on Houston and its communities, using the visualization tools developed by Lester King.

Gulfton, Downtown: Islands of Density

The statistics for the three super neighborhoods with the greatest population density are striking for their similarities and differences. Gulfton has the greatest density, even though it is located outside Loop 610. The low number of street intersections in Gulfton is a defining challenge for its immigrant, transit-using population, meaning that pedestrians must walk long distances along the edges of megablocks. Downtown has the third highest median house price but the third lowest combined housing and transportation cost. You pay to be where you want to be.

Downtown
Gulftown



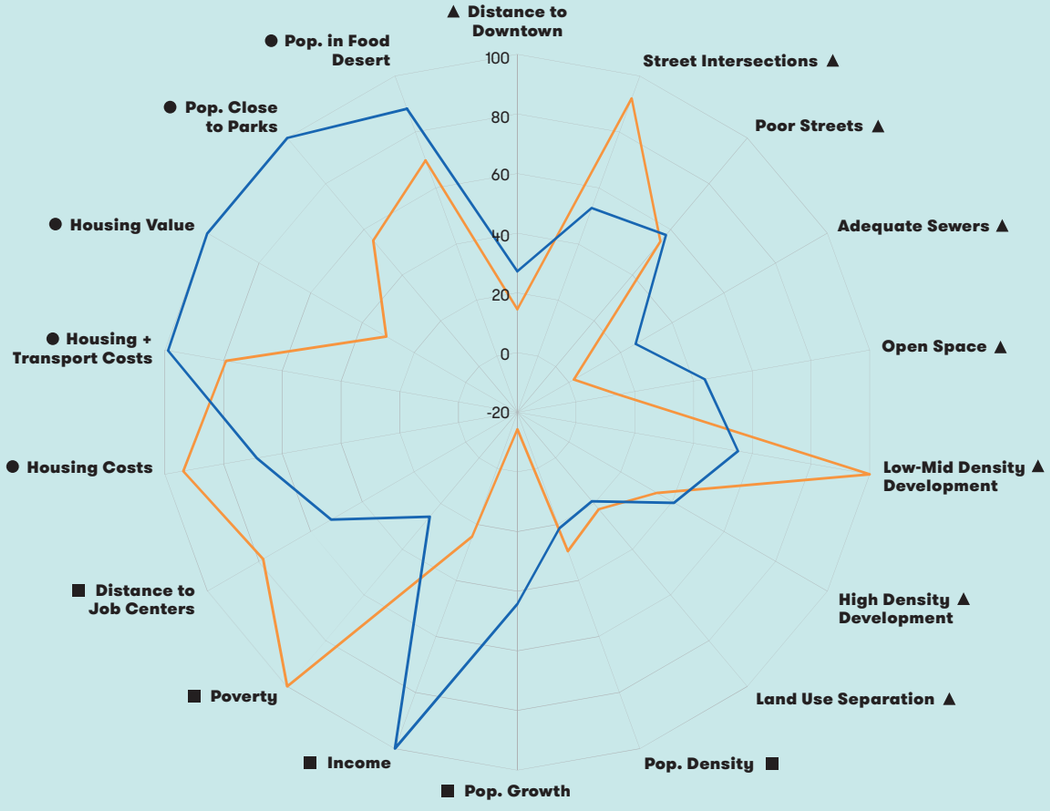
Radar Charts

These 18 indicators represent quality of life, land development, and socio-economics. The data are normalized across the selected super-neighborhoods so that you see where each community stands relative to the others as opposed to the raw value. Houston is complex, and so are these data.

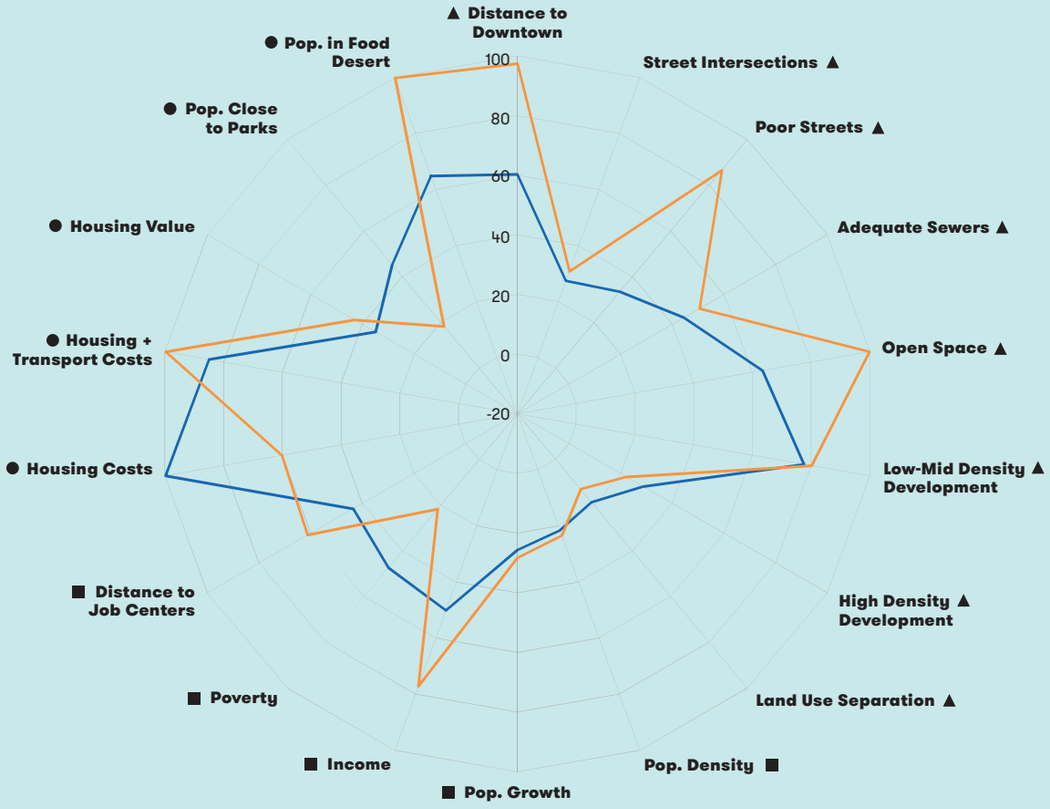
Inner Loop: Washington Avenue and Third Ward

Several quality of life measures—access to parks and food deserts in particular—show gaps between these Inner Loop areas. Third Ward is a historic African-American neighborhood while Washington Avenue Coalition/Memorial Park transitioned from mixed to predominantly White. The latter spend nearly 50 percent of their income on housing and transportation, which is not surprising when you consider the median house value is over $300,000.

Greater Third Ward
Washington Avenue Coalition/ Memorial Park



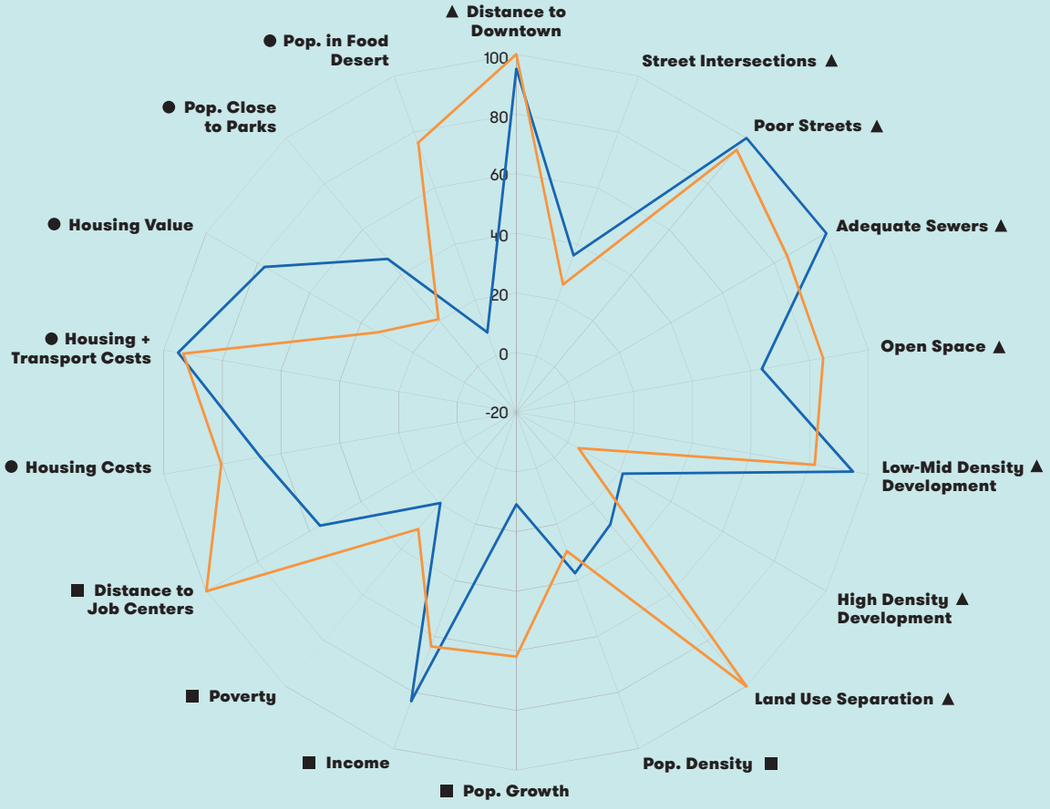
Data Credits: Shell Center for Sustainability Quality of Life Atlas **Quality of Life:** Housing Costs–US Decennial Census 2010; Housing + Transportation Costs–Center for Neighborhood Technology. (2010). H+T Affordability Index.; Housing Value–US Decennial Census 2010; Population close to Parks–City of Houston Planning Department, US Decennial Census 2010; Population in Food Desert–InfoUSA, US Decennial Census 2010 **Land Development:** Street Intersections–City of Houston Planning Department; Distance to Downtown–City of Houston Planning Department; Poor Streets–City of Houston Department of Public Works; Adequate Sewers–City of Houston Department of Public Works; Open Space–U.S. Geological Survey. (2011). National Land Cover Database Resources;



Between the Belts: Westbranch and Meadowbrook/Allendale

These majority Hispanic areas between Loop 610 and Beltway 8 represent a quiet, new normal. They face challenges and have assets to build on. Meadowbrook/Allendale is home to a landfill and half of the golf course designated to become the Houston Botanic Gardens. Residents in these median- to lower-income super neighborhoods contend with high transportation costs eating away income in one case and high housing costs in the other.

— **Westbranch**
— **Meadowbrook/Allendale**



● **Quality of Life**
Housing Costs • Housing + Transport Costs
Housing Value • Pop. Close to Parks
Pop. in Food Desert

▲ **Land Development**
Street Intersections • Distance to Downtown
Poor Streets • Adequate Sewers • Open Space
Low-Mid Density • High Density • Land Use Mix

■ **Socio Economics**
Pop. Density • Pop. Growth • Income
Poverty • Distance to Job Centers

Beyond the Beltway: Briar Forest and Fort Bend/Houston

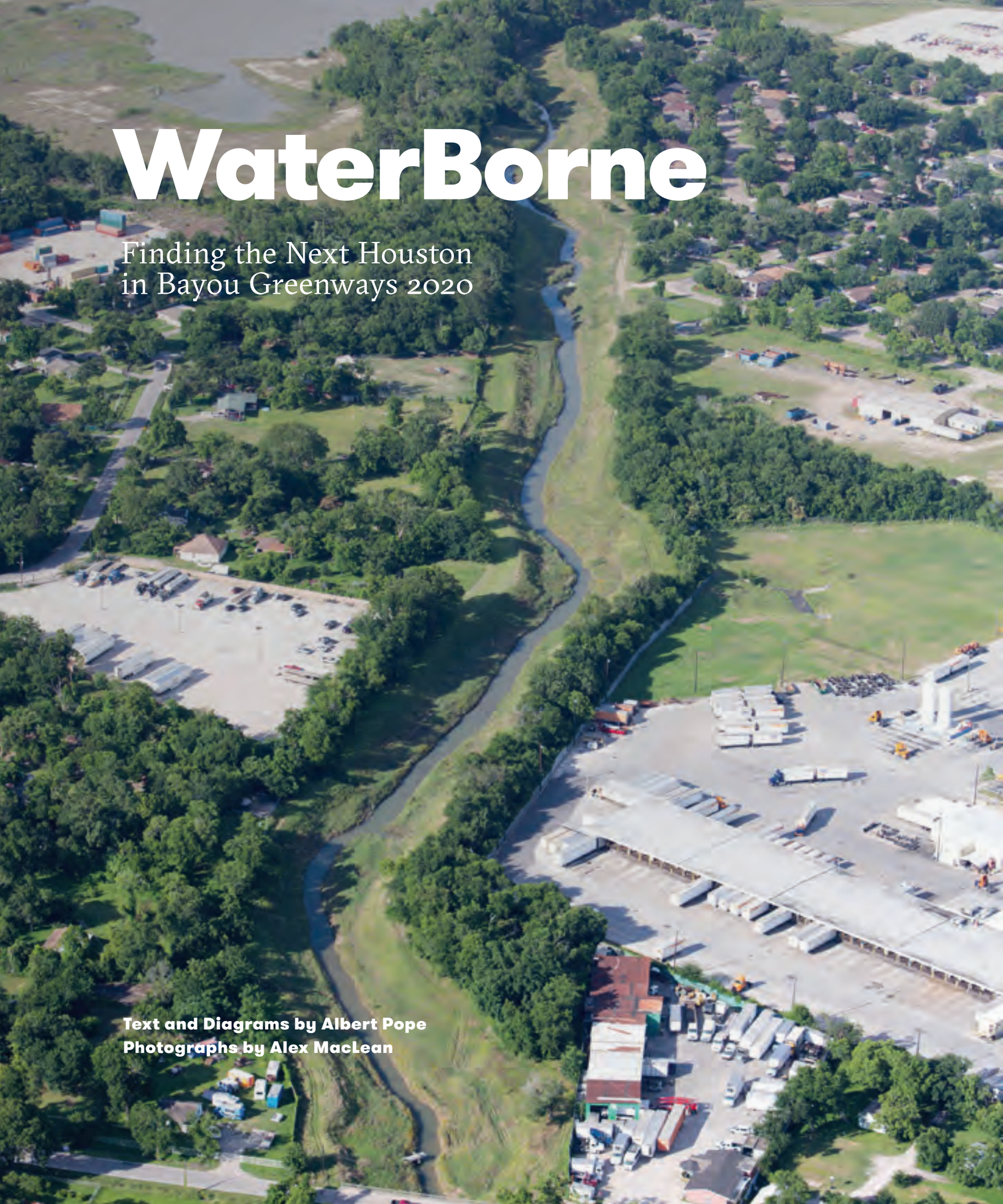
Though the edges of Houston are relatively similar—cul-de-sacs and middle-class families—the predominantly White residents of Briar Forest pay more for their homes while the predominantly African-American Fort Bend/Houston super neighborhood is a food desert, and has a low mix of land uses.

— **Briar Forest Area**
— **Fort Bend/Houston**

Land Development Cont.: Low-Mid Density Development–U.S. Geological Survey. (2011). National Land Cover Database Resources.; High Density Development–U.S. Geological Survey. (2011). National Land Cover Database Resources.; Land Use Mix–U.S. Geological Survey. (2011). National Land Cover Database Resources. **Socio Economics:** Population Density–US Decennial Census 2010; Population Growth–US Decennial Census 2010; Race/ Ethnicity–US Decennial Census 2010; Income–US Decennial Census 2010; Poverty–US Decennial Census 2010; Distance to Job Centers–US Department of Commerce, LEHD 2012; Business Centers–US Department of Commerce, LEHD 2012; Ozone–Texas Commission on Environmental Quality, Air Quality Index, 2010.; Masters Degrees–US Decennial Census 2010.

