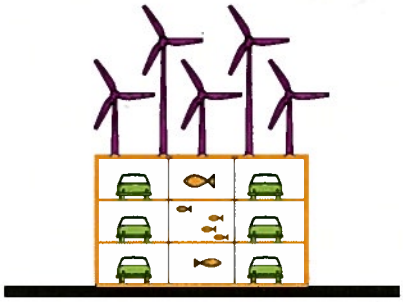
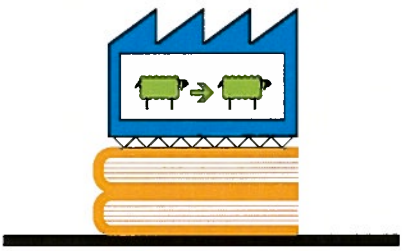
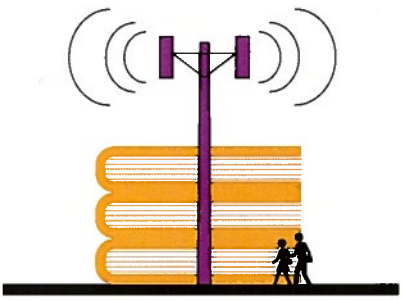
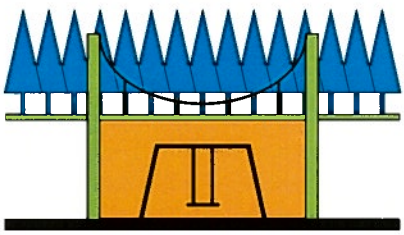
WPA 2.0

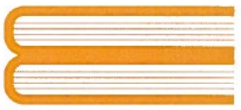


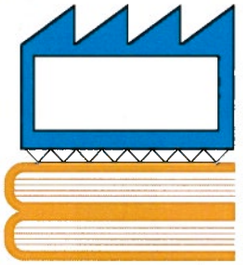


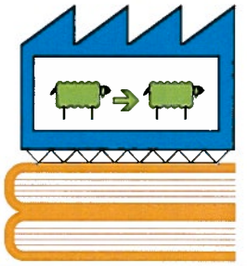




Dana Cuff, Tim Higgins & Linda C. Samuels, editors







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Jury: Stan Allen, Cecil Balmond, Elizabeth Diller, Walter Hood, Thom Mayne, Marilyn Taylor
Panelists: Julia Anastasio, Casey Jones, Maurice Cox, David Burney, Moderator: Bill Menking
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WPA 2.0 was headed by director Dana Cuff, co-director Roger Sherman, associate director Tim Higgins, and senior research associate Linda C. Samuels.

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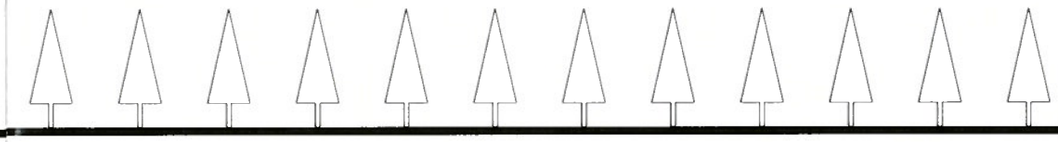
WPA 2.0 design for public works

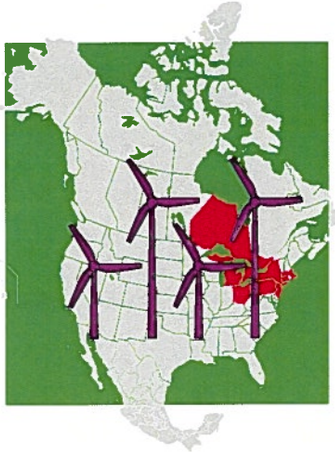


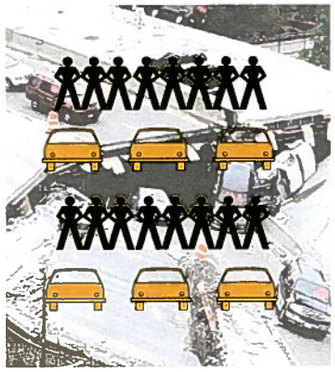
A Perfect Storm

The American city is at the eye of a perfect storm; facing a crisis of immense proportions, it simultaneously enjoys the opportunity of a century. First the crisis: the basic infrastructural systems necessary to keep our cities functioning are in dangerous need of repair. Recent failures in bridges and power grids, the closure of libraries and firehouses, the decline of public spaces, and the dismal condition of public schools are just some of the more apparent indicators of an infrastructure crisis where economic, environmental, and political problems collide. Yet a great opportunity presents itself. As the nation prioritizes the repair of infrastructure, it has the potential to mine old public land for new public uses. As a city improves its transit systems, its abandoned railyards provide spaces for parks; when port pollution is remediated, a waterfront opens up for development. In such circumstances across the country, infrastructure can be leveraged to build better cities, with design leading the way.

As a nation, we've let many such opportunities pass. We at UCLA's cityLAB are working to impress upon designers, policymakers, citizens, and builders that there are strategies for action, as well as standards for our acts. This book describes both. Based on research and design demonstrations, we argue that common infrastructures like those that move water, power, and people can be recreated as contributions to a vital public sphere. This new commons, if designed thoughtfully, can support neighborhoods that are more sustainable, better served, more livable, and more dynamic. The projects illustrated here demonstrate what that might look like and how it could work. These innovative results promise new forms of urbanism in the wake of the storm.

cityLAB, a think tank in UCLA's Department of Architecture and Urban Design, was founded in 2006 by Dana Cuff and Roger Sherman. The lab develops innovative design demonstrations that intervene in the ad hoc evolution of cities. Its mandate is to bring together design and research to forge experimental proposals, both theoretical and applied, for architecture in the emerging metropolis. Looking beyond master plans or individual buildings, at cityLAB architecture serves as the radical increment for urban change. Four initiatives drive the lab's efforts: rethinking green, the postsuburban city, urban sensing, and new infrastructures. For more information: www.cityLAB.aud.ucla.edu





Catastrophic Failure

Even while Federal programs are launched with the intention of rebuilding our infrastructure and stimulating the economy, there is an endemic lack of vision when it comes to the dividends of such investments. Filled potholes, secure airport fences, and seismically safe bridges are limited by their singular performance goals. The 2009 American Recovery and Reinvestment Act's $150 billion falls far short of the $2.2 trillion that the American Society of Civil Engineers estimates is needed to safely repair the nation's infrastructure. But an investment of any size that merely repairs rather than upgrades hardly inspires additional support.

Infrastructure is literally and metaphorically insidious: we pay it no heed until its failure demands our attention. We equate infrastructure with civilization itself. As in science fiction's dystopic futures, when the service networks fail, social norms are abandoned in the fight for survival.

Nowhere was this more evident than in Haiti's catastrophic earthquake of January 2010. The utter demise of all infrastructure in Port-Au-Prince—from hospitals, roads, and police stations to the airport control tower—meant the crippling of disaster relief efforts in an already dire emergency. There was fear, fortunately unfounded, that Haiti's society would dissolve under those conditions.

America's infrastructure has reemerged in public conversation, spurred by a string of deadly infrastructure disasters that began in 2005 with the failure of the levees in New Orleans and includes the 2007 bridge collapse in Minneapolis. Dramatically photogenic in a disaster-porn sort of way, images circulate of the horrific power wielded by our most unassuming structures. Infrastructure, including that of the United States, has been ignored for so long that it now threateningly looms into focus, endangering those it was meant to serve.

