architect in the community issue 10.2

arcCA

architecture california
the journal of the american institute of architects
california council

Oakland Museum of California, 1969,
Kevin Roche John Dinkeloo and Associates;
2010 Renovation and Addition by Mark Cavagnero Associates

THE FUTURE OF CA

California's Crisis as a Design Problem

Does Legislation Really Matter?

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Content

Cover photo: Tim Griffith

arcCA, the journal of the American Institute of Architects California Council, is dedicated to exploring ideas, issues, and projects relevant to the practice of architecture in California. **arcCA** focuses quarterly editions on professional practice, the architect in the community, the AIACC Design Awards, and works/sectors.

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Comment

This issue of **arcCA** is devoted to the modest topic, "The Future of California"—hell, we have forty whole pages to work with! Just to be on the safe side, however, we have narrowed our focus to five topics—governance, environmental justice, transportation, water, and the new CALGreen code—and for each we've attempted to identify instances in which the big issues intersect the everyday work of architects.

Speaking of governance, I've just returned from the AIA Convention in Miami (one word: warm), where the Congress of Residential Architecture (CORA) presented Resolution 10-4, to address "a long term drift of the profession away from social relevance and public credibility." The resolution sought AIA support for eight distinct propositions, which I haven't space here to discuss. (The resolution can be found in the convention's Official Delegate Information Booklet, available at:

http://www.aiaconvention.com/AIA2010/public/Content.aspx?ID=73&sortMenu=105002

The Position Paper on which it is based is available at:

http://coragroups.org/forum/viewtopic.php?f=3&t=1087

It is not surprising that the resolution failed in this aggregate form; it would have made more sense and been more useful as a tool for gauging sentiment if the propositions had been presented as separate resolutions. Not surprising, but unfortunate, as the resolution contains valuable observations and recommendations.

At the heart of the CORA initiative is the issue of public credibility, and the insights behind it are profound. In my own words, those insights are that architecture is fundamentally local; that of all building types, people best understand houses, which are therefore an essential starting point for nurturing public appreciation of architecture; and that the profession—not just the academy—has lost touch with public consciousness.

We complain about the irrelevancy of much of what takes place in the academic design studio, which is, by and large, decidedly not "design for the other 90%," to borrow the title of the recent Cooper Hewitt exhibition. But neither is much of what the profession most applauds, through our press coverage and design awards, which by their nature are equally elitist. In a country of 300,000,000 people, we devote our collective attention to at most a couple of hundred buildings a year—mostly ones most of us have not visited. Some are good, some we will look back on in twenty years with dismay.

It may at first appear paradoxical, but it makes sense if you stop to think about it, that the largest scale of our professional organization—AIA National—is the most inward looking. Ask yourself two questions: "How many buildings can I intelligently discuss in common with fellow practitioners locally? How many can I intelligently discuss with colleagues nationwide?" Our colleagues in Boston know nothing of the excellent but not nationally applauded buildings constructed here in California. How could they? The national level of discourse becomes, willy-nilly, the most select, the most elite, the most isolated from what matters to our neighbors on the ground. What's true of buildings is true of policy, of practice, of many things.

Accordingly, the element of Resolution 10-4 that most appeals to me is this one: "that the AIA . . . re-allocate its national budget to facilitate regional gatherings, versus national, by streamlining its headquarters staff and downsizing its national committee structure." It would have been really interesting to see how the component delegates would have voted on this point, by itself.

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Karen Fiss, PhD, is an associate professor of Design and Visual & Critical Studies at California College of the Arts. With digital media artist Peggy Weil, known for her "serious games" on political issues, she taught a Spring 2010 Contemporary Issues studio exploring how designers can help solve some of California's worst legislative and political problems. Her most recent book is *Grand Illusion: The Third Reich, the Paris Exposition, and the Cultural Seduction of France,* published by the University of Chicago Press (2009). Her current research examines the impact of nation branding on the social and built environment of South Africa and other emerging economies. She may be reached at kfiss@cca.edu.

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THE CALIFORNIA CONSTITUTION

SOFT, STRONG AND ABSORBENT

OUR CONSTITUTION DOES NOT SET UP
A SYSTEM GEARED TO SUCCESS; IT SETS
UP A SYSTEM THAT GUARANTEES FAILURE.