WaterBorne

Finding the Next Houston in Bayou Greenways 2020



Text and Diagrams by Albert Pope
Photographs by Alex MacLean

Control AND Accommodation

While we tend to regard cities as permanent and unchanging, they are constantly adapting and readapting their basic forms to their natural settings. Such adaptations have occurred since the beginning of urban history and usually take place, not over months or years, but over decades and centuries. The natural conditions that brought Houston into existence were an abundance of natural resources that put agricultural commodities (primarily cotton) in relative proximity to a protected port.

At the beginning of the twentieth century, it was the significant dredging of Buffalo Bayou that boosted Houston's port functions and turned the city into the second largest petrochemical complex in the world. Today Houston's network of bayous places it at the nexus of the global carbon economy.

As urban and natural systems continue to evolve, climate scientists tell us that they will do so with increasing speed and volatility due to the extraordinary amount of CO_2 that has been put into the atmosphere. Houston is threatened by this volatility in two distinct ways. The first threat concerns rising sea levels that will affect all coastal cities and put at risk the entire southeast quadrant of the city (including our petrochemical complex, which is situated only inches above sea level). The second and perhaps more significant threat concerns the extraordinarily high levels of per capita energy consumption in Houston (double that of European and Japanese cities). As the newest and most dispersed of all major American cities, Houston's infrastructure locks it into a high degree of energy consumption which, in the long run, will damage the city's viability. As the dual threats of low-lying inundation and high per capita energy consumption have become increasingly clear, big changes will be upon us, changes that will require a significant renegotiation between the city and its natural context.

In its first 179 years of growth, Houston's economy was built through the seemingly limitless exploitation of natural resources. Today, few of us believe that natural resources are unlimited, nor do we believe that their exploitation comes without cost. Where we once believed that natural forces could be fully controlled, we now recognize that control must give way to accommodation. The good news is that the outlines of that new recognition can already be seen in transformations that are taking place across the city today. This essay will outline one of these transformations as it relates to the underlying structure of Houston. Specifically, it will outline the city's transition from a concentric-and-dispersed, car-oriented city into a linear-and-dense, transit-oriented city that must be built over the next half century. This transformation is being spurred on by a remarkable new natural/urban network that has only recently come into existence: Bayou Greenways 2020.

CHANNELS AND VIADUCTS

In order to think through the city's changing relations to its immediate natural environment, a certain distance needs to be maintained. While we might want to enter into an analysis at a local level of the environment, we need to keep a focus on the big picture. The interaction between

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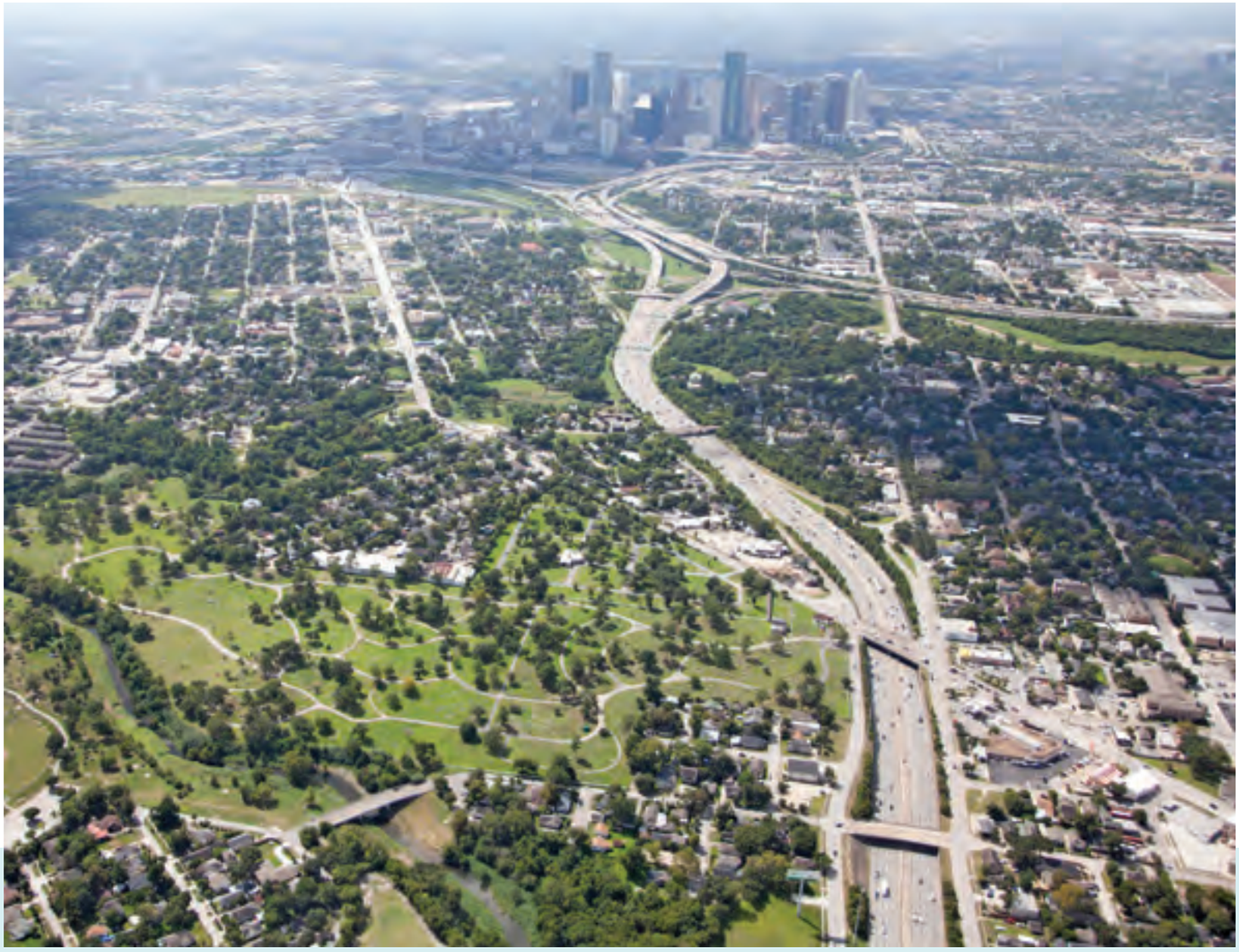
HUNTING BAYOU AT LOOP 610, NORTH.
Secondary bayou and reservoir in top left. Like many of the smaller bayous, Hunting has been stripped of vegetation and channelized but left unarmoured. In the near future, construction will be pulled back to accommodate a deeper, "rewilded" floodplain. The edge of this deeper floodplain will mark the site of new urban density. As green voids capable of accommodating water flow as it has for centuries, these smaller bayou corridors will play an equal or greater function in subsequent urban development than large surface streets.

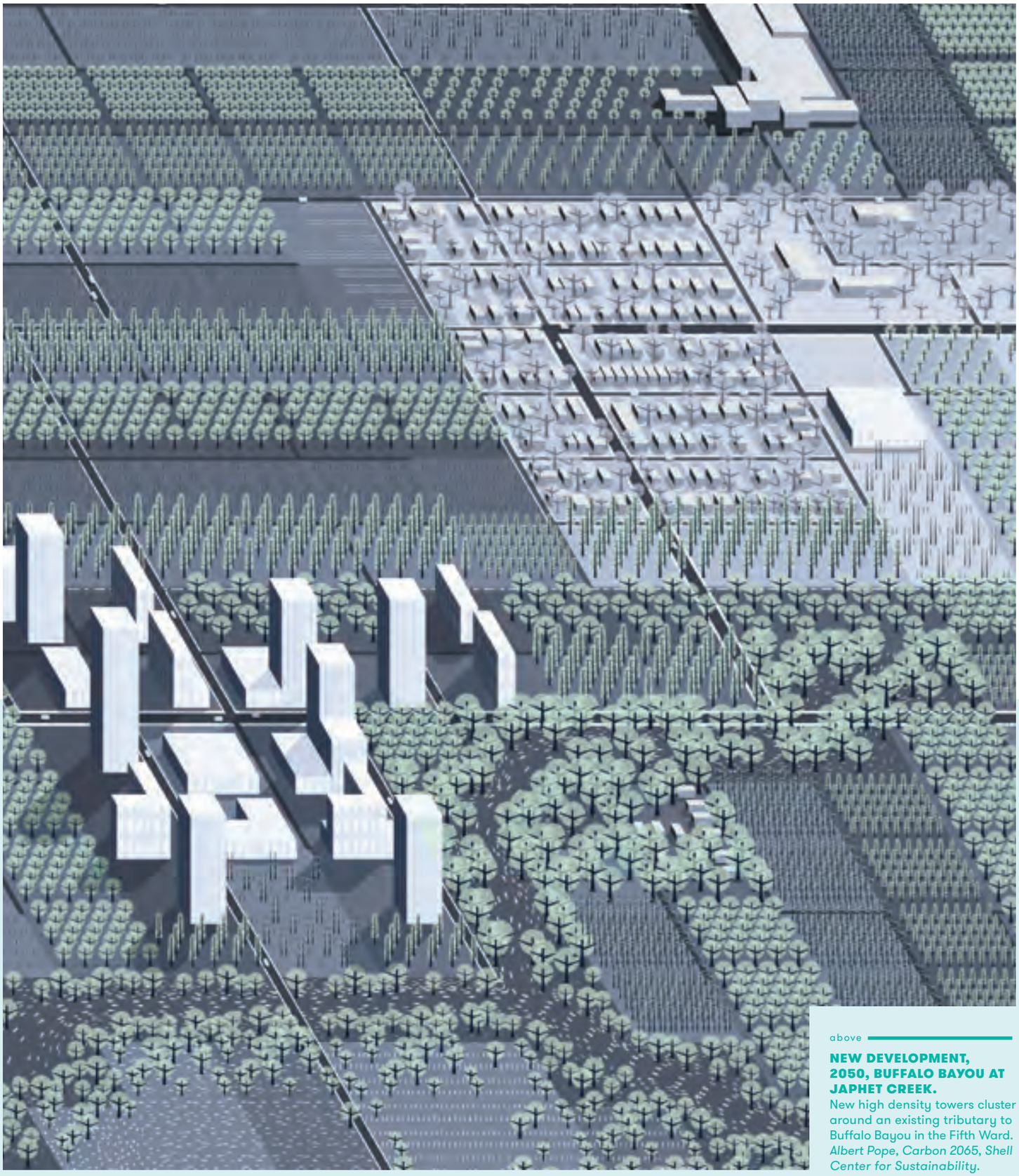


urban and natural systems should not be overwhelmed by immediate details. Although those details determine our lived experience, it is important to step back and consider the large-scale, defining features of the city and its ecosystem. In the case of Houston, these defining features are the key urban transportation infrastructure and its extensive bayou network. In order to characterize the effects of these two networks, and the complex negotiations between them, it is necessary to examine the concentric, hub-and-spoke organization of the city's freeways and the banded, linear organization of the city's bayous.

This top-level organizational logic will be played off the photographic evidence of these systems as they actually hit the ground. The recent (2014) aerial photographs of Houston taken by Alex MacLean focuses on specific overlaps of the freeway and bayou networks. The photographs systematically document both the congruences and collisions of the two systems as the urban sometimes dominates and sometimes accommodates the natural conditions in which it exists. While the ostensible subject of the photographs might be superficially characterized as an ongoing battle between viaducts (freeways) and trenches (bayous), on second glance they reveal a far more intricate interrelation is revealed. These interrelations suggest an underlying shift from a narrative of domination or control of nature to a narrative that focuses on accommodation. More than any technical description, these photographs reveal an ongoing renegotiation between natural and urban systems in which the next century of Houston's growth can already be glimpsed. Beautiful as they are, however, the photographs alone cannot fully divulge evidence of the fundamental reorganization that is occurring beneath their surface appearance. In order to more fully describe what is seen in the photographs, we must turn to the larger logic that frames them.

above

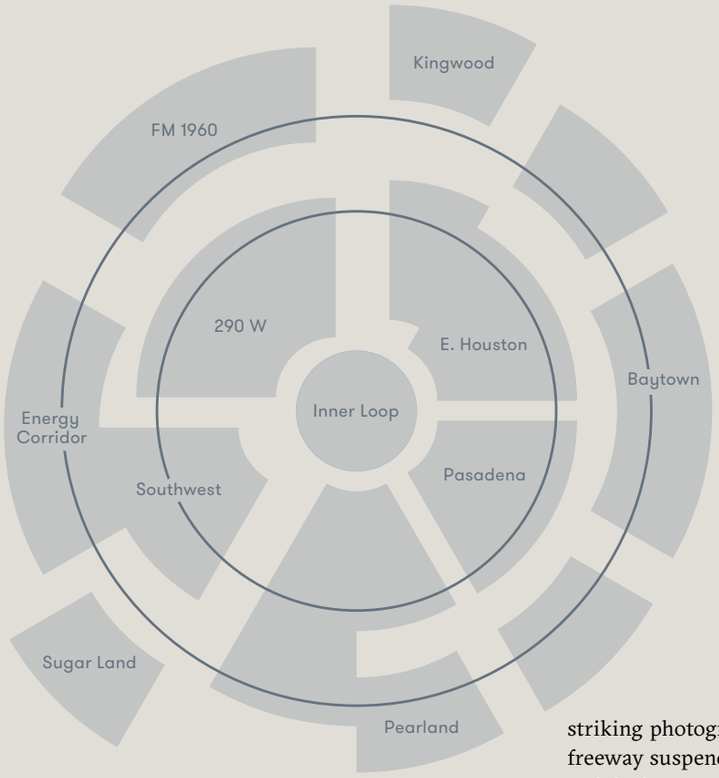
LITTLE WHITE OAK AT I-45. Looking south along I-45 toward Downtown, with Moody Park and Hollywood Cemetery in the foreground and the First Ward in the middle ground, shows the cleared but unchanneled Little White Oak Bayou as it winds through the landscape. Surrounded on three sides by bayou, this stranded piece of the Near Northside is emblematic of a "bayou city" laced through with a greenway network.



RENDERING BY ALBERT PAGE AND PETER STONE

above

NEW DEVELOPMENT, 2050, BUFFALO BAYOU AT JAPHET CREEK.
New high density towers cluster around an existing tributary to Buffalo Bayou in the Fifth Ward. *Albert Pope, Carbon 2065, Shell Center for Sustainability.*



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CONCENTRIC DIAGRAM. The freeways of Houston are constructed in a concentric organization. The system includes 575.5 miles (926.2 km) of freeways arranged in a hub-and-spoke structure with three concentric loops. The innermost loop is Interstate 610, forming an approximate diameter of 10 miles (20 km) around downtown. Built throughout the 1950s, the 610 loop marks the line of demarcation between a prewar grid-based urbanism and postwar, spine-based (cul-de-sac) urbanism. The second loop, the Sam Houston Beltway, forms an approximate diameter of roughly 25 miles (40 km) concentrically equidistant from Loop 610. An ongoing highway project, State Highway 99 (The Grand Parkway), would form a third loop that currently lies outside Houston city limits. With a completed circumference of 170 miles, it will be the longest urban beltway in the U.S. Currently, a completed portion of State Highway 99 runs from U.S. Highway 290, northwest of Houston, to U.S. Highway 59 in Sugar Land, southwest of Houston, and was completed in 2013. In contrast to these three concentric loops, twelve spokes radiate either from downtown or from Loop 610. These are the north/south (cardo) spokes of I-45, and the east/west (decumanas) spokes of I-10. These four cardinal spokes are filled in by US 59 which runs from northeast to southwest. Single spokes that originate in the city include US 290 that fills in the northwest; US 288 that fills in the south; Westpark Tollway that fills in the west; Hardy Tollway in the north; and the Crosby and Pasadena Freeway fill into the east. In its simplest form, the top level transportation network contains three loops joined together by 12 connecting spokes.

BEYOND THE MONOCENTRIC

In the first 179 years of its existence, Houston's centralized pattern of urban organization was superimposed upon the linear, east-west logic of its natural organization. In other words, its symmetrical organization surrounding a single and dominant urban core had almost nothing to do with the predominantly asymmetrical, east-west organization of Buffalo Bayou and its tributaries. Though common to most cities, the concentric pattern of freeways is an emblem of Houston's presumptive dominion over the natural systems that made the city possible in the first place.