Cities of Infrastructure

The physical form of the city reflects evolving notions of the public and the types of spaces that public inhabits. In the United States, the collective citizenry at the turn of the 20th century was symbolically portrayed by the formal civic gardens of the City Beautiful movement; in the 1970s and 80s it was the corporate plazas of urban renewal. The 2000s see continued disinvestment in the public sphere with the rise of privatized and controlled common spaces like shopping malls, event venues, and fitness centers. What remains of the public realm is often funded by the public yet only occupied in a utilitarian, service-oriented manner. For example, roads and parking are estimated to occupy 50% of all urban land (compared to 3.6% of US land in the National Park System). These roads and parking lots comprise a land bank that could be exploited when more efficient means of transit are implemented, when freeways are decked over, air rights are developed, or surface lots are converted to parking structures. Immediate transformations are possible on the prime real estate preserved by neglected and obsolete infrastructure, for example proposals to extend the public sphere into sites like Brooklyn's Atlantic Yards, the rights-of-way of Atlanta's Belt Line, and along the Los Angeles River channel. Today, such infrastructural land offers the largest and most promising opportunity to create a new, 21st century urbanism.

Infrastructure Defined

The word infrastructure is loosely tossed about in contemporary discourse; it is applied to phenomena ranging from sewers and highways to the underpinnings of economies and social networks. Infrastructure literally means underlying construction. In this document the term refers to core public facilities and systems that sustain neighborhoods, regions, or nations. It is telling that the current usage emerged when we needed a way to explain a new world order, a change in what had been not only geographically distinct systems but also politically and operationally autonomous ones. The contemporary use of the term can be traced to the postwar western military alliance. In 1949, NATO's predecessor, the Western Union, wanted to develop airfields, communications projects, and defense headquarters in France and the Netherlands but financed and used jointly by all alliance members. It was labeled the "infrastructure program," implying transnational benefits underlying a common defense. "Infrastructure" described necessary installations that would be of public benefit even to those outside of specific service areas. Infrastructure's legacy has been a strategic one, responding to conditions, transcending geographies, and serving as the ground for political negotiation. These remain the strengths and, paradoxically, the ambiguities of designing infrastructure.

$10 billion
Federal investment in the WPA program from 1935 to 1943

Those funds built or improved:

651,000
miles of roads

125,000
buildings

16,000
miles of water mains

24,000
miles of sewer

Over those 8 years, the WPA program also employed **8,500,000** individuals.

WPA 1.0

Evolving Infrastructure: WPA 1.0 to 2.0

Although sewer, power, and transportation systems are fundamental to civil society, their contribution to the common good is associated with basic services rather than the broader ideal implied by the term "pubic works." New Deal programs, particularly the Works Progress Administration (WPA) and its predecessor, the Public Works Administration, constructed public works ranging from airports, dams, and bridges to schools, hospitals, housing, and other public buildings. Following Roosevelt's New Deal WPA, Barack Obama's 2009 economic recovery program focused on rebuilding American infrastructure to create widespread employment, distribution of funds to localities, and investment in the public sphere.

There are at least two significant differences, however, between 1935 and the present. First, design and architecture are no longer integral to the package; and second, public infrastructure is no longer exclusively a public responsibility. WPA 1.0 employed artists and architects alongside builders and engineers, leaving a legacy of public works in the form of well-designed bridges, schools, auditoria, and parks. By contrast, the American Recovery and Reinvestment Act of 2009 is bare bones. The priority it gives "shovel ready" projects is an indication of the kinds of work valued this time around: that which is literally quick and dirty.

The privatization of public services has been expanding beyond reason. It is now common for governments to expect philanthropists to fund open space, neighborhoods to employ auxiliary security forces, and private developers to provide physical infrastructure. Even fire protection can be privately commissioned by individual households. When our sewers, roads, parks, schools, and internet access are provided by private entities, the problem is not that the quality isn't high enough; in fact, the quality is generally better than that of our publicly provided services. Instead, the problem is one of spatial justice: equal access, cost, and distribution. The best services are provided to communities of consumers who can afford the infrastructure or attract the attention of its producers. A new generation of public works—a WPA 2.0—can overcome this problem by getting the private sector to play fair and by bringing the public sector back into the game. Using all means available, we should require privately financed infrastructure to be more "public." On the other hand, we must not let this next round of infrastructure spending occur without leveraging the funds to do more than deliver mono-functional services. As such, we must rethink the works, the public, and the administration of WPA 1.0 to set the stage for a fresh generation of public works in America.

WPA 2.0

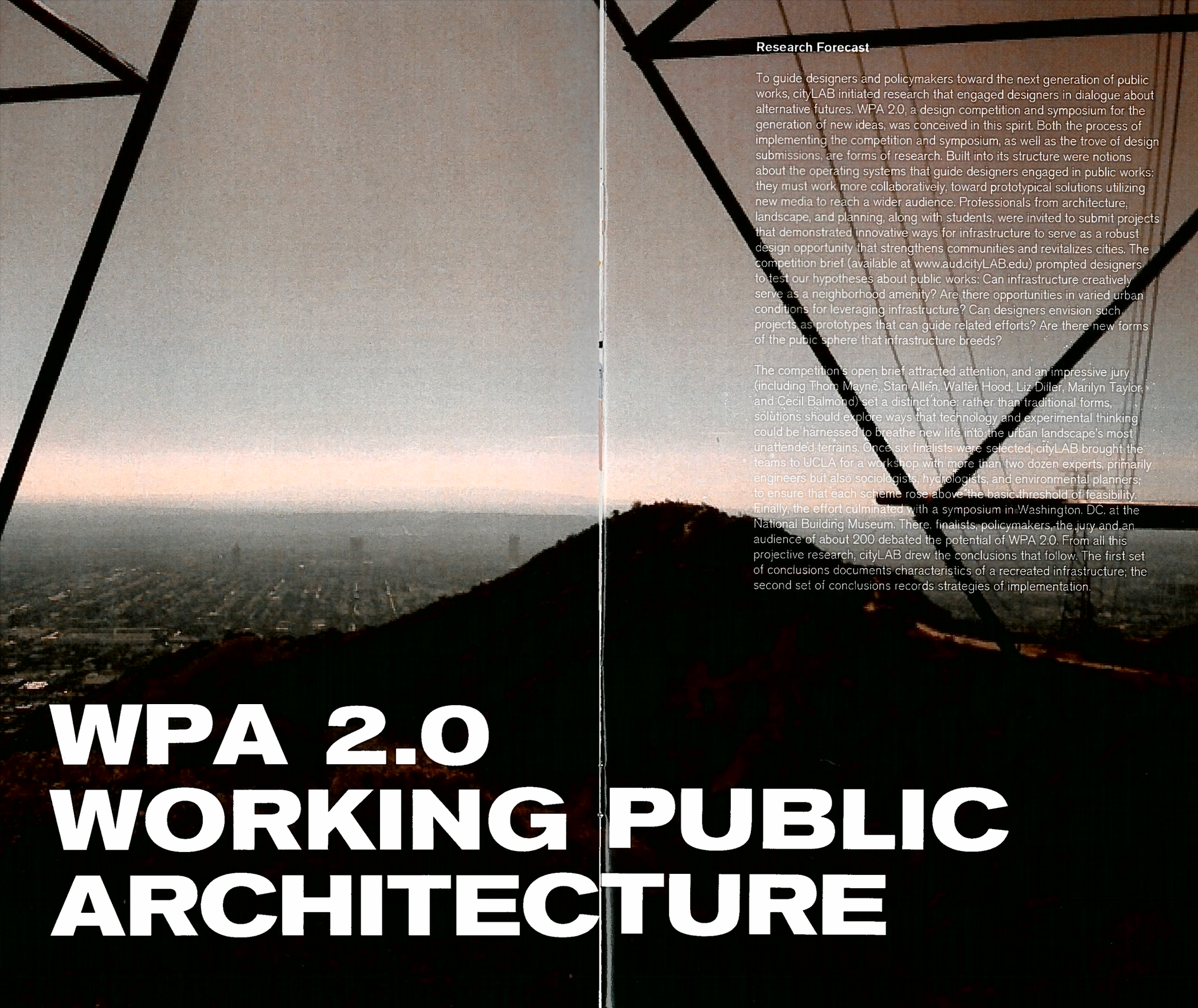
$17 billion
for energy efficiency & renewable energy