California's Crisis as a Design Problem

Karen Fiss, PhD

The Golden State isn't looking so golden these days, despite the fact that it is still the eighth largest economy in the world. California's physical and social infrastructure is crumbling: its water system is on the verge of collapse, its transit network is the worst in the country, its social welfare net is being gutted, its prison system is overflowing, and its public K-12 education system ranks among the lowest in the nation. The state's budget deficit, which started at $20 billion at the beginning of the year, will likely increase given the recent news that state tax revenues collected in April were unexpectedly low. Because the government already made severe cuts to programs last year in an attempt to close the deficit, the additional cuts this year are sure to be devastating. According to the US Census, California already has one of the leanest public workforces in the country. Governor Arnold Schwarzenegger's newest revised budget plan doesn't just reduce spending further, it eliminates entire welfare programs, including those providing assistance for families living below the poverty line. The governor also proposes further cuts to education, a system already at its breaking point. Are you a graduate of a Cal or Cal State institution? Your alma mater has seen cuts of 20–30%. Tuition has increased 50% since 2002 while aid to students has been reduced 50%.

How did we get here?

The answer isn't simply the inevitable trickle-down of worldwide economic woes. California created the blueprint for its own demise decades ago, and we're now seeing the dramatic culmination of these ill-conceived measures. More than ever, the state is in critical need of a fundamental redesign.

At the heart of the problem is California's system of government. California is the only state in the nation that requires a "supermajority" to pass legislation concerning budget and revenue. In 1933, California voters imposed the 2/3 rule to pass a budget, and in 1978, Proposition 13 added the 2/3 requirement for raising taxes. As gridlock has become the norm thanks to increas-

Tzui Lien, "The California Constitution: Soft, Strong, and Absorbent"; all images are of projects by students in Karen Fiss and Peggy Weil's Spring 2010 Contemporary Issues studio at California College of the Arts, exploring how designers can help solve some of California's worst legislative and political problems.

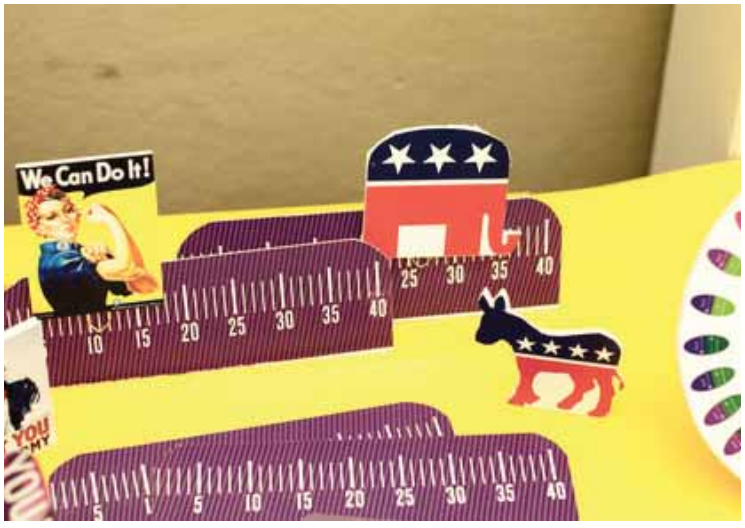
ingly polarized party politics, the supermajority system means that California ends up being controlled by a small conservative minority. If a 2/3 vote is necessary in both the Senate and the Assembly to pass any tax or budget, just a few senators or assemblypersons can hold the state hostage by demanding significant takeaways—from the weakening of environmental regulations, to a ballot measure establishing open primaries, to the special funding of pet projects—all in exchange for a vote to approve a state budget. Sixteen of the past twenty budgets in California have been late as a result of these minority holdouts, causing upheaval and interruption of critical government programs. This system is not a representational democracy, but rather a tyranny of the minority. As R. Jeffrey Lustig, professor of government at CSUS, recently wrote in the *Sacramento Bee*, "The state's governing crisis is most evident in the legislature's chronic inability to pass annual budgets without accounting gimmicks and fiscal fantasies. But beneath this visible stalemate lie deeper problems—a crisis of representation, a socioeconomic skewing of the electorate, and a widening separation of politics from cultural and economic reality."