Even today this presumptive dominion holds sway. In many quarters, it would still seem absurd to presume that the hub-and-spoke logic of Houston's transportation infrastructure could ever be challenged by the natural order of Houston's bayous. Such presumption remains pretty much unchallenged until, of course, it starts to rain. It only takes one of our many flashfloods to understand that the linear network of bayous remains a potent if not dominant force upon the city as it wreaks havoc on the concentric system of freeways. It is indeed a measure of our presumptuousness that we rarely even consider that freeways could have been built around the logic of floodplains. Flooded out freeways are largely due to their concentric arrangement that requires them to be randomly built in and out of floodplains. If freeway placement were to more fully consider the logic of the bayou network, instead of an arbitrary, centralized pattern, flooding could doubtlessly be diminished.

Rather than reconciling the opposing forces at a top or systems level, engineers attempted to transform natural systems into something resembling the network of freeways. In the name of water management, the city's bayous were systematically transformed into a series of open storm sewers. As is rightfully lamented, vegetation was bulldozed, irregular topography was graded smooth, and a concrete surface was poured in order to transform the city's riparian biota into a highly engineered artifact. Many of MacLean's most striking photographs reveal a perverse equivalence of the freeway suspended above the ground on concrete viaducts and the bayou sunk below the ground in concrete trenches. Whether managing vehicles or managing water, the idea was that everything could be channeled and controlled, or so it was once imagined. In the meantime, it has become clear that armored channels are simply no match for the riverine system and the increasingly volatile climate of which it is an integral part. Each great storm unmasks a crippled infrastructure that is unable to recuperate from shocks to its system. In the meantime, the need for a system-level approach, such as pulling construction out of the 100-year floodplain becomes ever-more obvious.

If the failure of Houston's concentric system of organization to respond to the region's natural systems has become apparent, its failure to respond to contemporary urban forces are equally problematic if not more difficult to grasp. This failure is due to the simple fact that Houston has long outgrown its founding logic. Conceived as a monocentric city, Houston was imagined to grow from its single and dense center out to its edge. As the city grew, it was imagined that the core would also grow, maintaining its dominant position relative to the rest of the city. There is, however, a limit to which a single urban center can be expected to exert an influence upon a sprawling periphery. Covering an astonishing area of 650 square miles, the city limits of Houston can contain the cities of Orlando (101 square miles), Denver (155 square miles), Philadelphia (140 square miles), Las Vegas (112 square), Boston (47 square miles), and San Francisco (46 square miles) with room to spare. In spite of the fact that Houston can contain all six cities, it is important to note that each of them has an urban center that is equal to or larger than the center of Houston. In short, the "center" of Houston, with its relatively few number of city blocks and tall buildings, can no longer be expected to exert an influence over the vast expanse of

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BUFFALO BAYOU WATERSHED SUPERIMPOSED ON BELTWAY 8 PERIMETER.
In contrast to the concentric organization of Houston's freeways, the bayou system is configured in a series of lines or bands that run east-west, from prairie to the coast. The city contains seven principal east-west bayous, which are themselves contained within the greater San Jacinto Watershed. Buffalo Bayou is the largest branch of the watershed that originates in the Katy Prairie and cuts through the center of the city on an almost due east-west axis, terminating in Galveston Bay. Branching off from Buffalo Bayou within the Beltway 8 limits are six principal bayous: Greens, Halls, White Oak, and Hunting Bayous in the north, and Brays and Sims Bayous in the south. These bayous all line up roughly east-west, dividing the city into a series of parallel zones that run throughout. Two other east-west bayous, Cypress and Clear Bayous, run just outside the Beltway to the north and south, respectively.

its 650-square-mile hinterland. Despite the centralization of its most vital transportation network, Houston ceased being monocentric decades ago.

In order to organize its vast extent, multiple centers have emerged throughout the city with no particular allegiance to Downtown. The Energy Corridor, Southwest, 290 and FM 1960 corridors, Sugar Land, Pearland are understood as slices of the concentric pie, yet they operate as autonomous units. In the place of its concentric network formed by a single dominant center, Houston has developed as a far more robust, polycentric network that is capable of structuring its extensive urban ground. Based on an ancient model of central/peripheral organization, Houston's hub-and-spoke transportation system is not responsive to the polynuclear organization that exists today and in the future. To put it simply, all roads lead to where only a relatively small number of people need to go. Given the city's polynuclear organization, the obvious question to ask is what pattern of transportation organization would be more responsive to this mode of distribution? If the existing system is designed to deliver traffic to a single, central point, what pattern would best deliver traffic to multiple points? One answer to this is an interlocking system of lines, not unlike the interlocking lines that make up the city's network of bayous.

BEYOND THE CORRIDOR

Houston's progress can be described as the transformation of a city organized by a single, dominant center, into a city organized by a number of dispersed and equivalent centers, to a city finally brought together by a banded/linear system that is rooted in the geometry of its most prominent natural features. In spite of its comprehensive geometry, Houston's centric pattern has never fully dominated the city. Since its founding, it has instead been driven by the give and take between this monocentric pattern, its polycentric build-out, and the linear logic of its natural systems. This give and take will continue to determine the city's subsequent growth with a marked shift in emphasis toward an accommodation of ever more volatile natural forces. This shift can be seen in transformations that are taking place in the city today, transformations that are nowhere more visible than in a remarkable new network that has recently been assembled under the name of Bayou Greenways 2020.

Bayou Greenways 2020 is an ambitious plan to unite the bayous within the city limits of Houston into a series of publicly accessible greenways. Adding 80 new miles to existing bayou parks, it will create a cumulative 150 miles of park space becoming the largest network of urban, off-street corridors in the country. (The second-largest system is Portland, Oregon with 78 miles.) In addition to the greenways themselves, 77 of Houston's existing public parks exist along the axes of the corridors. Quoting from the Houston Parks Board's introduction, "Bayou Greenways 2020 will create a network of connected, walkable nature parks and trails along nine of the bayous that run through every neighborhood within city limits. Upon completion, the project will add 1,500 acres of equitably distributed parkland, connect 150 miles of multi-use trails, and put 60 percent of all Houstonians within 1.5 miles of a public greenway." To state what may already be obvious, Bayou Greenways embodies the banded/linear system that is rooted in the geometry of a riverine network. It represents a significant reconciliation of an indifferent city to its natural systems. As such it is so much more than a "nature trail." Given the environmental limitations which we confront today, it is the scaffold upon which the next iteration of Houston will be built.

There are many aspects of the network that could be used to support such a broad claim; I will emphasize two. First, the Greenways describe a new mode of urban connectivity that is unique to the suburban situation out of which they were born. The key fact in this claim is that the Greenways will "connect 150 miles of multi-use trails and put 60 percent of all Houstonians within 1.5 miles of a public

below

SHIP CHANNEL AT BELTWAY 8. Two enormous piles of petroleum coke (petcoke), a by-product of Shell's Deer Park Refinery, are just visible in the center. Brought over from the refinery by conveyor belts, the petcoke is being prepared for shipment as a high-value energy source. Per unit of weight, petcoke emits between 30 and 80 percent more CO_2 than coal.

greenway." This statistic should give pause inasmuch as it suggests that the Greenways represent more than a new recreational amenity, but an entirely new mode of urban connectivity. For all that "walkability" has been the holy grail of recent urban debates, it often translates into another naive and unexamined call for the transformation of Houston into something resembling Brooklyn. The idea of using a traditional urban template on a city as dispersed and fragmented as Houston is simply a non-starter. Over 75 percent of the city lives on a discontinuous, spine-based urbanism of the cul-de-sac—an altogether different DNA than that of traditional, grid-based urbanism. Because these differences are structural, the likelihood that a city like Houston could ever be turned into a city with a street-life like Brooklyn is close to zero. This fact, however, need not lead the conclusion that Houston's extensive freeway infrastructure has forever locked the city into an automotive transportation system. Given that 60 percent of the city's population is now within a twenty-minute walk of an extended public corridor, this is clearly not the case. Reduce this twenty-minute walk to a ten-minute bike ride and the Greenways become an instant mass transit system for a post-carbon economy offering a level of connectivity that no city has, never mind a dissipated city like Houston. Without this low density and cheap land prices that accompany it the network could never have been assembled in the first place. As opposed to measuring the city against traditional modes of pedestrian accommodation, the greenways produce walkability in a distinctly new, sub-urban mode, a mode that is, incidentally, unknown to urban history.

Perhaps more important than the new mode of connectivity is the role that the Greenways will play in a new model of dense urban development. Already in Houston, urban density gravitates toward open space. While office towers tend to gather around freeway corridors, residential buildings tend to gather around open natural features, like the high-rise towers surrounding Hermann Park or Buffalo Bayou just west of Downtown. By "upzoning" Houston's landuse regulations for the neighborhoods on either side of the greenways throughout the city, opportunities emerge for the creation of new high-density development with greater height, more dwelling units, and the inestimable amenity of being directly adjacent to an urban, open space network. If Houston begins to build in a denser fashion, as it must to bring down per-capita energy consumption, a new model of urban density emerges from the Greenways. As opposed to piling up building mass in the manner of Manhattan or Hong Kong, this model could produce a distributed as opposed to concentrated build up of urban forms outside of the urban center. Tied together by the network of distributed open space that penetrates the entire extent of the city, new development is related, not to the limitations of the old concentric model of urban organization, but to the linear network.

In the end, the greatest benefit from moving toward a linear model of organization is that all natural systems are aligned to it. This reconciliation between natural and urban systems is ultimately what assures the city's success in an uncertain environmental future.

CATALYST

> "The challenge is to build for the future, not steal from it"
> —Edmund G. Brown Jr., Governor of California, Inaugural Address, January 5, 2015.

What catalyst would ever challenge the dominant concentric order of loop, beltway, and parkway? While the tangible

Upon completion, the project will add 1,500 acres of equitably distributed parkland, connect 150 miles of multi-use trails, and put 60 percent of all Houstonians within 1.5 miles of a public greenway.

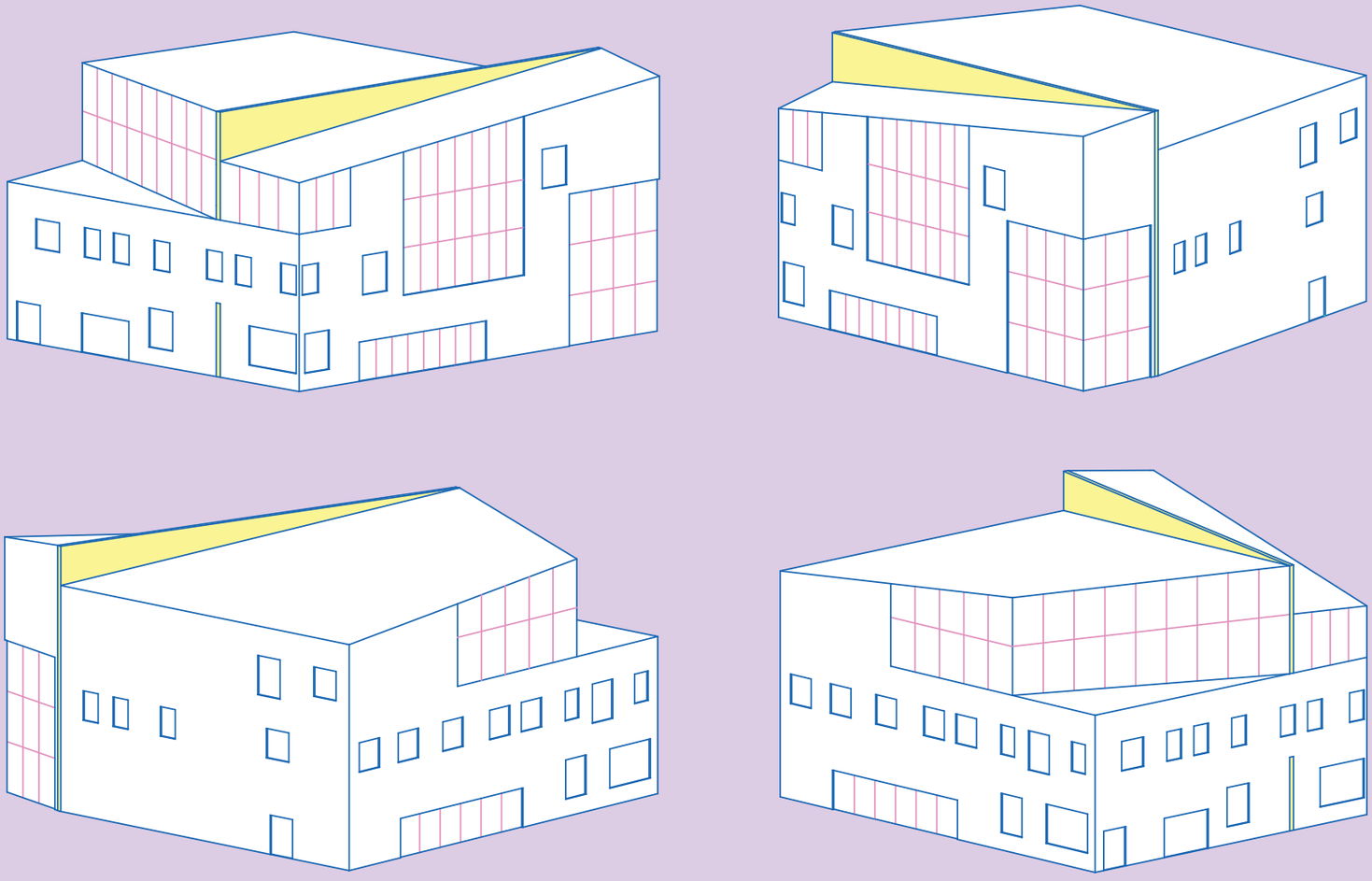
evidence for climate change remains thin—a few hundred-year storms, melting glaciers, and increasingly sober scientific reports—the extraordinary stakes involved already require a vigorous response. Such a response should be automatic, requiring no more from us than a relatively modest leap of faith in the kind of science that we routinely trust. What this science tells us, however, is far from routine. It tells us that our actions have so profoundly transformed the planet as to both compromise our immediate future and cripple generations to come. Furthermore, it offers us outrageous limits like a required 80 percent reduction in per capita energy consumption by the year 2050. This reduction is based on the need to contain a rise in surface temperatures to 2 degrees Celsius—the agreed upon maximum that avoids severe food shortages, inundated coastal cities and massive displacements of population. The number is outrageous because, at this point (2014) 565 gigatons of CO_2 is the remaining maximum carbon load the atmosphere can absorb and still limit warming to a 2 degree Celsius rise. At our present rate of emission it will take only 15 years until we reach this limit.

While it should be possible, if not also difficult, to respond to such numbers, one principal obstacle is daunting: the vast material infrastructure that encodes this high level of consumption into our way of life. These structures, which we call cities, represent nothing less than the accumulated wealth of the world. While to adapt, if not wholly reconstruct, this material infrastructure would seem the first line of response to the climate crisis, it has scarcely been put forth, even by those charged with its planning and construction. Beyond modest material interventions such as changing our light bulbs or shrinking our cars, the reform of our material environment seems almost unthinkable. It is easier to imagine absurd acts of geoengineering—seeding the stratosphere with light reflecting sulphur, growing carbon absorbing algae in the world's oceans, or painting the Russian Steppes white—than it is to imagine reforming our cities. (Strange as it may seem today, however, such reforms are inevitable.)