$100 billion for border security, fencing infrastructure and technology

$28 billion
for highway, rail and port infrastructure construction

$5 billion
for broadband

$150 billion
2009 ARRA contribution to infrastructure



WPA 2.0 WORKING PUBLIC ARCHITECTURE

Research Forecast

To guide designers and policymakers toward the next generation of public works, cityLAB initiated research that engaged designers in dialogue about alternative futures. WPA 2.0, a design competition and symposium for the generation of new ideas, was conceived in this spirit. Both the process of implementing the competition and symposium, as well as the trove of design submissions, are forms of research. Built into its structure were notions about the operating systems that guide designers engaged in public works: they must work more collaboratively, toward prototypical solutions utilizing new media to reach a wider audience. Professionals from architecture, landscape, and planning, along with students, were invited to submit projects that demonstrated innovative ways for infrastructure to serve as a robust design opportunity that strengthens communities and revitalizes cities. The competition brief (available at www.aud.cityLAB.edu) prompted designers to test our hypotheses about public works: Can infrastructure creatively serve as a neighborhood amenity? Are there opportunities in varied urban conditions for leveraging infrastructure? Can designers envision such projects as prototypes that can guide related efforts? Are there new forms of the pubic sphere that infrastructure breeds?

The competition's open brief attracted attention, and an impressive jury (including Thom Mayne, Stan Allen, Walter Hood, Liz Diller, Marilyn Taylor, and Cecil Balmond) set a distinct tone: rather than traditional forms, solutions should explore ways that technology and experimental thinking could be harnessed to breathe new life into the urban landscape's most unattended terrains. Once six finalists were selected, cityLAB brought the teams to UCLA for a workshop with more than two dozen experts, primarily engineers but also sociologists, hydrologists, and environmental planners, to ensure that each scheme rose above the basic threshold of feasibility. Finally, the effort culminated with a symposium in Washington, DC, at the National Building Museum. There, finalists, policymakers, the jury and an audience of about 200 debated the potential of WPA 2.0. From all this projective research, cityLAB drew the conclusions that follow. The first set of conclusions documents characteristics of a recreated infrastructure; the second set of conclusions records strategies of implementation.

Research Findings

In response to the WPA 2.0 call for submissions, designers from around the world submitted some 400 projects. The results are instructive: water issues dominate the field with projects reexamining ports, lakes, bays, rivers, canals, backyard swimming pools, waste water, rain water, water-as-fuel, reservoirs, and more. The projects support common wisdom that water is the new oil. At the same time, design teams are drawn to the formal opportunities water presents. Once infrastructure is destabilized (say, by the addition of program which intrinsically displaces infrastructure's single-function logics), landscape solutions most often take hold. New conceptions of parks, environmental mitigations, and open space offer the city an alternative nature. The brief calls on teams to reimagine green strategies. Among the most productive responses is radical recycling, like converting salvaged freighters into new floating neighborhoods or the border wall with Mexico into a solar energy array. A clear focus for infrastructural design is the repurposing of underutilized, misused, or moribund urban spaces, with end-of-oil scenarios dominating this category. The advent of more efficient vehicles induces designers to reconsider roadway infrastructure, as do reconceived freeway interchanges, inhabited underpasses, and parks decked over highways. A related group of submissions reconfigures the post-suburban condition so that decommissioned post offices or obsolescent strip malls take on new neighborhood roles. From WPA 2.0, we draw seven general conclusions about infrastructure's potential (explained on the following page): Double Duty, Common Ground, Make It Real, Give Back, Local Adaptation, Eco-Economy, and Design Prototypes. In addition, WPA 2.0 generates a second set of conclusions about strategies for action.

SEVEN CRITERIA FOR NEW INFRASTRUCTURE

1 **Double Duty.** New infrastructural solutions adopt roles beyond their single purpose as conduit or distributor. Instead, hybrids combine multiple programs, as when roads move traffic and produce energy or the Mexican-US border fence secures the frontier as it collects solar power and scarce rainwater. When public works do double-duty, it is not only more efficient and economical but more embedded in its context.

2 **Common Ground.** Infrastructure is the new public domain. At least one if not all functions can encourage more robust collectivities, from the local, neighborhood-specific scale to that of the larger region. This shared terrain is a condenser of public life, where we build the cultural and political networks of civil society.

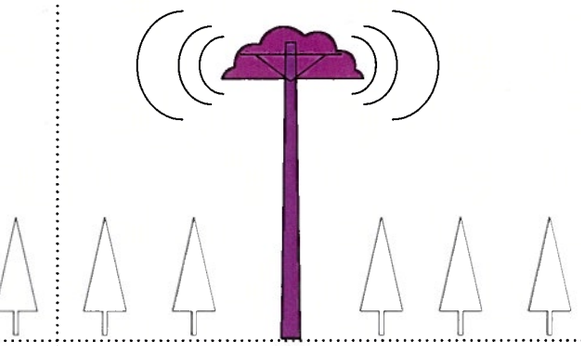
3 **Make It Real.** Most of us only become aware of our essential infrastructure when it breaks down because the systems of water and food supply, for example, are opaque to consumers. The next generation of services should be indexed above ground, so that people see how the city works. By making it real, communities acknowledge responsibility for resource consumption and for the common ground.

4 **Give Back.** To garner support, public works must do more than simply deliver a service: they must give back to the communities they serve. Storm water channels should provide bike lanes and transit links; a public space should be used to grow food and temper the local micro-climate. Infrastructure is an untapped resource that can be productive as well as instrumental.

5 **Local Adaptation.** Infrastructural functions, rather than being centralized, must be dispersed and woven into the urban fabric. When energy or food production happens at a local level, the "make it real" principle is achieved, a common ground is established, and communities own their infrastructure. Local public works are no longer one-size-fits-all but are flexible in terms of use and adaptable over time and space.

6 **Eco-Economy.** Ecological economies prioritize the use of existing resources as not only more sustainable than starting over, they also preserve historic markers. Existing and future infrastructural networks are central to cities' new eco-economies. In regions around the world, new infrastructure turns what appears to be blight to good use through recycling, reclaiming, and revitalizing.