The irony, of course, is that with a simple majority vote on a ballot initiative in a general election, the California constitution can be amended, political principles overturned, and people's lives radically changed. Constitutions are intended to be textual expressions of enduring democratic values. Yet, the California constitution has been amended over 500 times. It is now eight times longer than the US constitution—longer, in fact, than any other constitution on earth except for those of Alabama and the nation of India. It has been called everything from a "bloated mishmash" to a "patchwork mess." The most recent successful ballot measure was Proposition 8, which, with just 52% of the popular vote, instituted a constitutional amendment banning gay marriage. So, in a state where less than half the electorate shows up to vote in any given election year, why can major political changes be instituted via a simple majority victory on a ballot initiative, but sustainable state budgets and necessary revenue measures require much more?

This year, several ballot propositions attempted to address these constitutional issues. "Repair California" called for a limited constitutional convention. Other initiatives called for a change to the 2/3 rule for passing a budget. "Californians For Democracy" advocated for changing the 2/3 rule to a simple majority for budget and revenue. Yet none of these efforts succeeded. The fact is that, in a state of 38 million, a grassroots movement can no longer get a measure on the ballot without having several million dollars in the bank to pay for the signature gathering process. While some of these initiatives were supported by business organizations and foundations, in the end they all lacked sufficient funding to collect the required signatures from 8% of registered voters before the April deadline. The notion that the ballot initiative process is an expression of direct democracy is largely a ruse, as special interests have more or less hijacked the process. As political scientist Thad Kousser explains, the ballot initiative process is a Catch-22: "It is hard to raise money for ballot measures that do not help any narrow interest, but nearly impossible to obtain broad support for measures that appear to provide a special benefit."

These ballot measures will be back again next year, hoping for more success. Yet, it is difficult to imagine a situation in which Proposition 13 won't act as the third rail in determining these political outcomes. California has a longstanding anti-tax and anti-spend culture. When polled about the state's crisis, Californians consistently answer that they want the budget deficit remedied through spending cuts and not through new taxes. Yet, when asked which government services should be cut to balance the budget, they refuse to choose. When will Californians stop expecting something for nothing and come to terms with the realities of our inadequate tax structures? The California Tax Reform Association has suggested several tax policies that could be changed in order to close the deficit, but without adding to the tax burden of the general public or negatively impacting economic growth and recovery. Due to the supermajority rule, however, the hands of the legislative majority are more or less tied: it is dubious whether any of these neces-

opposite, Jason Linder, "Interactive Tax Awareness Tool: Situational Budget Breakdown Display"; above, Zachary Gibson, side-by-side comparison of the U.S. and California Constitutions; below, Ian Cooley, Charlotte Cooper, Angie Stalker, and Danielle Zimmerman, "Vote In a Box" Election House Party Kit



sary revenue measures will be instituted.

Why should the architecture profession involve itself in these political issues? On the most basic level, we all rely on government services for our lives and work: we want clean water to come out of the tap, we want to drive or bike on well-maintained streets, we want fire stations and hospitals in case of emergency, etc. While architects do maintain a political presence through The AIACC's political action committees, these groups very much function in a vein of self-interest, focusing on what's best for architecture as a business practice. The PACs monitor and lobby the legislature on issues that directly affect the profession, advocating for the appropriation of stimulus dollars or state support of energy-conscious design and technology. CALC PAC appeals to members by asking them to consider contributions to its efforts as "an investment in your bottom line."

Of course, architects also exercise their political will by becoming engaged in socially responsible design—from green design to housing for at-risk populations and mitigation and reconstruction in the wake of natural disasters. There are many worthy causes that demand attention, though often we seem to be most drawn to those off our own shores. California needs serious intervention now before it reaches full status as a third world country. Architects are in a unique position to change this course: they can re-imagine the social as well as the built environment in ways that would never occur to lawmakers. As professionals, they have skills that are fundamentally lacking in the realm of politics: the organizational and creative prowess to assess needs, identify opportunities, model, coordinate stakeholders, and bring projects to fruition.

Community-based design practices can also be extremely useful when applied to the political arena. Early steps to realize a more expanded political role for architects have taken shape in the local chapters of "Citizen Architects" in California. And at the 2010 AIA Convention in Miami, the Citizen Architect Exchange offered opportunities to network and "explore the development and employment of design and leadership skills in the public arena." AIA Citizen Architects, however, have yet to incorporate the design of civic processes and of government itself as important targets of activity. Design can be a tool to bring about systemic change, and when the federal stimulus dollars dry up, we're going to need a more sustainable social, political, and economic environment in which to live and work. Architects can and should apply best practices and innovation to foster alternatives to business as usual in Sacramento. With our state structure collapsing under the weight of its own dysfunction, we really can't afford to sit on the sidelines any longer. ◉

Useful resources:

http://www.californiachoices.org
http://caltaxreform.org
http://keepcaliforniaspromise.org
http://www.cbp.org
http://www.californiansfordemocracy.com
http://www.caforward.org

Each year, legislation is introduced in the California Legislature that would impact the practice and business of architecture, as well as society, in ways important to many in the profession.