This inevitability is based on a last number that has yet to be digested. According to the Fifth Assessment Report of the UN-sponsored Intergovernmental Panel on Climate Change (IPCC), urban areas account for between 71 and 76 percent of CO_2 emissions from global final energy use. Inasmuch as cities count for two-thirds of the world's overall energy consumption they constitute a single, unified front on the war against climate change. In other words, no matter what route the response to climate change takes, it must go through our cities and address the patterns of high energy consumption that they presently require. If this is not quite apparent today, it will be in the near future. The IPCC's Report described the outsized role that urbanization will play in the climate crisis over the coming decades:

> "the scale and speed of urbanization is unprecedented: more than half of the world population live in urban areas and each week the global urban population increases by 1.3 million. Today there are nearly 1,000 urban agglomerations with populations of 500,000 or greater; by 2050, the global urban population is expected to increase by between 2.5 to 3 billion, corresponding to 64 percent to 69 percent of the world population. Expansion of urban areas is on average twice as fast as urban population growth, and the expected increase in urban land cover during the first three decades of the 21st century will be greater than the cumulative urban expansion in all of human history."

What the report tells us is that the frontier of climate change is not in the stratosphere, the oceans, or even the poles, it is the cities in which we live and the habits of consumption that are built into them. This is nowhere more true than it is in Houston. Where there once was no limit to the amount of energy we could produce and consume, we are now moving into a period in which such limits are likely to touch almost every enterprise that we undertake. Historically, Houston's negotiations between its natural and urban systems were based on how much energy we could produce; in the very near future, those negotiations will be based on how much energy we consume.



Connecting Those Serving and Being Served

A Conversation about the Big Brothers Big Sisters Headquarters

The Houston chapter of Big Brothers Big Sisters is building a new headquarters on Washington Avenue. Matt Johnson, an associate professor of architecture at the University of Houston and principal at LO/JO, interviews Tei Carpenter, a former Wortham Visiting Lecturer at the Rice School of Architecture and the design architect for the project.

Matt Johnson How did your involvement in this project start?

Tei Carpenter It started from a lunch conversation with Pierce Bush, now the president of the Houston branch of Big Brothers Big Sisters [BBBS], who described how the organization wanted to expand its Houston presence. BBBS is a mentorship organization for at-risk youth. The idea is a one-to-one relationship: one mentor, one youth. It's an efficient model, because once you set up that coupling, it's meant to exist for a long time. It's a lifelong thing.

Houston has a huge number of kids on the waiting list to have mentors—close to 1,000. The five-year plan for BBBS is to serve 3,000 kids per year. There's a real need to expand and to create visibility for the organization. They had been thinking about building a new headquarters for the agency for the past two years and were looking for property. Currently they're in a former doctor's office outside the Loop 610. Practically every office has its own bathroom. Few have windows, and the ceilings are low. They've grown out of it.

Part of trying to raise awareness of the organization is the new building. Heightened awareness is part of the story of the whole project.

M How does that work? How do you make the building become an emblem for the organization? What were your architectural strategies?

T It starts with the site. I-45 here is elevated, and then you have the Washington Corridor, the police station, the permitting building, and a transformer station. This funny area [right next to Downtown] feels like the outskirts of town. It has the Amtrak station, Ecclesia Church, the railroad, UH Downtown, a police parking lot, bail bondsmen.

M There are lots of windowless bureaucratic buildings. According to current development plans, what will happen to the surrounding urban fabric?

T We don't know exactly what is going to happen. I-45 itself may change, though the proposals from TxDOT continue to show elevated bridges near the site. There is guaranteed development along Buffalo Bayou's Eleanor Tinsley Park with bike trails, and hopefully we will see the redevelopment of the post office. The goal is to triangulate between those two sites, and also the Washington Corridor. There's a lot happening right now: more bars, housing, condos.

M Several developers like Frank Liu and John Deal have bought up land in the First Ward, close to here, and they're turning it into creative workspace. They've labeled it the "First Ward Arts District." The idea is that it will have restaurants and places where graphic designers and artists will have offices. Is that something you envision for this area as well?

T Many of the kids who are being served now actually come from the First Ward and the Fifth Ward. One thought was that the site affords a proximity to who is being served—who could potentially be served—and at the same time, the Washington Corridor and Buffalo Bayou bring a visibility for BBBS and access to people who might potentially volunteer to be mentors. The building project is coalescing between those two points.

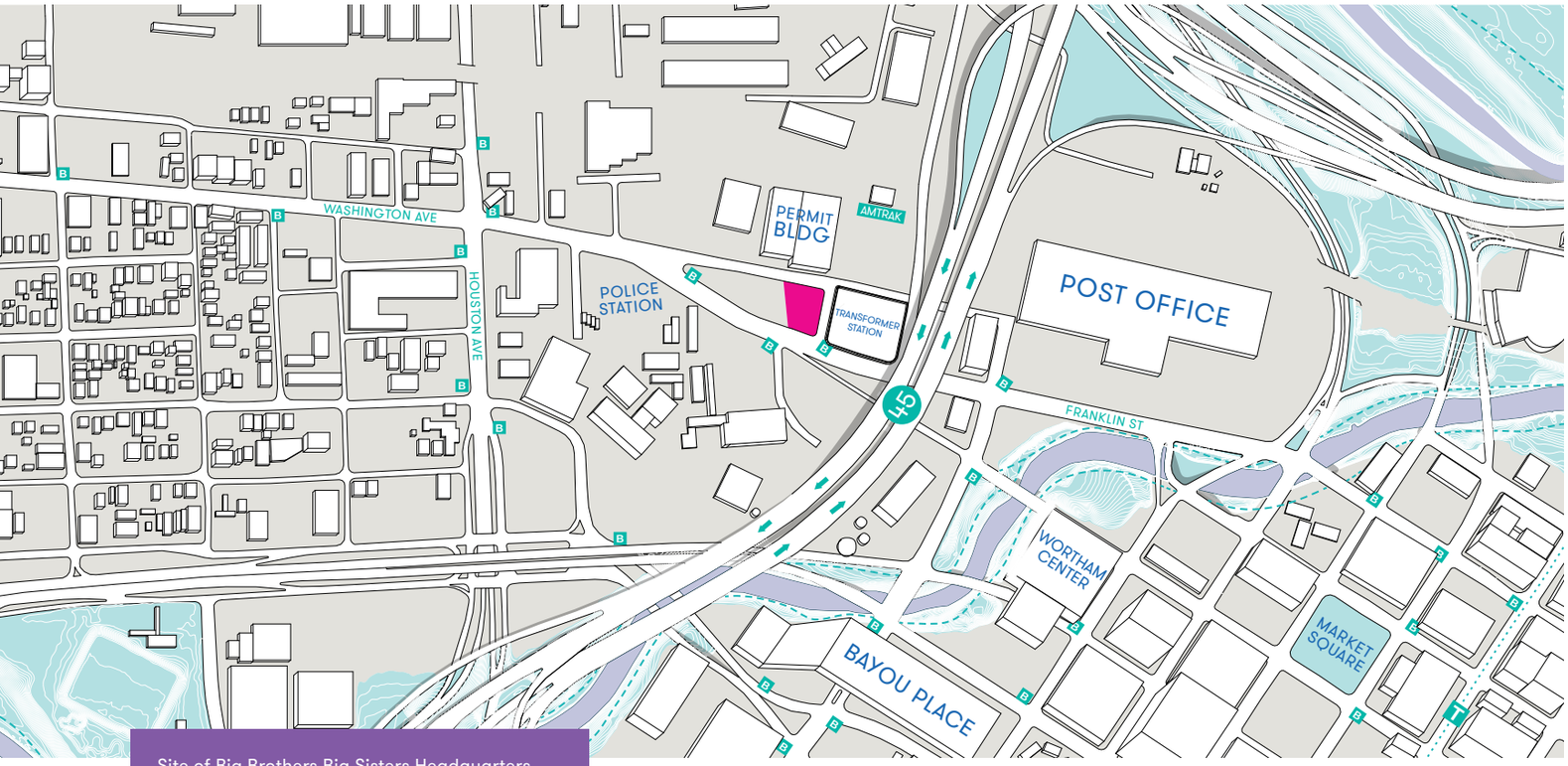
One hope is that this building will start to anchor that area, start to produce a context. This area is really unfinished, really ragged. It is very Houston.

M Along those lines, it feels like Houston is trying to develop away from the raggedness of the mid-seventies, mid-eighties, appropriating models that have worked in other cities. But this neighborhood still feels like Houston was back in the early eighties, with acres of unshaded parking lots.

T Absolutely. It is almost all parking here. This could become a civic hub, potentially along with the First Ward creative community.

M The site is a leftover wedge. It's almost like an urban island. How do you deal with that? It feels tricky as an architectural problem. You don't have the context of other buildings to reference.

T The context always had to do with a car moving around it, always.



Site of Big Brothers Big Sisters Headquarters shown in red.

M ...a Houstonian condition....

T The context is very much about approaching the building, not actually about the buildings surrounding it. How do you view it when moving along the freeways? The coloring of the building animates it. As you move past, the color strikes the eye differently....We hope for the building to become where the eye lands.... I was reading a lot of Josef Albers and his theory of color interaction. You look at how the color works in the context, how it works in relationship to the other colors.

BBBS wanted an icon. In architecture school, the "icon" is problematized and downplayed. But it makes sense for a nonprofit to try and produce visibility. One study by BBBS showed that it takes 18 "hits"—meaning your friend tells you, "I've been mentoring for BBBS," or you see a sign for it—until an awareness is triggered, where you might want to be part of the organization. How do you make a building that is hypervisible...a place that mentors want to be part of, kids want to be a part of, and also create visibility on all sides? So the faciality of the building became one of the main drivers of how the building can be experienced, how it can have this immediate presence, especially by car.

M You're achieving the visibility through a very specific massing, but through color as well. It's almost like a form of wayfinding or signage. There's that classic example of using color like this: the Alvar Aalto sanatorium (1932, Finland), where the floors are yellow, sea-foam green. It is beautifully done.

T Albers and the Aalto sanatorium are two precedents I absolutely looked at. No question.

M And it seems as if both architect and sanatorium were trying to make the best of the space they had by using color to enliven it and make it more human.

T In this case, the building is absolutely about massing and form. A sense of color underscores the formal idea.

M Immediately adjacent to the site is a transformer yard—a very convoluted piece of infrastructure. It seems to hang like a veil between the building and the freeway. It would be interesting to see if someone could do an art installation within the yard that might play off the new building.

T That's a great idea. I have been trying to think of the transformer station as a positive. Nothing else can be built there, for example, so the view of the BBBS building from the bridges over the bayou will remain intact. The transformer station becomes a forest of wires—thin wires, thin metal. It becomes like a screen, not opaque. Like birch trees.

You know the painter Katharina Grosse? She did this great installation along the northeast corridor of Amtrak. She uses color to defamiliarize the architectural object and architectural space in an immediate way. You are on the Amtrak, and suddenly you see this hot pink landscape. I could imagine that would work really well with a transformer station.

M The sections through the project are really beautiful. You seem to have a precise sense of how to bring views and light through the building. Can you talk about how the sections are informed by the mission of the organization?

T Often when you walk into a building, or into an office, you have no idea what is going on. We created an atrium space that has pulled-out balconies, so in section when you are on the ground floor, you have a sense of what is going on

above you on all the floors. It is very transparent. It produces a feeling of being part of the organization, not this hermetic, sealed-off experience where everything is secretive.... In their current space, everyone is partitioned off. The event people can never overlap with the development people. They wanted more overlap and interactions.

The atrium where you enter becomes a thickened public space, articulated with the yellow wall that you are moving back and forth through. The wall became important as a kind of threshold.

Programmatically, the top floor is event space; the middle floor is offices; the ground floor is a cafe, a playroom, interview spaces, and storage. The balcony and stair system moves through the building. You feel like you are part of something bigger than an office.

I worked with two fantastic former students who were seniors, two of my best students. They were on board during the whole process. They met the clients. They were part of every step. It was great. We met with the people who run BBBS. We met with the development group, the fundraising group, the event group. We asked everyone what they need, what they want, how they see the building differently.

M It feels very porous, in the sense that there is a lot of light coming in from all sides, even through the offices.

T BBBS wanted the building to have three floors. Nonprofits have to find ways to generate revenue. So the third floor is designed as a mixed-use space meant to be rented out for events. We talked with caterers in town to develop the catering kitchen upstairs. We have an outdoor balcony that has views of Downtown and also the bayou with Eleanor Tinsley Park. We were going to put the cafe on the top floor. Then we realized that it makes more sense to create energy on the ground floor.

M A public cafe that anyone can use?

T Yes. So you could stop in, plug in, get coffee here.

M Bringing the public in is a great idea. It makes the organization's mission transparent and open.

T This is also a space where the mentors can meet each other. Right now that doesn't happen. It's a one-on-one relationship between mentor and kid. Here, mentors might meet each other, have a conversation, interact. It becomes an organization, more of a collective. There was a big desire for this building to do that.

M On another note, I'm curious about the materials.

How do you make a building that is hypervisible, a place that mentors want to be part of, kids want to be a part of, and also create visibility on all sides?

Agency-Agency LLC
Design Architect

Three Square Design Group
Executive Architect

Bury
Engineering Services

J.T.B. Services, Inc.
Demolition

Rogers O'Brien Construction
Construction Pricing Estimation

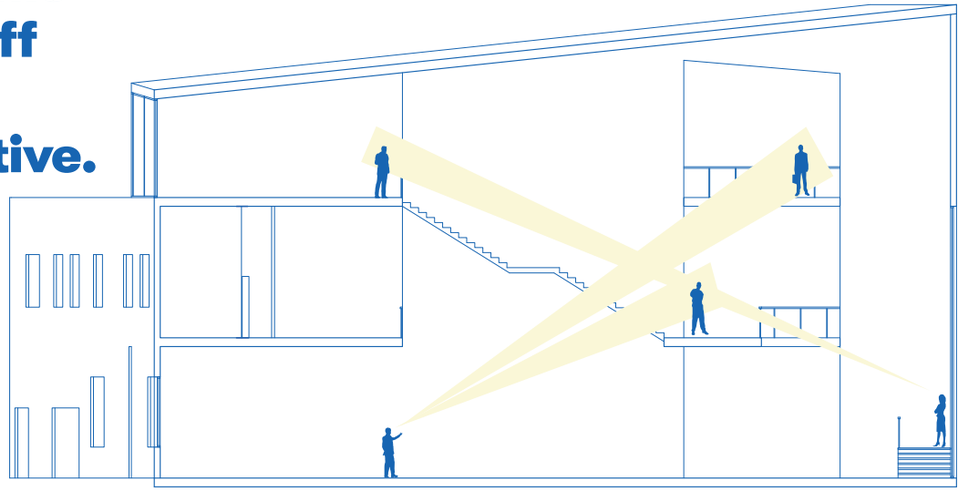
Triten Real Estate Partners
Developers

Steelcase
Furniture

The Weitzman Group
Brokerage Services

Vinson & Elkins LLP
Legal

It is very transparent. It produces a feeling of being part of the organization, not this hermetic, sealed-off experience where everything is secretive.



T We went through a couple of different versions. It is a steel structure, concrete slab. And we are actually using EIFS [exterior insulation and finishing system], which I am personally excited about. We had a couple of conversations. Polycarbonate, stucco, and tilt wall concrete were all discussed as options.

M EIFS is a stucco-like product.

T It's an artificial stucco. My research interest is broadly about industrial materials and industrial architecture. So I'm excited about EIFS. To use true stucco here would involve more maintenance, more cost, than EIFS. The spans for the control joints on true stucco are small, so this facade would have been scored everywhere. EIFS has a 60-foot span—very elastic. We don't have a single horizontal control joint. It has a smoothness that I'm interested in, even though it might be counterintuitive for many people.

M EIFS often gets a bad rap among architects....

T But I'm interested in using common industrial materials in different ways, where they take on a formal quality. What if we thought of this as "misused" EIFS, rather than optimized as the cheapest material possible?...With a project like this, everything is totally transparent. The numbers have to add up. They have to make sense. Sometimes with architecture, design choices can get cut out and value engineered very quickly.

M That's interesting. In some of our projects, too, we try to short-circuit the value engineering process. We try to get ahead of it and already "cheapen" the project, but in a controlled way so that it doesn't happen at the very end when we realize we don't have enough money. It feels like an interesting approach to architecture. OMA does this kind of thing all the time. They'll start with a cheap product knowing it can't be value engineered any further.