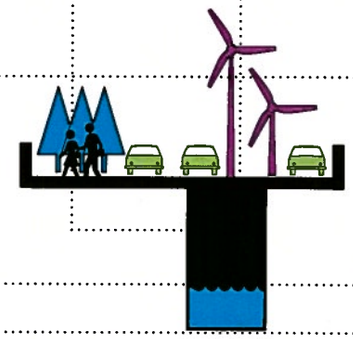
7 **Design Prototypes.** New infrastructure leverages design to create prototypes of working public architecture. In addition to creating an expanded public sphere, design expertise brings renewed attention to human occupation and the aesthetics of infrastructure. The strongest interventions demonstrate at a local level the advantages of a robust infrastructural urbanism and serve as models for other settings.



REINVENT: conceiving previously non-existent forms of infrastructure.

RECYCLE: finding new purpose for a structure or facility that has become abandoned or obsolete.

REVITALIZE: hybridizing infrastructure with multiple purposes.



FOUR STRATEGIES FOR ACTION

The WPA 2.0 projects provided another set of conclusions: the common strategies that designers used to create new public works. We discerned four distinct methods among the projects: reinvention, recycling, revitalization, and restructuring. These strategies emphasize the ecological basis for new public works. To commence work on the next generation of infrastructure, cities must recognize the systemic importance of infrastructure as public domain, and designers together with communities and policymakers must adopt infrastructure as a legitimate project.

RESTRUCTURE: reconfiguring the city in a strategic way to make the city, its infrastructure, or both more productive.

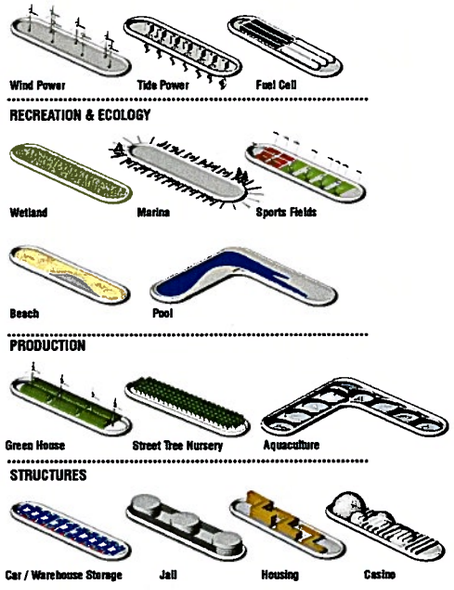
REINVENT

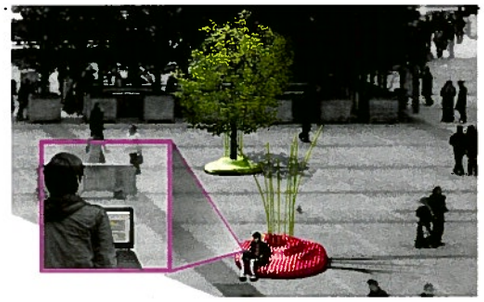
With new technologies and services comes the necessity for new infrastructures; these require the reinvention of civic space. Infrastructure 2.0 is a response to new problems, problems or sites that were previously not considered infrastructural, or persistent problems drastically reconsidered. According to our design research, reinvention projects respond to three emerging needs: expanding use of technology, climate change, and increases in demand from contemporary settlement and growth patterns. Many respond to two or more of those new needs in conjunction. They include a range of both soft (institutional) and hard (physical) infrastructure as well as the incorporation of both low and high technologies.

PIPELINE
Marcel Wilson

Seventy-five percent of the US population lives in coastal areas that will be affected by rising sea levels resulting from—and aggravating—a changed global climate. This project, proposed in a case study for San Francisco, argues that an adaptable pipeline is key infrastructure for a new system. It not only responds to the anticipated disaster of 55 inches of sea rise but also redirects now unproductive, if not destructive, sedimentation and dredging operations to provide materials in support of threatened areas. In addition, the new pipeline infrastructure creates a system of flexibly sized, movable flotillas used for everything from sports fields to jails. In the event of an emergency, like the 2010 Gulf of Mexico oil spill, the pipeline could also be configured in a disaster response mode as a conduit for evacuating spills to settling ponds.

INFORMATION: SMLXL/KMGT





Petrakos Constantinos, Spathis Loukas

Constantinos and Loukas's Information: SML/KMGT (kilo, mega, giga, tera) combines our attachment to the digital world with social spaces in the material world. In support of this highly plugged-in society, the new "digital earth plane" allows data to move rapidly from user to user. Added connectivity makes outdated urban spaces more useful and, therefore, more attractive than other public places. The project involves environmental sensing, evaluating existing connectivity in the city and bridging any gaps with added digital resources. Infrastructural wi-fi pods are installed in zones that currently lack digital interactivity. The pods also produce wind and solar-generated power, include electrical outlets for recharging peripherals, and possess weight-sensitive sensors that identify the presence of a wi-fi user. In turn, network availability is mapped (as shown in the top image above) and anyone with internet access can locate digital "trees" with suitable charge and availability.

SCRAPYARD: CITY OF REUSED WASTE
Dennis Maher, Paul Dudkowski, Dan Stripp, Michael Bailie (see below)

Scrapyard: City of Reused Waste turns the vacant lots of shrinking US cities into sites for new infrastructure through radical recycling. Assembled from reclaimed and salvaged refuse that otherwise would contribute to the growing problem of solid waste disposal, these sites become new social, recreational, and food production locations. Based on a case study in Buffalo, NY, which hosts 16,000 vacant properties and 10,000 houses in line for demolition, a not-for-profit architectural salvage yard like Buffalo ReUse serves as the seed for community-generated urban reconstruction. As stated by the design team, "In contrast to the massive, labor-intensive, economically ambitious projects that typified the WPA era of American infrastructure, this project proposes a restrained, scavenged infrastructure of material economy."

REVITALIZE

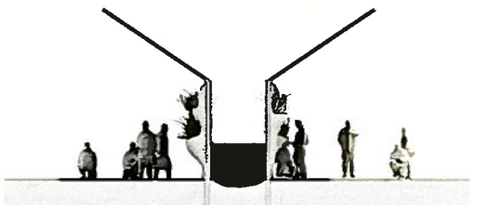
To revitalize infrastructure is to combine multiple platforms and functions to achieve higher returns socially, spatially, economically, and ecologically. Revitalized infrastructure hybridizes forms of infrastructure (water treatment and energy production, for example) or combines non-infrastructural and infrastructural functions (restaurants and security along national borders). Like other forms of infrastructure 2.0, revitalizing hybrids often include in their mix new public spaces, inviting local residents to participate actively in the construction of the city.

HYDRO-GENIC CITY 2020

aeroshop: Darina Zlateva, Takuma Ono

A proposal for Los Angeles, Hydro-Genic City 2020 transforms traditional water treatment facilities into hybrid urban nodes of water reclamation, recreation, energy production, and transit. Capitalizing on the latent utility of the Los Angles River, currently reduced to a storm water channel, the project reimagines linear infrastructure in a way that generates greater environmental awareness of water's seasonal fluctuations and its shrinking supply. This decentralized network of wastewater reclamation centers is both environmentally friendly and formally compelling. Each reclamation center provides a sustainable water source to the city while the mechanics of waterworks are transformed into a series of interactive and sensual public nodes. As mist platforms, solar-encased water tanks, urban beaches, aquatic parking lots, reflecting pools, and channels, water-based

landscapes become organizational moments for community building.