Does Legislation Really Matter?

Mark Christian, Hon. AIACC

Should the architect on a public school design-build project be financially required to complete the project if the contractor fails? Should an architect be responsible for the mistakes of others? Should the California Building Code incorporate Feng Shui principles? Should there be a sales tax on services? Or licensing for interior designers?

These are the types of questions the California Legislature considers during any given session, and why The AIA California Council makes legislative advocacy a priority.

Of course, each legislative session does not produce a proposal to require architects to guarantee the completion of a public design-build project or for the building code to be consistent with Feng Shui principles. In reality, these specific examples were one-time proposals from the early 2000s. But The AIACC does find—among the 4,000 to 5,000 bills introduced each session—proposals that interest and affect the profession in ways both large and small.

Most of the proposals to which The AIACC responds can be placed into one of three categories: Practice Issues, Business Issues, or Societal Issues.

Practice issues often are a priority for The AIACC; they tend to affect more architects—in some cases all architects—and usually, but not always, there is stronger consensus within the profession on how The AIACC should respond.

Recent examples of practice issue proposals include:

- creating a Practice Act and licensing program for interior designers, a proposal that surfaces every seven to ten years;
- new requirements or conditions of licensure, such as the new disability access continuing education requirement;
- a response to the recent California court rulings that expand the obligation of design professionals to defend their clients;
- proposals that promote green building practices;
- creating new building standards such as fire suppression sprinklers in school buildings; and
- allowing the Franchise Tax Board to suspend an occupational or professional license for failure to pay state taxes.

Business issues are proposals that affect the running of a business and operation of an architectural firm.

Recent examples of business issue proposals include:

- requiring 3% withholding of payment to independent contractors—those who receive IRS Form 1099 (currently, corporations do not receive 1099s; beginning 2012 corporations are scheduled to receive 1099s); and
- enacting a sales tax on services.

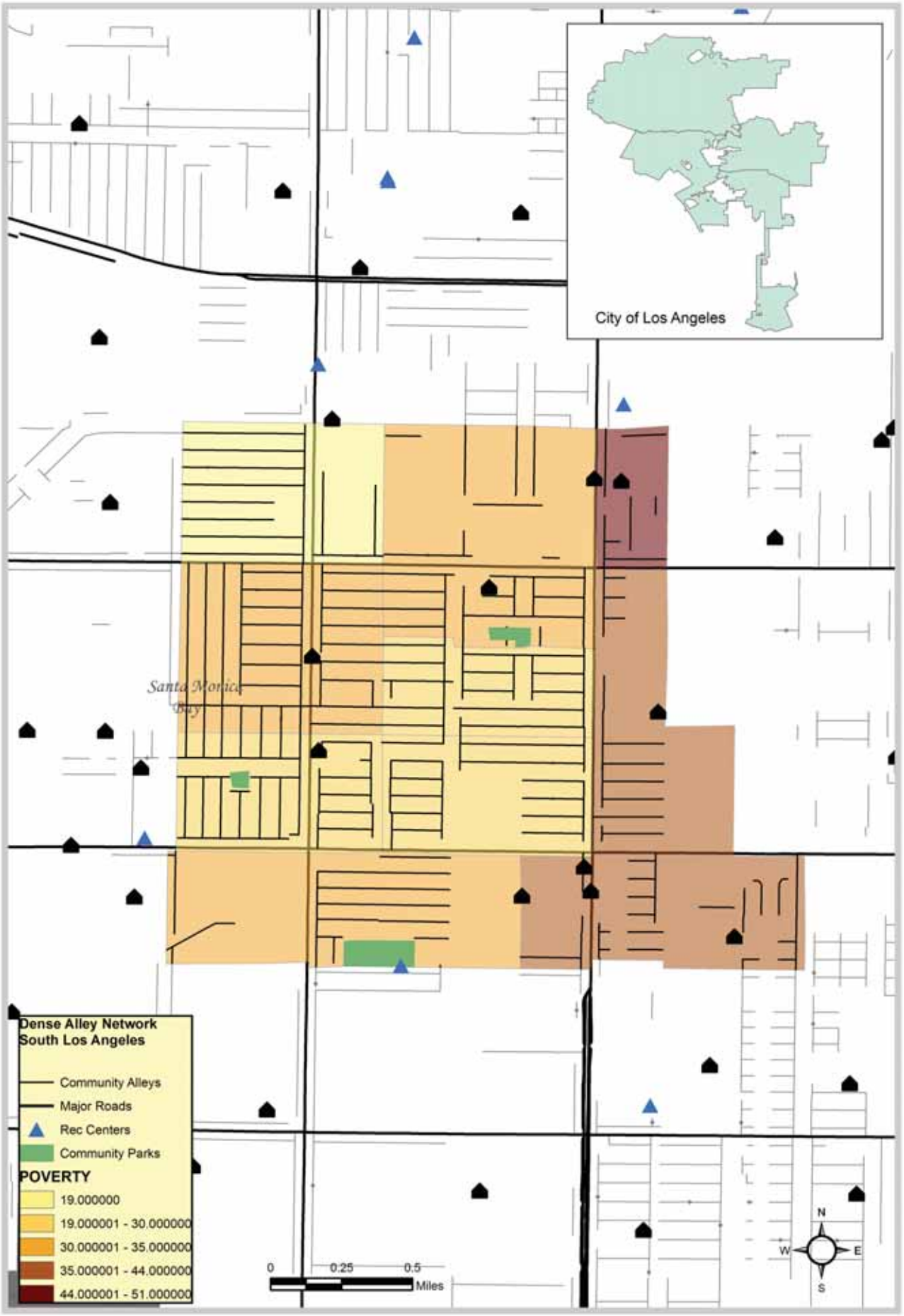
Societal issues can be described as issues important to many in the profession or related to the profession, and affecting the built environment.