T EIFS can't be value engineered much further.

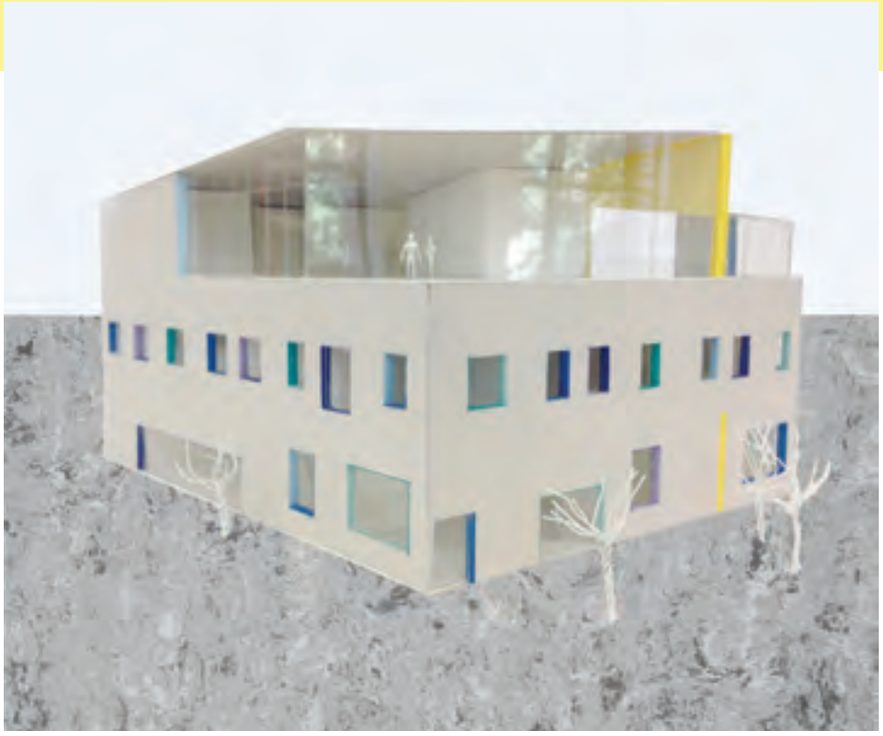
M There is no cheaper material.

T It's true. We tried to design this tightly. There is not a lot of fat on the project. The formal massing, the roof—a lot of it is doing work.

M It's a really exciting project. The parts of it I am most interested in—the logistical parts, how the project came together, how you worked with the organization—are the things that architects have to grapple with on a daily basis. Our training gives us a solid grounding for designing buildings, but it doesn't always provide knowledge about how to engage with a client and how to keep them—how to move the project forward. How did you keep your clients interested and engaged?

T The clients are really amazing. Both Pierce and Steve McDaniel have been leading the project forward. What was really incredible is that they let us develop this. We had a back-and-forth, but they gave us space to design. Having great clients is half the battle.

The project is totally pro bono design: the executive architect, structural, mechanical, real



estate, legal. The team has been incredibly generous with their time and it's been such a positive experience, especially working with the executive architect over at Three Square Design.

One big challenge is fundraising for this project. I was lucky to receive a grant from Dean Sarah Whiting from the Rice University School of Architecture to do the design work last summer.

M Well, it's a great mission, very positive.

T How can you not get behind it, in a way? That energy has followed through the whole process. ■

s Largest
on to Speculate

By Raj Mankad

When major league baseball decamped from the Astrodome, the structure assumed a higher purpose. It became a Texas-sized provocation to speculate. Ideas for repurposing the Dome seem endless. Some are thoughtfully drawn, others half-baked. This production of dreams is itself a reason to celebrate the Astrodome. Rice Design Alliance held the first of its annual charrettes in 2001 on what to do with the Dome and *Cite* published selected drawings in the Spring 2002 issue. Many other competitions and calls for ideas have followed including one by Harris County, which put forward a bond measure in 2013 for a $217 million plan to convert it into a convention space. Voters rejected the bond not because they oppose preservation but because the plan was, according to Mayor Annise Parker, "boring." Here, we highlight three bold ideas.

Pharos: Activating a Lonely Landmark (2013)

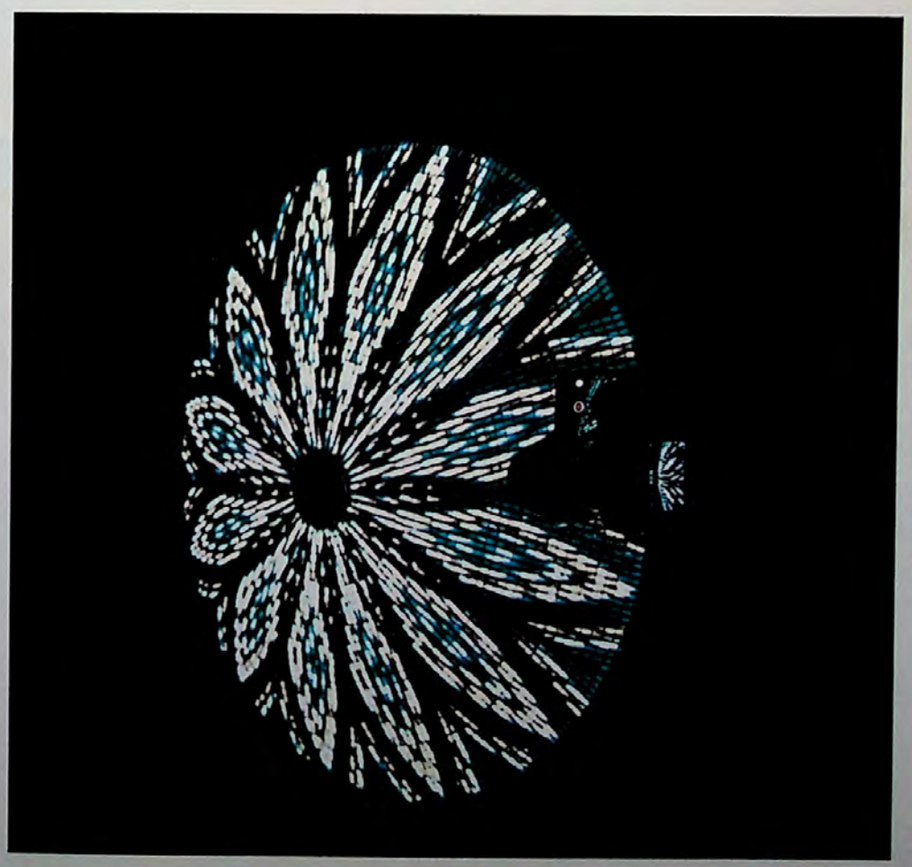
Natalya Egon and Noel Turgeon propose "a continuous skin that runs from the inside edges of the dome and through the center of the roof," creating "a tensile structure within the dome that can be loosened or tightened via the height of the balloon." Depending on how inflated and taut the balloon is, the interior would perform like a giant bounce house or as a canopy for large crowds. Likewise, on the exterior, the balloon would float just above the dome or rise high into a landmark seen at great distances.

Press: Featured in SOILED No. 5: Cloudscrapers

More information at natalya-egon.com

Strip It and Make a Park (2013)

Ryan Slattery's proposal went viral after he presented it as a thesis project at the University of Houston Gerald D. Hines College of Architecture. The idea is to strip the Astrodome to its steel skeleton and create a park inside. Slattery writes that "[b]eyond providing a functional green space, there is also the added value of not being a definitive project." Other grand ideas could make use of the preserved structure. Although this proposal was never adopted, it is hard not to see its influence on the public hunger for a not-boring future and on the official plans currently on the table. Following the recommendations of an Urban Land Institute (ULI) study, County Judge Ed Emmett is studying a public-private partnership reuse of the Astrodome as the world's largest indoor park.



Star Dome (2015)

This project is still in development and *Cite* would not know of it were Joshuah Jest and Alex Weinheimer not building their model down the hall in the new Gensler Fabrication Lab at Rice School of Architecture. Their proposal would update the Astrodome roof into an "electric landmark befitting the Energy City." Jest is now a graduate student at MIT Architecture's Art, Culture, and Technology track where he is investigating the "blurring of perceptual boundaries between digital content and the physical world." Star Dome would do just that with light and sound shows visible inside the Dome and from afar. While at Rice, Jest worked with Urbanscreen, a "mediatizing" production company that created the Spectacle for Rice University's centennial celebrations. If you had the privilege to see that spectacle, you will have a sense of how surprisingly powerful the mediatization of a building's skin can be.

See more archives of Astrodome proposals at offcite.org/dome

Beyond Google's Cute Car

The Time to Think through the Impact of Self-Driving Vehicles on Architecture and City Planning is Now

BY KINDER BAUMGARDNER

ILLUSTRATIONS BY NATALIA BEARD, JASON PIERCE, AND PATRICK SUNBURY

The blogosphere has swooned over the implications of self-driving cars ever since Google released a video of its prototype in 2014. Among the many issues it raises are these: What is the future of the insurance industry? What will happen to municipalities that depend on $6.2 billion worth of traffic citations? What of the 1.2 million annual arrests for driving under the influence? How many taxi drivers will lose their jobs? How rapidly will the 32,000 annual fatalities caused by analog cars drop?

Questions about the built environment, however, are not getting attention.

And the transformative effective of autonomous vehicles on non-antique cities—the "Houstons" of the world—will be especially profound. The debate about designing for an autonomous vehicle future needs a jumpstart: How will they shift the basic economics of land use? And what are the design implications?

Tear Down That Freeway! Long Live the Freeway!

The urgent need to think through autonomous vehicles becomes apparent if you look at the infrastructure projects currently in development.

Through my work with SWA Group and the Houston Downtown Management District, I had the opportunity to re-envision the alignment of the downtown freeway system, and work with the Texas Department of Transportation (TxDOT) to create a new reality for downtown Houston. Generally, TxDOT's plan is to widen freeways from eight lanes to as many as 26, but they got creative during this process. Initially, the agency proposed putting additional lanes in underground tunnels, but up above it was only looking at minimal changes to the freeway system. The same slip knot of pavement encircling the city would remain.

Our vision was to take this city bound by freeways and open it up while still meeting the intent of TxDOT's need to move a lot of vehicles. With the stroke of a fat marker we moved I-45 and put it on top of US 59/I-69. Then we stitched Downtown and Midtown together with a beautiful boulevard where the Pierce Elevated used to be. Buffalo Bayou Park flowed seamlessly into downtown.

> The safety of autonomous cars will turn cul-de-sacs into Sunday Streets all week. Autonomous cars will not run over five year olds on bikes.

On the east side, we would depress the new freeways and put a giant sports park on top, serving as the trail head for 150 miles of Bayou Greenways. The freeways themselves would be viewed as public space with micro-habitat and captivating views. A city long identified by its freeways would be fittingly transformed by them.

When the traffic model for the I-45 project was developed, we were planning for the year 2035; however, autonomous vehicle use is not factored into the models. The engineers asked the question and attempted to include it, but quickly realized no one knew how; there is no software or algorithms that consider the efficiencies of the autonomous vehicle. There isn't an agreed upon standard for how to incorporate robotic cars into the model. We are designing a freeway right now that will potentially be out-of-date within the time period it is being designed for.

New Technology, Same Desires

The Audi Urban Future Initiative worked with Bjarke Ingels of BIG to carry out one of the few explorations to date with regard to what autonomous vehicles will mean for the built environment. Ingels' work suggests the 'European-ization' of a world borne by autonomous cars. Will the rise of autonomous vehicles make us all become Europeans, buy bicycles, and spend our days in public spaces where pedestrians, cyclists, and cute little robotic cars share the same space? I doubt it. If you live in the Netherlands, sure, people already live that way. But Americans will continue to have American desires. Our post-war cities are built around a model of freeways and sprawl. This reality will intensify as autonomous vehicles take over the roads.

Distances will become less of an obstacle as our autonomous vehicles promise media-saturated interiors that smoothly deliver us from walkable bubble to walkable bubble.

I like to think of Houston as a multiverse of little walkable places. In between is all this dark matter of suburban sprawl. So we go from bubble to bubble. On a typical day, you might start off in the suburbs and go Downtown, then walk around, and get some coffee. Onward to the Medical Center, get some tests done, and walk around there. Maybe you go to Rice Village and buy some stuff or meet friends. Then to Uptown and back home. That's how Houston operates, little walkable bubbles in a vast, un-walkable void. Today, navigating the voids is dominated by unpleasant traffic jams, but distances will become less of an obstacle as our autonomous vehicles promise media saturated interiors that smoothly deliver us from walkable bubble to walkable bubble.

Autonomous Status Symbols

Everyone thinks the autonomous car of the future will look cute and small, and that we are all going to drive around in the same exact car. Beep, beep! That will not happen any more than we will all put on the same metallic jumpsuits. The future is going to be like the past. We will have different autonomous solutions for different needs. If you are an Audi guy, you will buy a subscription to Audi. When you want to go to the mountains with your family, the autonomous SUV will pick you up and take you up the slopes. If you want to go to the beach with your family, the autonomous convertible delivers you to the sand. The car will not have to park. It will pick someone else up who also has an Audi subscription. Going to lunch in Midtown? Then maybe the cute "beep beep" car will do.

If you are wealthy, you may commute like rock stars on tour, moving around in an enormous autonomous bus fitted out with an office, shiatsu shower massage, and a treadmill for walking while riding. Maybe there is a nice bar and media room to hang out in on the way home from your downtown office. Sprawl won't matter as the drive time becomes leisure time.

If you have far less means, you will likely be picked up in something that blurs the distinction between a car and a bus. All over the Third World, from Lima to Cairo, the streets are worked by analog minivans. You can get one of these jitneys to take you practically anywhere, but once aboard, you are likely to wait for as long as it takes to fill every seat. The autonomous version in the United States will achieve higher efficiency using an Uber-like app. The METRO bus system as we know it today will change dramatically. Its subsidies will be distributed through smart phones to users of a low-cost, public-private micro-bus system.

The future may have no drivers but our vehicles will continue to be status symbols that increase the socio-economic divisions that already exist.

Connecting the Bubbles: Social Media Takes You There

Social media will take you where you want to go. Four-square users already know where their friends are, and where they are probably going for dinner tonight. Add that technology to autonomous vehicles and drivers won't even have to tell their cars where they want to go. Because the algorithm already knows what they want to do, it will get them there efficiently. Wayfinding won't be necessary. Vehicles accessing Google Maps and Waze to navigate the city don't need signs. The cacophony of big-box retail signage that dominates our frontage roads will slowly disappear as your vehicle knows exactly where to take you, and the most efficient way to get there.

What will become of those old-fashioned signs and gantry structures? I envision them repurposed for wild habitat; enormous purple martin houses and bat infra-structure, the graffiti-adorned messages to our brave new world would only be seen by the occasional self-driver.

Beyond Sprawl

With "the internet of everything," autonomous vehicles will begin to talk to each other. Each car will know exactly what the others intend to do before they do it. Autonomous

cars can travel closer together, draft off each other, and organize themselves without lanes. They just swarm the highway knowing when and what the other cars are going to do. Whether on elevated or depressed freeways, these clairvoyant vehicles will increase traffic efficiency by as much as 300 percent.

These cars don't make mistakes and they don't crash. More and more autonomous vehicles on the road mean accidents will be a thing of the past. With fewer crashes, speed limits will increase, and as these cars go faster, people will demand to go even faster. Freeways will be designed more like banked Nascar tracks permitting 200 miles per hour travel even as the total space needed decreases. As speeds increase, fewer lanes are needed and more freeway lanes will be decommissioned. Every neighborhood will demand a Highline where their freeway once stood.

The Tesla Model S can already drop you off at your front door and then go park itself. It has a software lock, but its top speed is estimated at 210 miles per hour. That means if you were in your autonomous Tesla going to The Woodlands, the commute is closer to 7 minutes, not 57 minutes. That will completely change perceptions of space, time, sprawl, and suburbia. In the future a 57-minute commute is Houston to San Antonio.