BORDER WALL AS INFRASTRUCTURE

Rael San Fratello Architects: Ronald Rael, Virginia San Fratello

Border Wall interrogates the most expensive infrastructural investment per mile in the US. The monolithic security fence between the US and Mexico might make more of those dollars by expanding the wall's function to include hybrids of national security with alternative energy production, water capture and distribution, bicycle and pedestrian transport, and cross-border, bi-national cultural facilities like libraries. The wall, at such a price, should and could be thought of not only as reducing risks to the nation's security but also as a productive borderland ecology, sowing the seeds for better local, cross-border relations. Coupling the wall with other viable infrastructures is a pathway both to more generative investment and to a Jane Jacobs-like "eyes on the border" philosophy that promotes neighborliness by attempting to build more secure, safe, and well-functioning border communities.

R_IGNITE

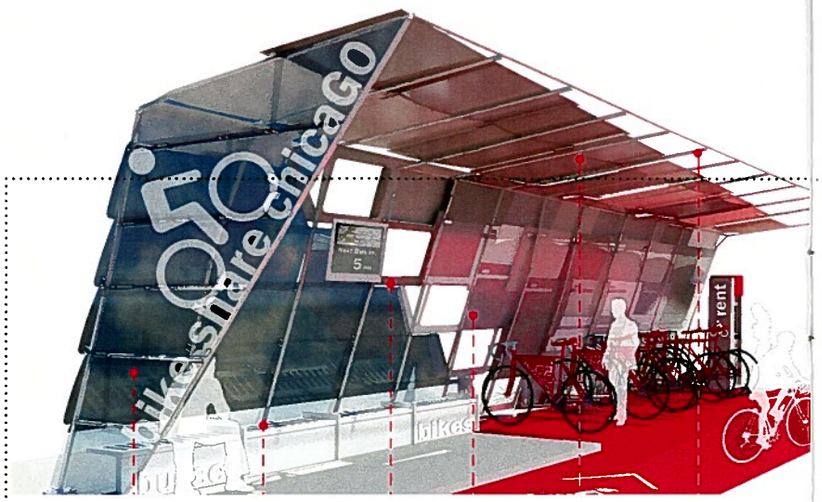
Peter Millar, Andy Wilde, Jamie Potter, Stuart Wheeler

Re-Ignite is a socio-economic catalyst for the revision of ailing post-industrial port towns. This project revitalizes port cities by utilizing their now redundant industrial infrastructure as locations for the recycling of decommissioned ships and oil rigs. Here these industrial remnants are intertwined with social programs, incorporating ecology, energy production, skills development, education and leisure, and along the way greening both the shipwrecking industry and port towns in need of revitalization.

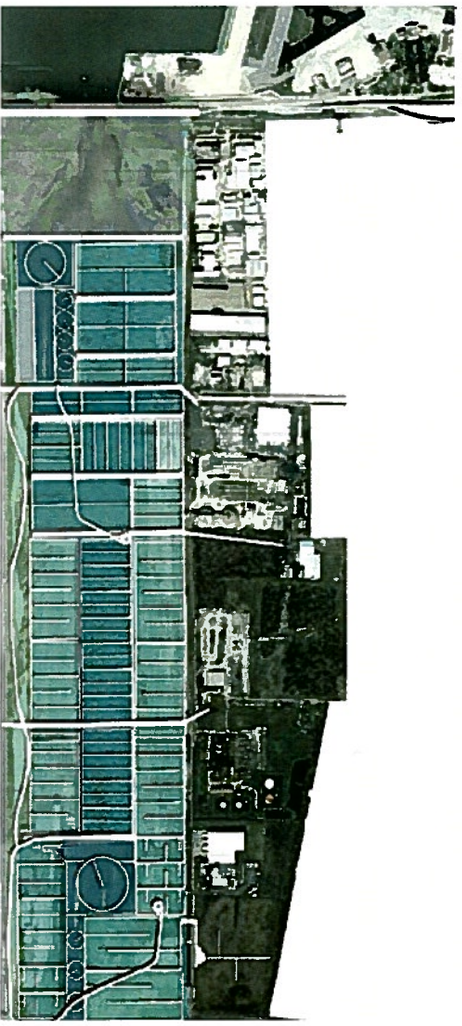
COUPLING INFRASTRUCTURE

Lateral Office: Mason White, Lola Sheppard

Coupling Infrastructure addresses America's impending water-resource crisis while creating new economic opportunities and restoring the ecological balance of sites like California's Salton Sea. To replace the last century's audacious water management infrastructures, this proposal demonstrates a robust, multi-pronged alternative. It reconceives the Salton Sea, an increasingly dire ecological disaster southeast of Los Angeles, as a sustainable biome that is simultaneously a renewed, interactive, recreational destination and an economic catalyst for the region. In addition to sites for canoeing, swimming, and sailing, buoyant pools are variously equipped to attract migrating birds, passively separate water and salt, or grow aqua-crops, generating a new regional economy.



RECYCLE

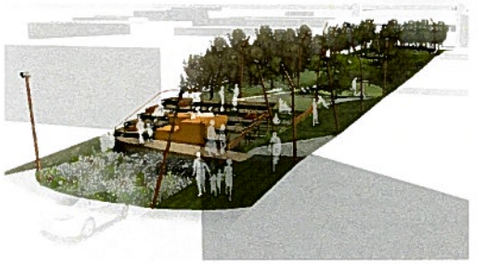


Our urban landscapes are littered with abandoned, underutilized, and obsolete systems making recycling a requisite strategy for designing next-generation infrastructure. Importantly, much of this infrastructure remains within the space of the public's domain. Unlike the "reinvent" tactic (which is based in new forms of infrastructure) or the "revitalize" tactic (which is centered in the hybridization of infrastructural programs), the "recycle" tactic takes the old, outmoded, or under-utilized object, system, or space and replaces it with a new, viable alternative. In the analysis of the WPA 2.0 proposals, recycle projects span from the adaptive reuse of declining systems like the postal service to the transformation of abandoned sites like underutilized piers, abandoned rights-of-way, and low-traffic waterways.

CASH FOR CLUNKERS: BIKE SHARING FOR CHICAGO

Matt Moore

A literal form of recycling, Cash for Clunkers: Bike Sharing for Chicago (see above), turns auto parts (from the 690,000-plus cars remitted in 2009 through the Cash for Clunkers program) into sheds for bike sharing. A material surplus is recaptured rather than placed in landfills and provides an abundant, low-cost kit of parts for the construction of new types of transit nodes. In addition to the actual reuse of materials, the project exchanges non-sustainable automobility for a more conscientious form of urban travel: biking. Bike sharing, in addition, promotes the use of communal rather than individualistic resources, hence recycling the object for repeated use.



AQUACULTURE CANAL_NEW ORLEANS

Fadi Masoud

Aquaculture Canal_New Orleans (image far left) takes a dangerous and abandoned portion of the Industrial Canal where Lake Ponchartrain meets the Mississippi River and transforms it. These industrial canals, littered with hazardous rubble, are currently slated to be closed and filled by the Army Corps of Engineers. This is not only a costly endeavor but one that would remove for the long-term a potential source of flood protection, new economies, revitalized ecologies, recreation, and community life. Rather than shuttering the site, this proposal recycles the Industrial Canal into a series of levee ponds that operate both as a flood protection mechanism from storm surges and a productive infrastructure for aquaculture. Significantly, the site is also returned to the community rather than taken by the government, allowing for both grassroots engagement and local direction for community rebuilding.

LOCAL CODE: REAL ESTATES

Nicholas de Monchaux & collaborators

Local Code: Real Estates (left and above) uses geospatial analysis to map the numerous publicly-owned yet abandoned lots and rights-of-way plentiful in every major US city. Using San Francisco as a prototype, 1,625 "unaccepted streets" are identified through the city's Department of Public Works database then situated within the specific, social, economic, and demographic contexts of the neighborhoods in which they are located. Currently these litter-filled, residual spaces are impassable by traffic and unusable by pedestrians. Local Code: Real Estates utilizes a combination of parametric design and citizen participation to recycle these abandoned properties into neighborhood-specific, environmentally active park spaces. In addition to being shared, community space, remediation activities also work to take pressure off older, more traditional infrastructure systems by returning natural permeable surfaces to the city and planting them with vegetation that reduces heat load and increases storm water absorption and dispersion.

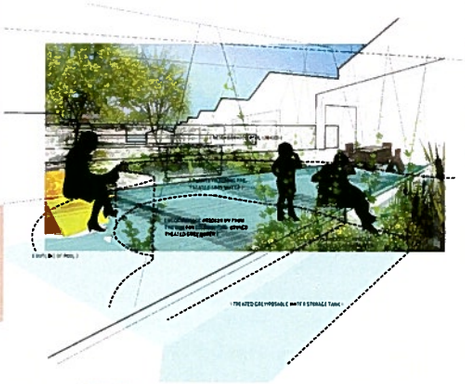
RESTRUCTURE

Restructuring takes a larger view of a city, a region, or a system and alters a fundamental assumption about its organization in terms of infrastructural needs. At the scale of the neighborhood, this could include the reconsideration of amenities such as water collection or food production that might occur more effectively at a local level. Systems of mobility and energy get restructured at the scale of the city to adapt to changing demand or shifting populations. Regionally, the balance of resources might encourage the redistribution of industry, population, or production. At all scales, restructuring radically reimagines the traditional collection and distribution of infrastructural services. Water plays a large role in these restructured projects as traditional views of water management, capture, and distribution prove outmoded in this new era of more limited resources.

SWIMMING POOL 2.0

Vivian Ngo, Julia Siedle

Swimming Pool 2.0 addresses the growing scarcity of potable water by transforming ecologically wasteful backyard pools into a smart greywater grid. Using Arizona as a test case—a state where water consumption largely exceeds the rate at which the resource can be renewed—a community-scale, smart greywater grid is developed by linking a series of private swimming pools that attempt to balance greywater production and consumption. These "iPools" maintain the evaporative cooling function of the original



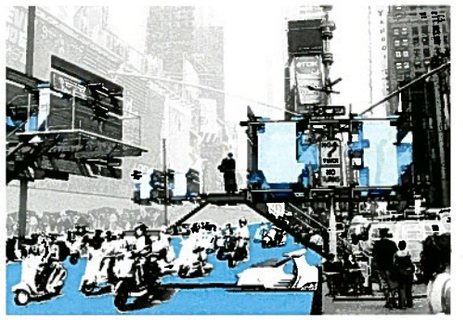
pools and also work as water collection and retention ponds.

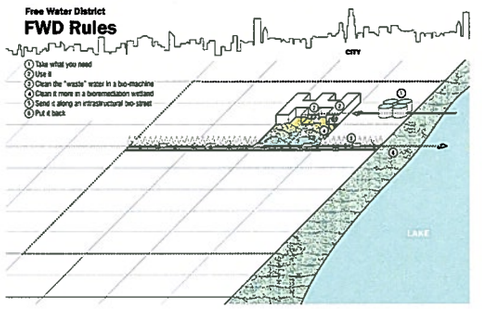
Because this strategy can function beginning with a single residence, the project puts infrastructural change in the hands of the individual homeowner. As additional households within a block or community further implement the systems, filtration abilities increase, ultimately turning greywater to potable water when Swimming Pool 2.0 reaches the scale of community infrastructure.

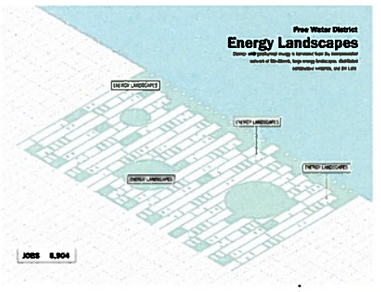
WATER FUEL: A WATER FUELED SCOOTER NETWORK

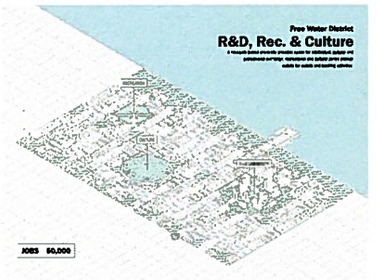
Seth McDowell, Rychiee Espinosa

Water Fuel rejects the conception of infrastructure as discrete by creating a holistic water system based on the water scooter as the generating module. The new system links fuel-producing water mats (floating, round, raft-like objects that create a new occupiable landscape) with water fuel stations, public toilets, and recreational sites distributed across Manhattan. The primary objective of the network is to provide transportation alternatives to New York's overcrowded subways and expensive taxicabs. Select lanes are devoted exclusively to water scooter traffic, identified by water charging stations that are also a new infrastructure of public toilets, showers, and drinking fountains. These public facilities then provide the greywater necessary to fuel the scooters. The stations are supplemented by the mats placed at the shoreline, creating recreational beaches as an additional amenity of water fuel production.









FREE WATER DISTRICT

UrbanLab: Sarah Dunn, Martin Felsen

Combining the Rust Belt's loss of population with its abundance of fresh water, Free Water District outlines a strategy for re-densification of underutilized post-industrial landscapes by creating urban zones based on an abundance of free water. These new free water zones are organized with a grid of water-based bio streets that capture, clean, and return storm and waste water to the Great Lakes (see above and bottom left). Dispersed within the grid are "energy landscapes" that harvest geothermal energy and constructed wetlands that naturally remove contaminants from the circulating water of the bio streets. A variety of water-intensive industries (high-tech, pharmaceutical, and apparel for example) are drawn to these districts where a new ecofriendly industrial zone begins to develop. By pairing shrinking cities in the Midwest with water-shortage cities of the Southwest, this proposal restructures supply and demand relationships at the national scale.

Economic competitiveness, environmental sustainability, and opportunity: those are the building blocks of this conversation.

We need to rebalance our priorities. We understand what we do here has implications worldwide. The challenge that you're responding to—to take old, tired, and under-used infrastructure systems that were relevant to another time and have fallen to the waste side—is critical work for the future of cities. It's a very important contribution to this longer and larger discussion, and I congratulate you for really thinking outside the box. We need more people in this conversation. We also need to educate Congress about this. I encourage you to be part of that conversation, to agitate as much as you can.

I look forward to looking back 20 or 30 years from now and saying, "This generation took a pause, and took the time and the effort to change direction." I invite you to continue to be engaged as activist planners, activist architects, activist engineers, activists. You don't have to convince the administration. We're set. We're on course. Help us activate this discussion.