The high-speed rail envisioned from Houston to Dallas would be 90 minutes from station to station. In an autonomous vehicle, I can get door to door in the same amount of time with less hassle and no mode changes. This will pose a significant challenge to that system with many potential riders choosing to travel in the comfort of their own (or a shared) autonomously driven vehicle.

Cul-de-Sac as Walker's Paradise

What about all that dark matter between the bubbles? What will the autonomous vehicle do to the suburb and its fundamental unit of aggregation—the cul-de-sac? The safety of autonomous cars will turn cul-de-sacs into "Sunday Streets" all the time. Autonomous cars will not run over five year olds on bikes. The enforcement of autonomous-only precincts will start with suburban neighborhood associations cultivating family-friendly, "walkable" space. But what will these clusters of neighbors do with this newfound space that once was relegated to the automobile? The front yard will become the new social space that was once the domain of the suburban backyard. Garages will be transformed into modern front porches full of activities that spill out onto the public space of the new cul-de-sac. Because these spaces will be owned by no one and everyone, it's unlikely that significant investment will be made there. Instead, neighbors will pull together a mishmash of old yard furnishings, buy an above-ground pool, and decorate the space with whirligigs and do-it-yourself decks, canopies and play equipment. A true display of folk urbanism where discarded vehicular space becomes public space.

The physical structure of the cul-de-sac won't change but the structure of feeling will. Autonomous cars will make suburbs even more appealing. You can have a safe and active public realm for your kids, a space to meet neighbors, and the ability to read the e-newspaper and make cappuccinos en-route to work.

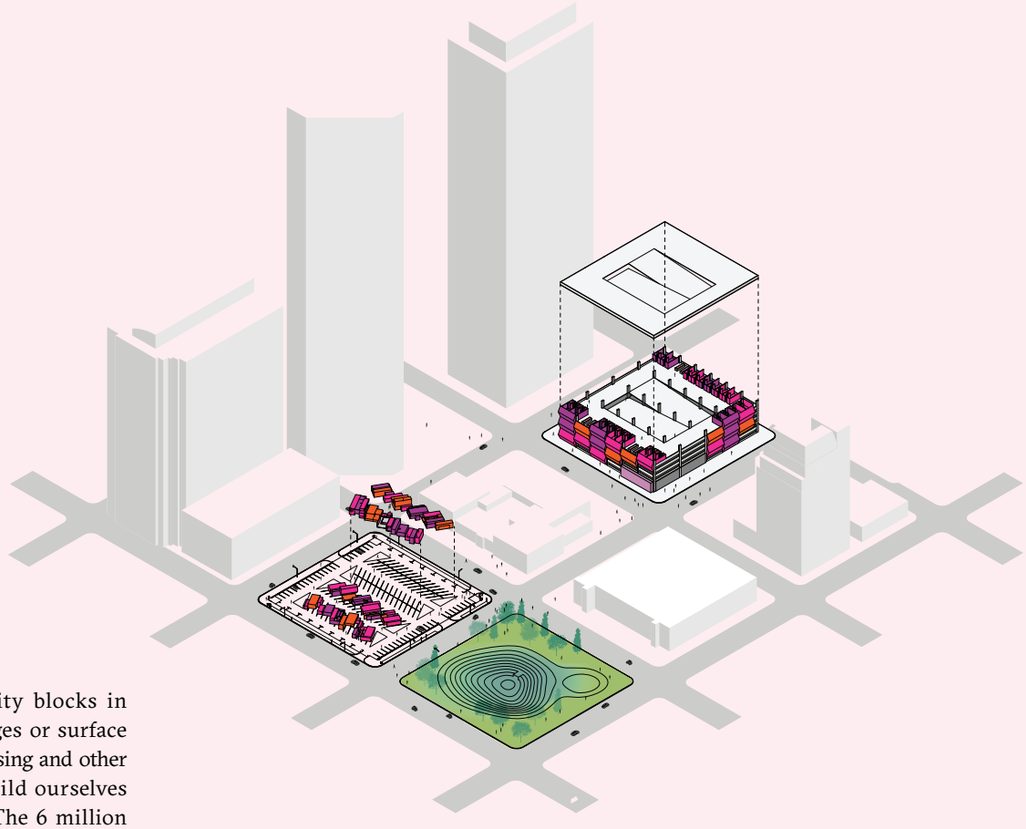
Freeway Ecology

We need to figure out what are we going to do when twenty six lanes of highway become eight. All of this newfound open space can't be converted to parks. Imagine the maintenance costs of a park that stretches from Downtown Houston to Katy. Cities don't have enough money to maintain the parks that we currently have, much less build new ones of this magnitude. Instead, we'll be left with strange new natural spaces full of exotic weeds and invasive species, a habitat for bats and dragonflies—open space searching for a purpose. Do we create coyote corridors and seed dispersal zones? Will clubs with peculiar interests take ownership of portions of these spaces? The Bee Keepers Club will plant flowers and build hives; the Urban Opossum Society will tend marsupial habitat; trail runners will build footpaths and argue with the Feral Cat Guild about whose interests take precedence. A new open space aesthetic and purpose will emerge, richly green and unkempt, full of conflict and opportunity.

Parking Lots—The next cool place

After the marriage of autonomous vehicles (Google) and app-based car sharing (Uber), you will be subscribing to Goober, not buying, cars. You will need less space to get where you are going, and no space to park the car. Even if you own your autonomous vehicle, it will move from place to place in the most efficient manner, self-park with all of the other autonomous vehicles, and require much less infrastructure. Cars that need to pick up their owners at 4 pm will all park together in tight clusters. If you use a subscription, the car may not park at all, and when it does, there will be no need for drive aisles as the next car in the queue heads off when the need arises. Some vehicles will just drive around instead of parking. The need for parking spaces could be reduced by 75 percent or more. The effect on land use will be profound. Like the decommissioned lanes of the freeway, you can't just turn all that unneeded parking into parks.

> As less and less parking is needed, parking garages will need to be re-purposed.



Right now, about 25 percent of the city blocks in Downtown Houston are dominated by garages or surface parking. Some of that will be converted to housing and other uses, but we are not going to be able to build ourselves out of all of this unneeded parking space. The 6 million population in the Houston region is projected to grow to 10 million by 2050, a 165 percent increase. If Downtown living were to explode and increase by 185 percent, outgrowing its competitor districts, we would still have about 40 blocks of parking unclaimed by new development and no longer needed for parking. We must think about feral landscapes like those in Detroit and New Orleans and understand what benefits they provide to cities.

Of Houston's roughly 100,000 parking spaces Downtown, many are in garages. As less parking is needed, those structures will need to be repurposed. A ten-story parking garage may only have cars parked on the first two or three floors, what becomes of the remaining seven floors? In Atlanta, a SCAD project has converted parking stalls in a Midtown parking garage into housing. We will likely see more creative reuse of parking infrastructure. Artists invaded the industrial loft spaces of SOHO in the 1960s because these buildings had lost their purpose and were cheap or even free to live in. The SOHO loft of the future will be the abandoned parking garages where artists and new immigrants share and divide the cavernous spaces that once were dedicated to analog vehicle storage. Sloping concrete floors with oil stains and heavy beams will be all the rage, with developers ultimately building new construction to mimic the parking garage aesthetic.

This new parking reality will also change the entrepreneurial culture of Houston. The biggest barrier to entry for small entrepreneurs is often the parking requirement. As fewer parking spaces are needed, planning codes will change and many businesses will not be required to provide parking. Without the high cost of offering "free" parking to patrons, we will see an explosion of restaurants, bars, coffee shops, and other experiential retail that Amazon Prime Now cannot deliver to your door. The ground plane of empty surface parking lots will be far more open to pop ups. Experimentation in the private realm will explode once the drag of parking is removed with new businesses opening (and closing) quickly, cheaply, and often.

Naysayers and Nostalgia

Many believe that this scenario will never happen. People used to say horseless carriages are scary. Electrical trolleys are a fad. There were races between the horse and the steam engine. The steam engine won. Car manufacturers are not debating whether these disruptions will happen, but when. You will still be able to ride a horse, and you will still be able to drive a car. But self-driving Luddites will be relegated to side roads with enormous insurance premiums. In the 1920s there was a great nostalgia for the horse and people paid a lot of money to go to a dude ranch to live the fantasy life of an earlier time. Eventually, if you have that nostalgic craving for climbing behind the wheel and pressing clutches and accelerators, you will go to the new dude ranch to live out that fantasy and drive a car yourself down a lonely track.

By Victoria Ludwin

Last summer, Evan O'Neil, Monte Large, and Jeff Kaplan had an idea. They wanted to build a public swimming pool in Houston. But not just any pool.

They envisioned a huge, honking natural pool, the size of a football field or maybe even larger. Houston could use another pool. For a city with one of the longest, hottest summers in the country, Houston has only 37 public pools for its 2,233,310 residents (that's more than 60,000 people per pool). One more big pool could possibly make a difference.

Their idea grew to be more than just a place to get wet; the pool and its surrounding environment became a gathering place for all Houstonians, an oasis amid the concrete and swamp, a magnet for visitors, a destination with a capital D, a place even cooler, in every sense of the word, than Barton Springs.

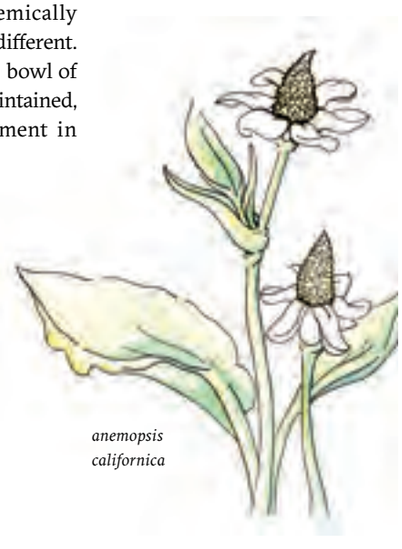
They took their vision one step further. Wouldn't it be amazing, they thought, if the pool were fed from water naturally filtered and cleaned from the bayou?

Yes, the bayou. That sludgy stream of water running through the fourth largest city in the country. A waterway once commonly used as a place to dump trash, dead bodies, industrial pollution, toxic runoff—the stuff of nightmares and horror movies. Using cleaned bayou water, however, is not as crazy as it sounds. If natural filtration could clean it, and the water is circulated back into the bayous, the potential positive impact on the surrounding riparian areas, plant, and animal species could be enormous.

Natural Swimming Pools

Natural swimming pools, or pools in which the cleaning and purifying of the water happens through plants and other biological filters rather than chemicals, were first conceived and built in Germany in the 1980s. Initially for private use, the pools grew in popularity, and the first public natural swimming pools were built in Germany and Austria in the 1990s. Today, there are more than 20,000 natural swimming pools across Europe and over 100 public natural swimming pools in Germany. At a pool's completion in Europe, it is not uncommon for the pool builders and owners to have a ceremonial drink of water taken directly from the pool.

While the costs are the same or often less over the life of the pool as the costs to build and maintain a chemically filtered pool, the environmental impact is decidedly different. Instead of creating, maintaining and cleaning a huge bowl of chlorine soup, whose water is toxic to plants, a well-maintained, clean, natural pool improves the natural environment in which it sits.



anemopsis californica

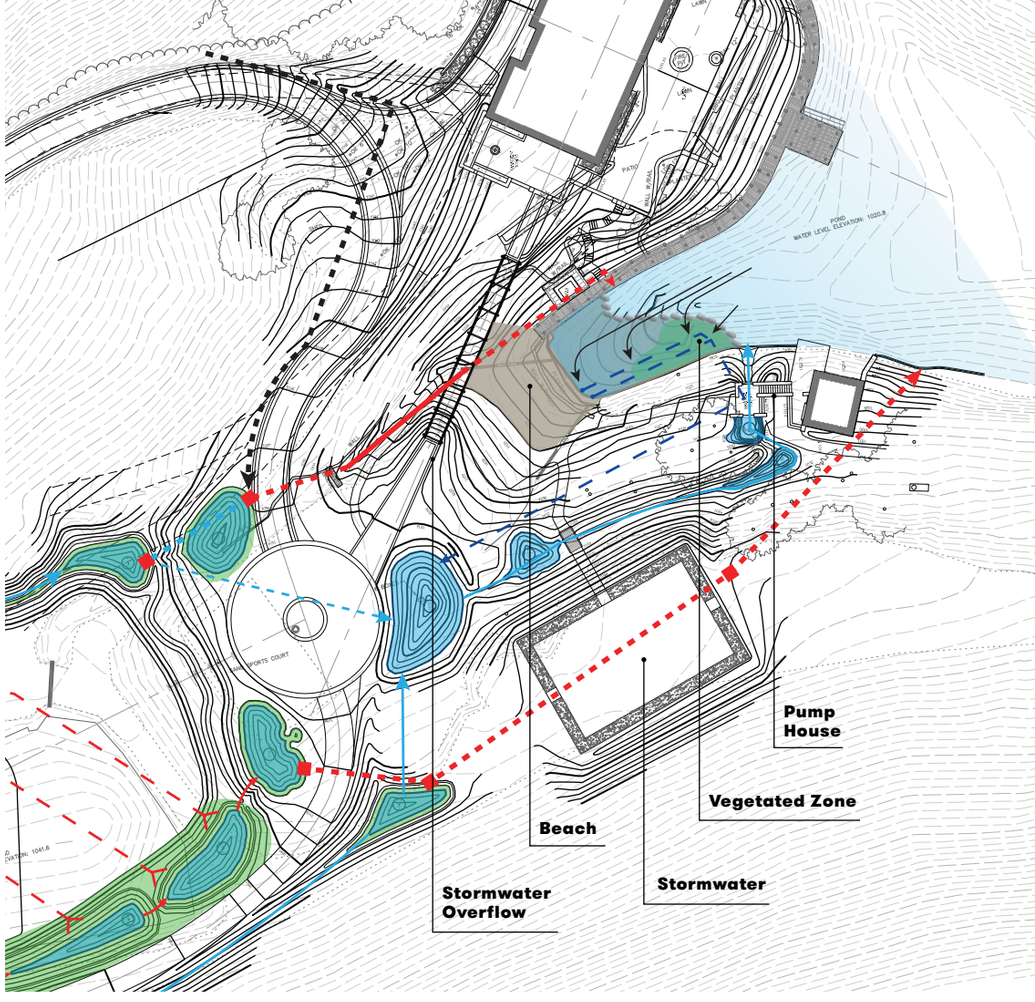
ILLUSTRATION BY JOHNEARLES.COM

The Nation's First Natural Pool

Webber Park in north Minneapolis will be host to the first public natural pool in the United States. Comprising more than 20,000 square feet of swimming area (about a third the size of a football field), the pool has two swimming areas: a 4,000 square-foot upper area with a zero-depth entrance and a maximum depth of 39 inches, and a much larger lower pool with an average depth of six feet. The lower pool will have five lap lanes, a diving area approximately 13 feet deep as well as a second zero-depth entry. Even with all these amenities, the pool will look more like a lake than anything resembling a rectangular, aqua-colored concrete city pool.

The 16,000 square feet planted regeneration zone, used to filter the water, will have more than 7,000 plants from over 36 different plant species. The water will travel via pipes underground to the regeneration zone on a constant basis before being pumped back to the pool.

In addition, a pool house will be built as an entry point in the summer as well as a warming house in the winter, when the pool will be available for ice skating. Costing $6.1 million to create, Minneapolis' natural pool will open in summer 2016 and will be free to the public.