-- Adolfo Carrión, Office of Urban Affairs, speaking at the WPA 2.0 symposium in Washington, DC, November 2009

The High Line was a miracle of coincidence: two transdisciplinary practices came together during a great political moment in New York with encouragement from citizen activists. If you don't have a willing and strong combination of forces, projects like the High Line don't easily happen. Stepping into the political realm is very, very important. Having, for the first time, some representation at an advisory level to the government is a miraculous feat and a big responsibility.

-- Elizabeth Diller, Diller Scofidio + Renfro

The social ecology of the city is notoriously ruthless and indifferent: only those who can adapt and innovate survive....Design has a transformative, activating agency.

-- Stan Allen, Dean, Princeton University

Rather than commodity, firmness, and delight, [redacted]'s three new tenets are opportunism, hybridity, and invention.

-- Dana Cuff, Director of cityLAB

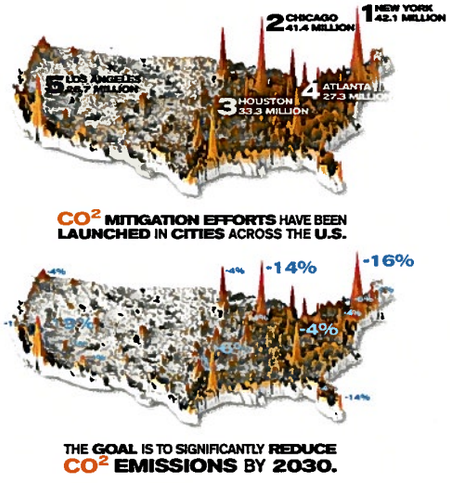
INFRASTRUCTURE 2.0

WPA 2.0 SYNTHESIS

CARBON T.A.P. // TUNNEL ALGAE PARK

PORT Architecture + Urbanism

PORT's winning proposal for the WPA 2.0 competition invents a new form of infrastructure that includes most of the tactics and all the criteria necessary to create infrastructure 2.0. Part bridge, part recreation space, part bio-fuel production, this project takes the normally undesirable carbon-dioxide exhaust from vehicles traveling the Brooklyn-Battery tunnel, beneath the East River, and uses it as the instigator for a new, active, productive, and beautiful public space, altering how New York City's riverfronts are conceived.

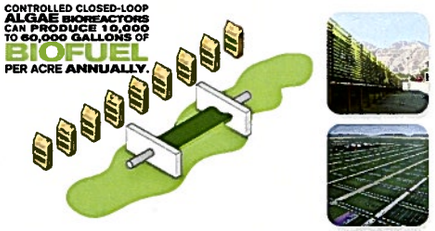


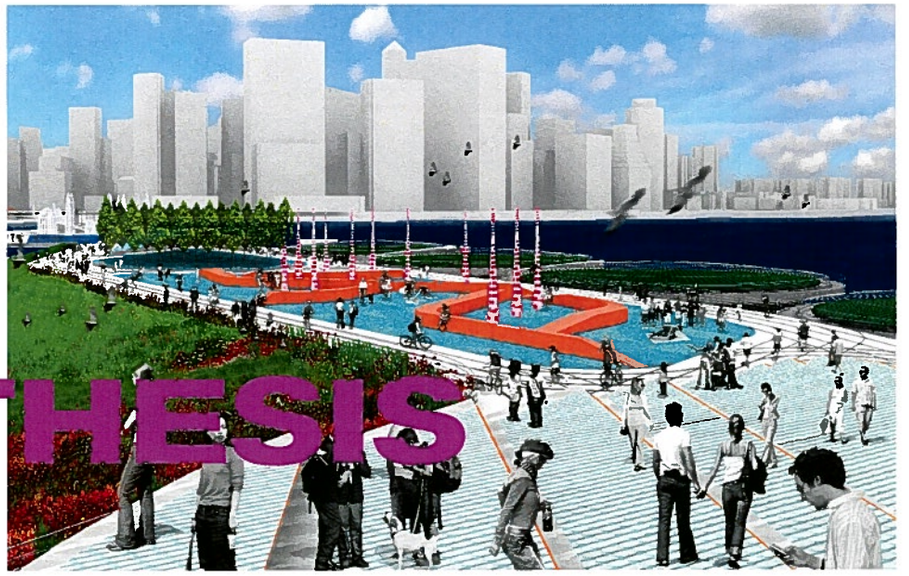
The project proposes building algae pontoons to capture mobile-source emissions and employs them in bio-fuel production. The pontoons are connected to create an urban park with structured wetlands, aquatic and avian habitat, recreation amenities, as well as high-speed bike lanes and public promenades. The result, as the jury notes, is a dramatic reinvention of the urban waterfront through the leveraging of innovative infrastructure; for this Carbon T.A.P. won the WPA 2.0 design competition.

Says PORT of their winning proposal:

"What is unique about this proposition is not just the introduction of large-scale, green infrastructure in the context of a city but rather the use of this infrastructure to create an exceptional, public-realm amenity for the city. Rather than considering urban infrastructures as necessary evils only to be hidden or mitigated, we view the renovation and re-imagination of these systems as opportunities to create new forms of civic and social domain that have the capacity to positively transform the American urban landscape.

Our proposal is for a new infrastructural typology that is one part climate action, one part agricultural production, one part ecological preserve, one part public realm, and one part economic catalyst. It represents what should be the aspiration for all newly deployed urban infrastructures: the ability to fundamentally improve the economic and social quality of a city as well as the associated lives of its current and future residents."





The floating, carbon-capturing bridge between Brooklyn and Manhattan would be a visible marker for the tunnel hidden below, and the periodic rotation of the parkway across the river has the power to reshape the image of the city.
- Thom Mayne, Morphosis

Carbon T.A.P. exemplifies a degree of infrastructural reinvention powerful enough to argue infrastructure 2.0's transformative capabilities. The proposal is notable for strong, site-specific development supported by a clear, simple idea—finding a way to turn abundant waste into productive space—with universal implications.

cityLAB PROTOTYPE

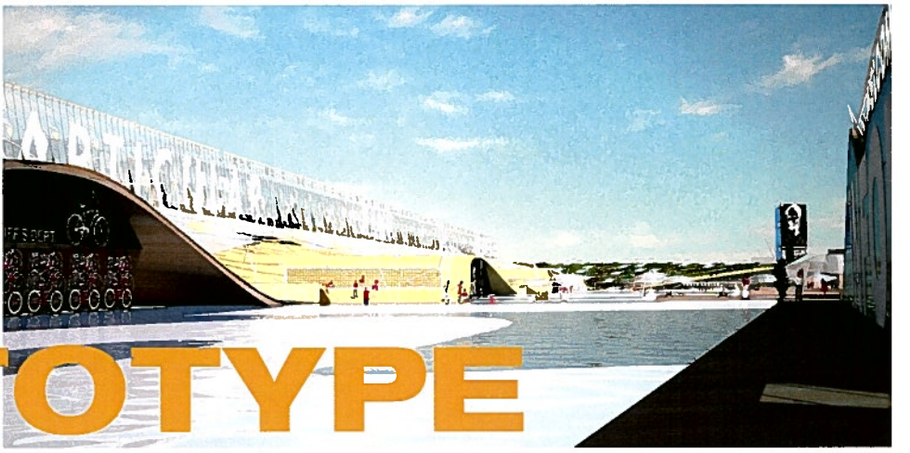
PLAYA ROSA
South Los Angeles, CA
Roger Sherman Architecture + Urban Design for cityLAB