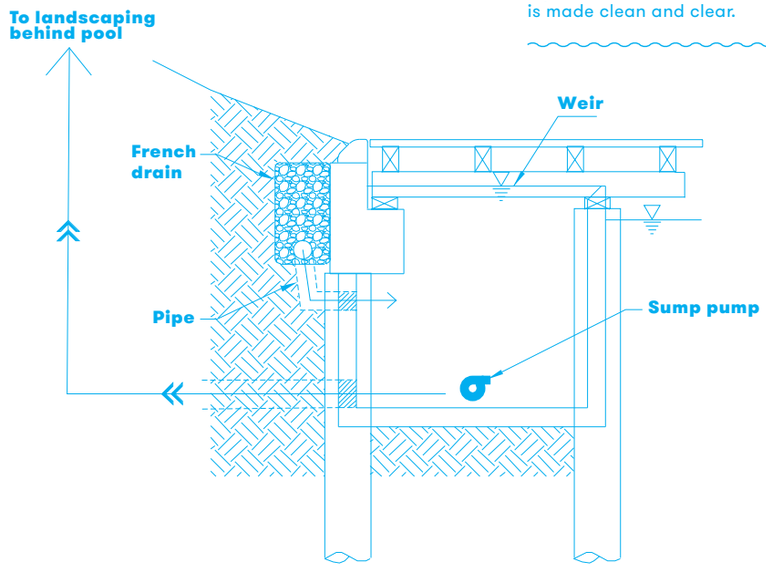


The Feasibility Study

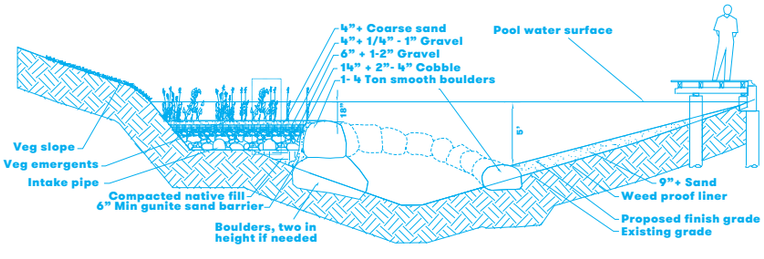
In Houston, O'Neil, Large, and Kaplan have partnered with Sherwood Design Engineers, an innovative firm committed to environmentally responsible infrastructure and sustainable engineering, to perform a feasibility study. The engineers at Sherwood have been involved as partners with a number of private natural pools; the feasibility study is the first step of many toward the potential completion of the pool.

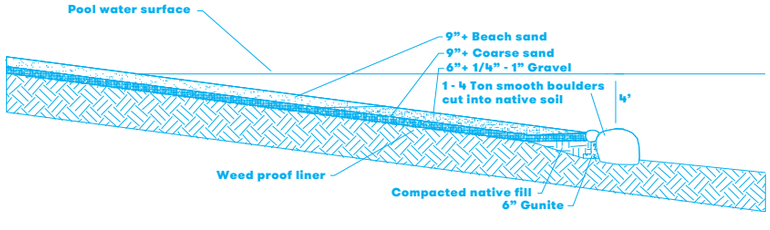
As Sherwood Managing Principal Tom Bacus explains, the filtration of natural pools maintain water clarity and take out algae, phosphorus from fertilizer, bacteria such as e. coli, and coliform by turning them into nutrients for the plants in the regeneration zone. This microbiological process happens as the water passes through the root zone of the plants, which are planted into coarse, gravelly media with lots of surface area, where healthy microbes in the gravel interact with the engineered soil and water. A gravity-fed system runs the water through the root zone and is drained.

Right now, Sherwood is advising O'Neil, Large, and Kaplan on site requirements and selection as well as looking at the question of permitting. Currently, the city of Houston requires residual chlorine in a public pool. Minneapolis was able



CASE STUDY 1 Lake Water Filtered for Natural Swimming Hole. A pump pulls water through filtering plants to a pool bounded by boulders and a private beach. Brackish water is made clean and clear.





to change similar legislation in order to provide for natural pool filtration. Sherwood plans to look at historic data on the bayous, seasonality, tide, rain and other factors to determine the quality of water coming in, how to treat it, and how to check it. The group is also considering the use of natural swimming pool applications for city water in a closed loop system, as well as a hybrid natural/chemical system, and a crystal lagoon, which uses a suction filtration system. Sherwood expects the feasibility study will be complete in October.

Site Selection

Recently, the group met with Anne Olson of the Buffalo Bayou Partnership to discuss sites of approximately nine to ten acres. On the east side, North York Street across from Tony Marron Park, near the current Dragon Boat House (501 North York), is an ideal location not only because of its proximity to the bayou, but its potential proximity to public transportation and the Buffalo Bayou Hike and Bike Trail. It also has a great view of downtown. Another site, in a surprising twist, is the old wastewater treatment plant at the northeast corner of Lockwood and Buffalo Bayou. The group also hopes to meet with Cathexis Redevelopment Group, the new owner of the former KBR site at 4100 Clinton Street in the Fifth Ward.

On the west side, Spotts Park and the site of the former Masterson YWCA (demolished in 2012) at Memorial Drive and Waugh have been brought up as a possibility, although it would be preferable to add green space rather than remove part of an existing park. Woodland Park at Little White Oak Bayou, near White Oak Drive and Houston Avenue has also been mentioned as an option; the area was once the site of a popular bayou swimming hole generations ago.

Community Involvement

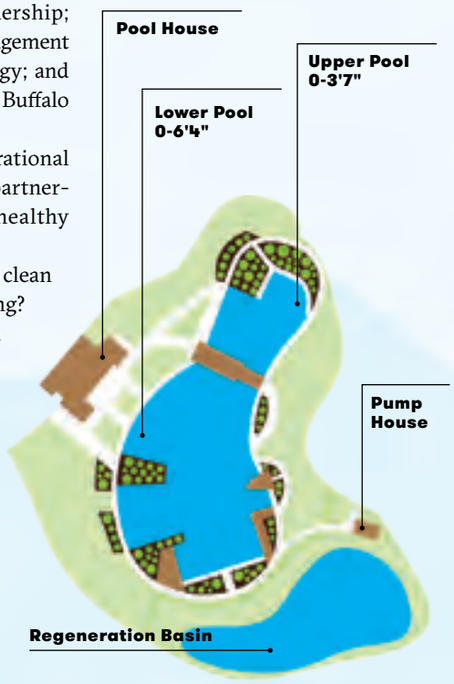
O'Neil, Large, and Kaplan have solicited community involvement and feedback during the past year, and received tremendous support. The swimming pool was brought up at a community meeting held on January 27, 2015 by the Houston-Galveston Area Council and Asakura Robinson. The two organizations presented their Livable Centers Study for the Fifth Ward/Buffalo Bayou/East End at Makerspace, a community center offering classes, artist studios, and co-working space. Community members in attendance were enthusiastic about the natural pool concept, and the next community meeting in late April continued the conversation about community improvements to the Fifth and Second Wards.

On August 8th and 9th of this year, O'Neil, Large, and Kaplan formed an advisory panel to discuss the plan and invited several members of the community to talk about how to structure the organization, site locations, planning, operations, and fundraising, which has largely been a successful Kickstarter campaign this past fall. Panel members included Carra Moroni (City of Houston), Eric Leshinsky (Asakura Robinson), Ian Rosenberg (Buffalo Bayou Partnership), Jimmy Galvez (Sherwood), Patty Knudsen-Joiner (Knudson), Tom Bacus (Sherwood), and Zane Segal (Zane Segal Projects). The panel interviewed community members including Guy Hagstette, consultant to the Buffalo Bayou Partnership; Anibeth Turcios, Assistant Director, Northside Management District; Michael Skelly, President, Clean Line Energy; and several others. Their feedback is shaping the plan for Buffalo Beach as it moves forward.

Other next steps include the search for an operational partner/director for the swimming hole as well as partnerships with on-site concessionaires to provide a healthy snack stand, a restaurant, and an event space.

Can the pool be built? Certainly. Will it be able to clean bayou water? Could it mitigate drought and flooding? The feasibility study will have the answers. Even without bayou water, Houston would certainly benefit from having cooler places to be during our long—very, very long—hot summers.

CASE STUDY 2 Closed-Loop Natural Swimming Pool. Webber Park in north Minneapolis will be host to the first public natural pool in the United States.



OPPOSITE: DIAGRAMS PROVIDED BY SHERWOOD ENGINEERS. THIS PAGE: PHOTO COURTESY MINNEAPOLIS PARK AND RECREATION BOARD

Tiny Houses

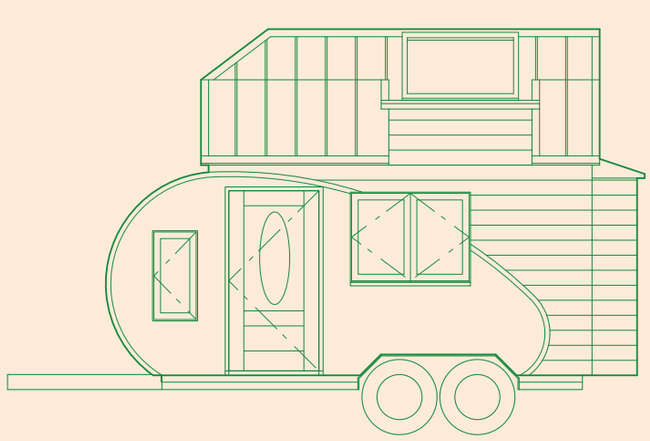
By Allyn West

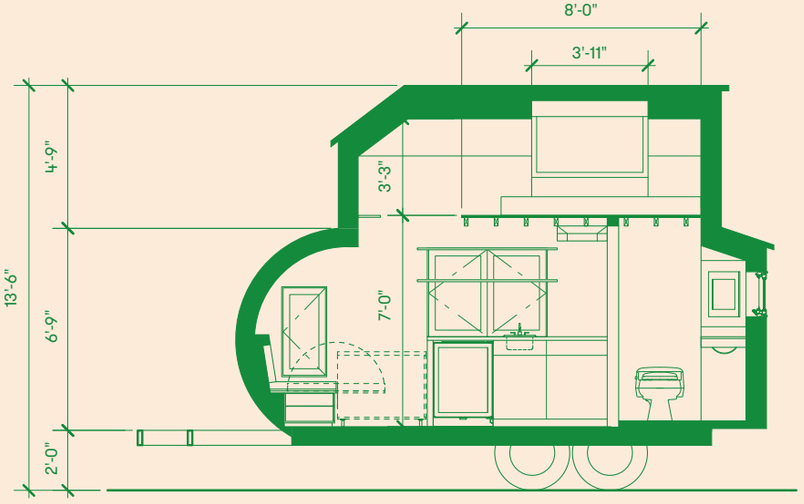
Shelly Pottorf and Shannon Bryant designed a house for themselves. It has a modest kitchen with a built-in dinner table that doubles as a desk. There's a cushioned reading lounge at one end and a bathroom with a sink and stand-up shower at the other. A sleeping loft is tucked up into the recess of the gambrel roof, which has windows that open out like wings. The exterior is marked by a streamline ellipse where polished aluminum curves into redwood siding. That redwood was salvaged from a deconstruction site in Houston's Memorial area.

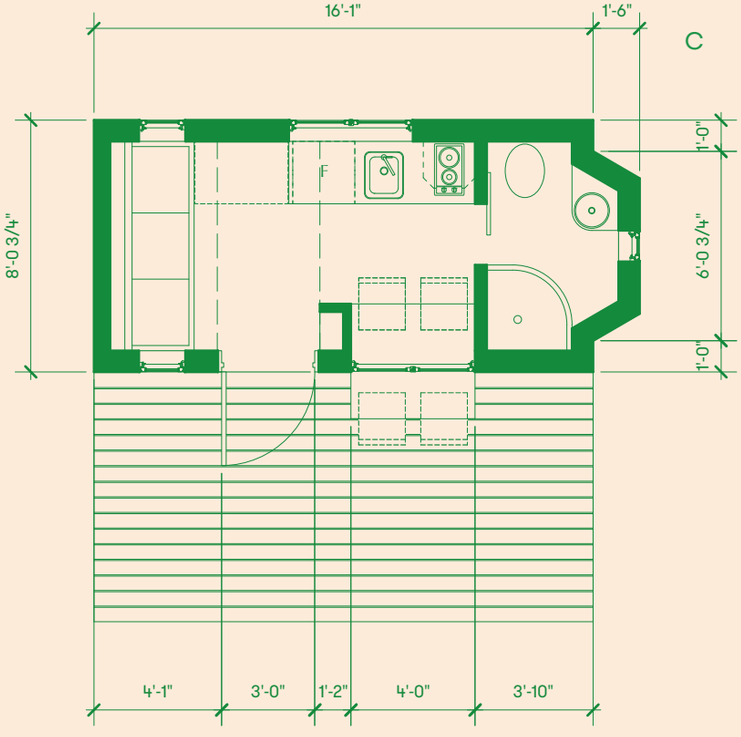
The catch is that the house is 150 square feet. It is less than seven-feet wide. Bryant says that a friend of theirs has a wingspan wide enough that his fingertips can touch both walls at once.

Tiny Drop, as Pottorf and Bryant have named their tiny house, was built inside a rented-out unit in an industrial park near the Hempstead Highway. It sits on a wheeled trailer that they had custom fabricated. Eventually, Bryant will tow the tiny house behind her white Ford F-250 to green mountainside acreage in Vermont, where it will become the couple's (and their dogs') summer getaway.

Tiny Drop
A Elevation
B Longitudinal Section
C Floorplan







For now, Tiny Drop has been making appearances all over Houston, rolling in the 2015 Art Car Parade and being featured on the television show *Great Day Houston* and outside the Green Building Resource Center at the Houston Permitting Center.

For Pottorf, a graduate of the Rice School of Architecture and licensed architect who specializes in sustainability as principal of the firm Architend, and Bryant, a builder who honed her skills with Dan Phillips—the Huntsville-based visionary who uses license plates, picture frames, and bones as building materials for his quirky low-cost houses—Tiny Drop is an experiment. "We're building this as a prototype," says Pottorf, "so that people can see something different."

"Some people might feel that it's claustrophobic," concedes Bryant. "They could never see themselves living in it, but maybe they could downsize from their 3,000-square-foot house where they don't even use three of the rooms."

Downsize? The word seems nearly treasonous in Texas, where everything's—well, you know what they say. And building tiny in Houston, a city as large as the state of New Jersey with a population about as dense as that of Columbus, Ohio, a population that just a few generations ago watched Evel Knievel soar on a motorcycle inside the biggest room in the world, the Astrodome, the stadium where superlatives go to die, seems to stomp on the legacy of the Grand Huckster himself. If you believe the myths—and if you ever take a lap around the Beltway—you might conclude that Houston just doesn't do tiny. The "Houston Tiny Houses" Facebook group has 320 members, compared with 858 in Austin—and 1,108 in Portland.

Nationally, the appeal of tiny houses started to catch on as people looked for a solution to the economic downturn and housing crisis of the late 2000s. By that time, the size of the average American family had shrunk from 3.1 people in 1970 to about 2.5 people, but the average house had grown almost 1,000 square feet larger. There was an epidemic, quips the Austin-based writer Canan Yetmen, an "obesity of space." For many, it stopped making sense to build—and, maybe just as crucially, to pay for—larger and larger houses for smaller and smaller families living farther and farther out. Blogs like thetinylife.com, lifeedited.com, and cabinporn.com, as well as a slew of niche books, trade shows, reality television series—even a feature-length documentary film, *Tiny: A Story About Living Small*—all

DRAWING COURTESY SHELLY POTTORF

sang a kind of gospel and contributed to the undeniable popularity of the so-called movement.

Now, most urbanists and sociologists agree that as much as 75 percent of the world's population will live in cities by 2050—a reversal of the direction, and spirit, of Manifest Destiny. Downsizing, considering our environmental footprint, and living smaller have become economically and morally urgent for many, and tiny houses—seen, paradoxically, as both faddish and potentially revolutionary—an extreme response to alarming conditions. "We get into these 30-year mortgages that lock us down," says Pottorf. "It's not working that well financially for everyone. How do you break that cycle? If you're starting out young, how do you just not get into that cycle? If you're somewhere in the middle, how do you get out of it? If a tiny home costs $26,000, that's the price of a car. So it's a different economic model."

Downsize? The word seems nearly treasonous in Texas, where everything's—well, you know what they say.

The tiny house suggests a different social model, too. Without space for a well-stocked liquor cabinet, you might walk to the ice house on the corner. You might hike or bike on the bayou greenway instead of crunching along alone in your living room to *8-Minute Abs*. You might replace your two-car garage with a garden. You might people-watch at the park instead of watching people on television in the dark. Architect and University of Houston professor Donna Kacmar writes in her new book, *BIG Little House*, about Alex Melamed's 320-square-foot Walnut House, in which he lives with his wife and cat in a "walkable community" in Ohio: "The ability to easily walk to the nearby neighborhood library or local coffee shop makes them feel part of a larger community and greatly expands their 'living' space." Here, the lack of personal space embodied in the very architecture of the tiny house—as with another small typology more familiar to most Houstonians, the shotgun—creates the necessity for a more fully realized, and more thoroughly peopled, public realm. "When you live small, you need the exterior space," says Pottorf. "Ideally, you need a community space where the things that don't fit in your home you still have, as a community."

Because of this potential to radically reconfigure space, the tiny house has become an attractive typology to experiment with. Pottorf, who in addition to her work with Architend teaches at Prairie View A&M, assigned a Spring 2015 studio of undergraduate students to design and build a retail space based on the tiny house. Consulting

with Natasha Johnson, a 60-year resident and current Independence Heights Super Neighborhood President, the students developed designs for a snow cone stand and business incubator that could be built on a trailer out of recycled materials and easily delivered to a site on North Main Street. Some of the designs incorporated interactive features like a chalkboard; others were almost sculptural. But they all presented an affordable alternative to the traditional storefront for neighborhood residents to sell jewelry, food, art, and other wares.

Similarly, a group of professors including Ben Bigelow and Gabriela Campagnol at the Texas A&M College of Architecture taught a year-long series of upper-level courses for construction science, environmental engineering, and architecture students that led to the design and construction of two tiny houses—houses that were eventually trucked to Austin to be sited in a Mobile Loaves and Fishes master-planned community of transitional housing for people exiting homelessness called Community First. "We started with a discussion of what is a home," says Campagnol. "The head of Community First came, and we had a workshop [with] the students. We asked: What would be a house that you would like to live in?"

The students submitted designs in the fall. Two were selected—one, says Campagnol, is "Texas, ruddy-style," and the other "more Scandinavian, IKEA-style"—and refined further to work within a hard $8,000 budget. In March 2015, the students started construction. Like Tiny Drop, the houses were built on trailers. They were completed in May. Ultimately, they will be inhabited by just one person, per Community First guidelines. "But the houses work well together," says Campagnol. "We wanted something that could be a model for family design with a modular system."

Technically, though, these are not tiny houses. And if you want to build and live in a tiny house—especially in an urban context—you must eventually deal with technicalities. Though these buildings fall within the accepted "tiny" range of 86 to 400 square feet, they don't include showers, toilets, or kitchens, so they are not subject to the International Residential Code [IRC]. At Community First, the residents' bathing and cooking facilities are centralized. As such, the City of Houston could not permit them as permanent primary dwellings. "There are a number of IRC issues that come up relative to tiny houses," explains Pottorf. "If [the sleeping area] is up in a loft, you have an issue with egress. These are health, safety, welfare things. I'm an architect, so I'm responsible for upholding these things. But a lot of [do-it-yourself] people aren't even aware of [them], because they're not looking at the residential code."

The City of Houston would not permit Tiny Drop, either. Not only is the house too narrow according to the

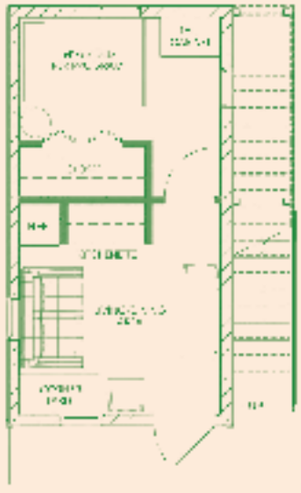
Three residences at the Community First! Village, a 27-acre master-planned community near Austin will provide affordable, sustainable housing, and a supportive community for the disabled, chronically homeless in Central Texas.

PHOTO COURTESY ALLYN WEST

Community First Micro Homes

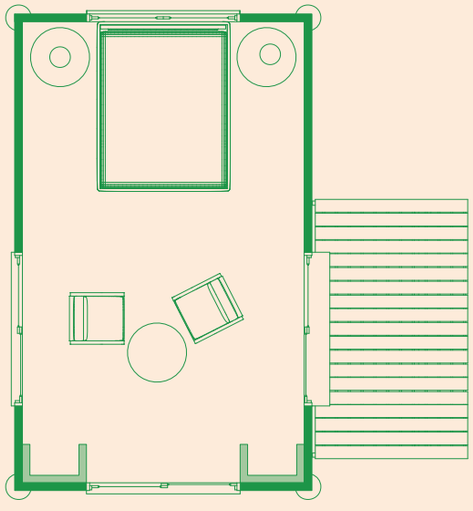
Rooftop Hospitality Home

This house, designed by Cody Gatlin of Fazio Architects, was among the four winners of the AIA Austin Tiny House Competition. It has the potential to host more guests than would have been possible without the addition of a habitable rooftop space.



Micropod Home

MicroPod Prefabricated, designed by Stephi Motal, AIA of Black + Vernooy Architects, also won the AIA Austin Tiny House Competition. It offers a flexible unit that can be oriented to optimize privacy, solar, and ventilation considerations, as well as other site opportunities such as views and trees.



IRC—a permanent dwelling can't be less than seven feet in any dimension—it was not built on site, and it does not have a foundation. Here, it gets even more complicated. Technically, Tiny Drop was prefabricated, which makes it subject not to the IRC but to federal Housing and Urban Development Department [HUD] standards, which are inspected and regulated at the state level. As far as the City of Houston is concerned, says Pottorf, the house that she designed, built, and intends to live in is nothing more than a "load on a trailer." It might as well be lumber or livestock. "There's this big void that no jurisdiction, no governing body, has addressed. No one has written a code for [tiny houses on wheels]," says Pottorf. "It's not that you can just modify the IRC or HUD. You have to start from scratch and address what [tiny houses] are and what's appropriate for them. It's a whole new genre of permitting."

The same might be said about the appraising and lending industries, whose conventions are equally unequipped—at least for now—for tiny houses. Austin-based Teresa Lopez, author of *Green Energy Money* and a licensed banker with Westar Pacific Mortgage, outlined some of the challenges at a recent symposium on tiny houses at the Houston Permitting Center. "Appraisers are required to use paired sales analysis," she says. "You have to compare apples to apples. But there is no way to [do that with] a tiny house. Usually, the only [comparison] available in the [Multiple Listing Service] around the same square footage is a condo, but that's multifamily."

If the house you want to build doesn't adhere to the market, you can't rely on "conventional sources" of financing, says Lopez. "That's not the end of the world, obviously," she explains. "But other types of loan come with a much higher interest rate. [And with tiny houses,] you're going to have trouble selling it on the back end. [You] have a property that's not marketable."

Building a tiny house is like trying to publish a single poem instead of a 300-page novel. It strains against conventions and practices that aim to regulate and standardize. Part of the appeal of tiny houses, of course, is avoiding those conventions and trying out new practices that might change how we do things as a culture—as well as what we value, what we think we want, and need, in a house. Adherents tend to invoke the authority of Henry David Thoreau, whose own do-it-yourself experiment was carried out beside Walden Pond in a cabin 10 feet wide by 15 feet long—about the same size as Tiny Drop, by the way. Most of the tiny houses featured in slideshows or magazine spreads are posed like Thoreau's on a picturesque site. There's no one for miles. There's an implication of escape, independence, solitude.

Those qualities have their appeal. But they also undermine the collective intelligence of cities. Thoreau lived off the grid because there wasn't a grid. He didn't enjoy curbside recycling or wastewater treatment. His experiment isn't repeatable for a metropolitan area of more than 6 million people. In an urban context, a single tiny house on a single-family lot seems absurd. We can't live together feasibly or sustainably as a city of Thoreaus any more than we could as a city of Donald Trumps. That's why some tiny house advocates are interested in developing "pocket neighborhoods" of several houses on subdivided single-family lots, but these, too, run into permitting issues—and they also require land-use variances that would bring into effect additional requirements for parking and emergency access.

"There is no silver bullet," says Pottorf. "Some people are like, 'This is it! Tiny houses. On wheels. That's the solution, and everyone should live in them!' That's not the only solution. That might be one solution in a particular situation. [If] we all did tiny houses, it would be disastrous. If we built everything out of wood, it would be disastrous, [just the same as] if we built everything out of steel [or] straw bale and cob. You can't have one form of delivery."

For Kacmar, whose book explores 20 projects other architects have undertaken that are less than 1,000 square feet, the tiny house might be best understood as neither a post-Thoreauvian fad, nor a revolution—but something between. She would argue that the tiny house is too small for most people to be viable on a mass scale. But it represents another way of searching for "our notions of home." "The great thing about the tiny house movement and the do-it-yourself movement is that [they give] people a bigger spectrum," she says. "Before it was a big house in the suburbs or a smaller house closer in the city. And now the spectrum's gotten bigger."

The popularity of the tiny house allows people to say, explains Kacmar, "'I'm not going to think about resale, I'm not going to think about what my neighbor has. I'm going to think about what's essential to me.' Asking those questions is just as valuable as answering them. How do I want to live? What do I prioritize? We all want a place where we can put our stuff and build a life in."

Here, you can still defer to Thoreau's authority. "The life which [we] praise and regard as successful is but one kind," he writes in *Walden*. "Why should we exaggerate any one kind at the expense of the others?"

Building a tiny house is like trying to publish a single poem instead of a 300-page novel.

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Rendering showing new tree plantings, pedestrian amenities, and bus rapid transit for Post Oak Boulevard.

Purchase tables and tickets now for the 29th RDA gala.

On Saturday, November 14, 2015, Uptown Houston will be recognized as an exceptional patron of architecture and urban design by the Rice Design Alliance. Since its formation in 1987 as the city's first management district, Uptown Houston has established the area around the Galleria as a commercial and residential destination and world-class example of decisive urban development, with ongoing projects fostering greater mobility on Post Oak Boulevard and lasting stewardship of Memorial Park.

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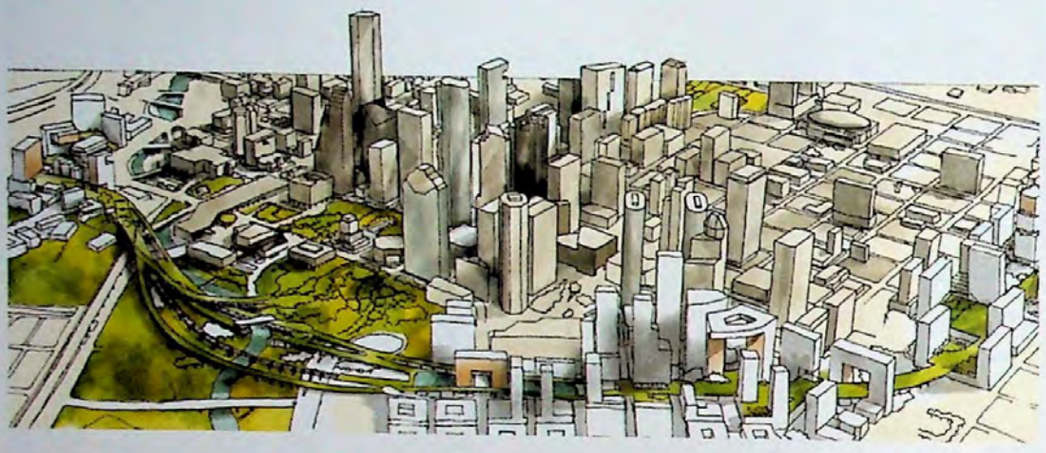
Hindcite:
"Now you are all city planners."

After participants play for about 30 minutes with his collection of hair curlers, plastic Easter eggs, and various previously-loved items, James Rojas ends nearly all his urban planning workshops with the same statement—you are all city planners—whether he is at an elementary school, a community center, or a university. If you take the statement not as a platitude but as an actual position, as a starting point for a theory of the built environment, you can understand why Rojas crisscrosses the country, tirelessly engaging as many people as he can.

In May 2015, Rice School of Architecture, Kinder Institute, Rice Design Alliance, and Rice's Office of Public Affairs co-sponsored a series of workshops in Houston led by James Rojas. He carried out two workshops with community leaders and three at public schools, reaching about 250 people.

After his visit to Houston, Rojas was awarded California's Planning Advocate Award of Excellence for 2015 for the way he conducts workshops. Rojas often begins the process by asking participants to represent their favorite childhood memory. He writes that this step "peels away difference" while also creating a safe space for the expression of how the experience of space is influenced by gender, age, and culture.

Skypark



Imagine the Pierce Elevated as a park: Instead of demolishing the freeway, why not put it to a great use?

BY LISA GRAY

Excerpted from the April 26, 2015, Houston Chronicle

What if, instead of tearing down the Pierce Elevated at an enormous cost, the freeway structure became the base for an elevated linear park—a Houston version of New York's High Line or Paris's Promenade Plantée? "Pierce Skypark," [John] Cryer and two other Page architects call the idea. He, Tami Merrick, and Marcus Martínez have been working on it pro bono, hoping that a powerful public or private entity would take the idea and run with it. Their presentations have been received warmly: Pierce Sky Park's Facebook page has more than a thousand "likes." Martínez's dream-big conceptual sketches give a sense of the proposal's size and potential. The park that he and the rest of his team imagine would be 1.97 miles long, and cover 37.7 acres—an astonishing swath of park-land so near downtown. By comparison, New York's High Line, built atop an unused freight-rail line, is significantly shorter (only 1.45 miles) and much, much skinnier (13 acres). Besides the obvious paths for bikes and pedestrians, Martínez says, there'd be room atop the Pierce Elevated to install all sorts of attractions. Maybe a golf range; or a bike-in theater; a conference center; gardens; or a greenhouse for native plants to be installed along Buffalo Bayou.

Tear down the Pierce Elevated. Make it Pierce Promenade.

BY JOHN S. JACOB

Excerpt from May 4, 2015, "Gray Matters," Houston Chronicle

Let's build a walkable promenade that could rival Barcelona's Las Ramblas or even Paris's venerable Champs-Élysées. And let's put Buffalo Bayou on the front door of this promenade. This is thinking big—but the kind of big that will last centuries, not just a cool few years. By virtue of its elevation, the Skypark cannot form a visceral connection between these two core areas. The High Line railway never divided Manhattan like the Pierce Elevated divided Downtown from Midtown. If the Pierce comes down, we could have a pedestrian promenade like few others in the U.S., or the world, for that matter...We could have everything the Skypark could give us and so much more. For one, very wide sidewalks and pedestrian zones, with ample room for outdoor restaurant seating, for outdoor markets and festivals, and for civic gatherings. Abundant green space as well—green space directly tied to the underlying soil, something not available on the Skypark.

On the Responsibility of Speculative Practice

BY SUSAN ROGERS

Merriam Webster Dictionary

SPECULATION
: ideas or guesses about something that is not known
: activity in which someone buys and sells things (such as stocks or pieces of property) in the hope of making a large profit but with the risk of a large loss

Speculation has two definitions, one is more in keeping with the predominant form of this activity in Houston, real estate speculation. The other is more aligned with design and the allied professions. The result of speculative thinking can be as powerful as Buffalo Bayou Park or the Bayou Greenway Initiative. But it can also be as problematic as the proposed $6 billion I-45 expansion, which seems to be predicated not on a major improvement in traffic flow (which has been proven over and over not to work and furthermore could be a moot point if the autonomous car comes to fruition) but instead on eliminating the highway barrier between the increasingly expensive real estate of Downtown and Midtown. This move requires a significantly expanded freeway barrier on the east and north sides. The fundamental measure (and responsibility) of any speculative practice is its inherent contribution to equity and its potential value to make our world a better and more beautiful place.

The Rice Design Alliance acknowledges the generous support of its 2015 underwriters.

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