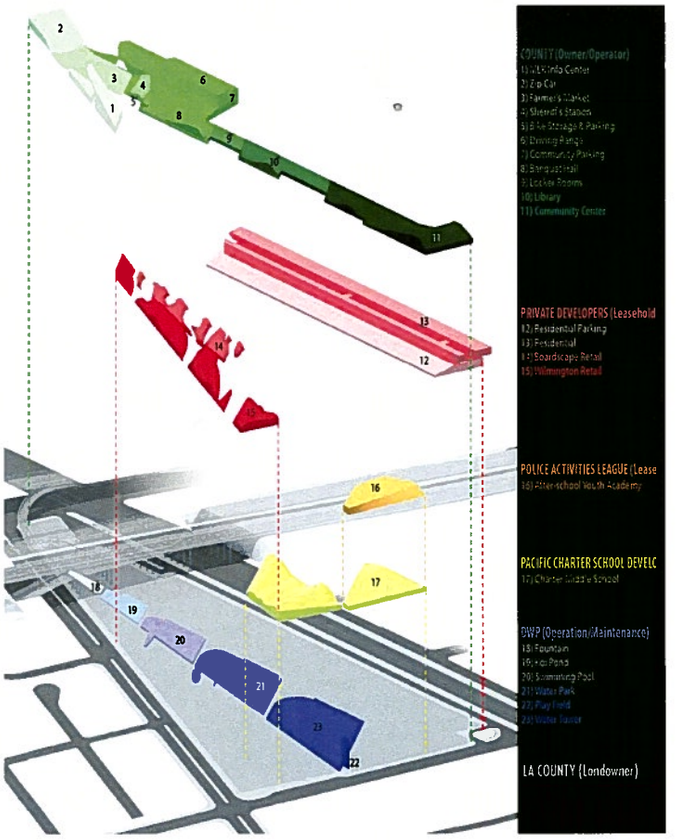
An outgrowth of the WPA 2.0 ideas competition and symposium, Roger Sherman Architecture + Urban Design's Playa Rosa demonstrates the potential of architecture to leverage Federal infrastructure investment towards urban revitalization in a post-sprawl era.

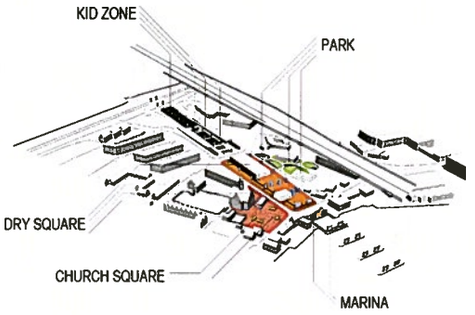
A consolidated, all-purpose, public service hub, the project is located on a 15-acre site in South Los Angeles currently occupied by a failing commercial center. It is adjacent to a major transit node, the Rosa Parks Station. Playa Rosa exploits organizational and morphological synergies between conventionally defined, single-purpose infrastructures (power distribution, stormwater collection, and transit) and a parallel set of social ones associated with health and wellness (healthy food sources, fitness landscapes, and safe havens for at-risk youth). New infrastructure offers the surrounding South Los Angeles neighborhood an alternative ecological future. Among its other benefits, the project collects, stores, filters and recycles storm water, mitigating a 30-block area's vulnerability to the severe flooding that results from the choked capacity of a debris-filled Compton Creek. Social programs address the needs of a community that suffers from a range of health inequities, including a high rate of childhood obesity, despite having nearby King/Drew Medical Center as its major employer.

Playa Rosa is both conceived and designed as a catalyst. It achieves "critical mass" not by relying upon the sometimes falsely "public" status of infrastructure for its drawing power but rather by deploying infrastructure in the service of a larger social scenario—in this case that of an urban beach. Both unprecedented and multivalent, this beach—like the actual one 10 miles to the west that is removed from the everyday life of South LA residents—cuts across existing social and economic divides, undermining previous models of identity politics and special interest. In an at-risk urban area, it may be thought of as an "open enclave", potent with the possibility for social and environmental justice.

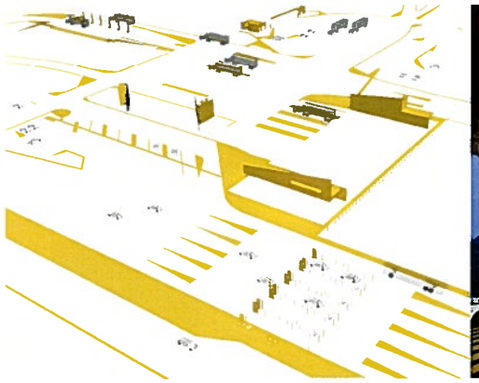
Playa Rosa's design strategy calls for that part of the project that is Federally-funded (water reclamation, childcare center, library, and pool) to become the "bait". That bait attracts private investment (green grocer, workforce housing, and charter school). The two are natural complements and necessary components of Playa Rosa's architecture-cum-business plan.







NL Architects : A8ernA Reclaimed space under the A8 highway relinks a divided city near Amsterdam with public spaces that include skateboard bowls, 'barbecue cave', playgrounds, graffiti gallery, flower & fish shops, loveseats, light art, and mini-marina.



Smith-Miller+Hawkinson : US Land Port of Entry, Massena, NY This border crossing replaces a dilapidated bridge and inefficient traffic circle with a reappropriation of the 54-acre site where buildings and roads are carefully integrated into native and new wetlands and color is the universal language of seamless mobility.

Diller, Scofidio + Renfro with Field Operations : High Line This widely publicized project adapts an abandoned rail line in Lower Manhattan to include public spaces like a linear park, sun decks, gathering spaces, overlooks, theaters, gardens, picnic spots, jogging and strolling paths, and art installations.

The Future of Public Works

As evident in the preceding pages, built and unbuilt projects portray a new model for urban infrastructure: a more public hybrid that resonates at the local level with multiple programs and a strong ecological orientation. While the unbuilt works illustrate visionary ideas, the built works (see previous page) demonstrate that a WPA 2.0-style infrastructure is feasible. Landmark legislation at both state and federal levels forwards relevant environmental planning goals for infrastructure, but thus far design quality and the collective domain are not part of the discourse. Discussion about these absences arose in the National Building Museum symposium, pictured on pages 24 and 25. As Adolfo Carrión (then Director of the Office of Urban Affairs) put it, to expand the agenda for public works will require political activism. Architects, planners, landscape designers, and policymakers need to expand their work worlds to include the political context, particularly when it comes to infrastructure.

To take but one example, consider the high-speed rail network that is proposed nationwide. Not since the federal highway program of the 1950s has the potential for such a systemic restructuring been realized. Now is the time to demand more from this next generation of infrastructure. Station design and land use planning are only the start: the urban form of station areas can be designed to reinforce local identity and the vitality of communities; the rail lines can be paired with long-distance bike lanes, recreational systems, and wildlife corridors; an urban "knot" of housing, services, and commercial can integrate the rail segment into the larger region.

High-speed rail, like port renovations, airport upgrades, storm water systems improvements, and railyard redevelopment, are potential zones where infrastructural urbanism can take hold. Transit-oriented districts and smart growth–watchwords today–lay the groundwork for more proactive, innovative design of Working Public Architecture 2.0 and the next generation of cities.