Recent examples of societal issue proposals include:

- incentives to owners to make seismic or sustainable improvements to their property;
- creating CEQA exemptions for affordable housing projects;
- expanding urban forestry programs; and
- supporting land use planning that promotes regional blueprints, resource conservation, and infill development

Each year, legislation is introduced in the California Legislature that would impact the practice and business of architecture, as well as society, in ways important to many in the profession. The AIACC—volunteer architects from firms of all sizes and practice types and AIACC staff—reviews all introduced legislation for its importance and impact on the profession and, at the direction of The AIACC Board of Directors, will support or oppose the legislation most important to the profession. ◉

For more information on legislative advocacy or to become more involved, contact Mark Christian, Hon. AIACC, at mchristian@aiacc.org.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South Los Angeles
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Places to Play: Environmental Justice and the Distribution of Urban Parks and Recreation in Los Angeles

Jennifer Wolch, PhD

During the past two decades, environmental racism—the disproportionate exposure of people of color to environmental hazards, as well as their exclusion from benefits associated with environmental amenities—gained broad political and social attention, stimulating the rise of a powerful social movement focused on environmental justice. In major metropolitan areas, lack of access to green space—especially parks and recreation facilities—has become a particularly salient environmental justice issue and focus for organizing. Historically, urban parks were widely deemed to be representations of nature that would promote a better society by combating such social problems as poverty, crime, and poor health, and by providing major benefits such as better public health, social prosperity, social coherence, and democratic equality. Today, many of these same reasons for building parks are offered to justify parkland acquisition and facility construction, especially given mounting evidence that access to parks and recreational resources is critical to obesity prevention. But the distribution of park and recreational resources remains a source of social injustice and public health concern.

In this article, I focus on the scale of environmental justice problems associated with access to public "places to play"—namely, parks and recreational resources. I also raise the prospect of potential solutions that ask us to recast the "negative" space of the city—alleys, vacant parcels, vacated streets—as green infrastructure for physical activity, play, and ecosystem services that make for a healthier city. Drawing on my past research, conducted with colleagues and graduate students, on the distribution of park space in Los Angeles, the congestion of park space, and the pattern of public recreational programming across the region, I highlight the profound race/ethnic differences that exist in access to parks and playspace. At the same time, our new studies of a neglected urban land resource show that one productive strategy to address lack of access to environmental amenities in Los Angeles is to look, if not exactly in your own back yard, then out to your own back alley as a source of inspiration and place to play.

South Los Angeles study area map, courtesy of the author.

Existing LA alleys, photos courtesy of the author.

Access to Urban Parks and Recreation as an Environmental Justice Issue

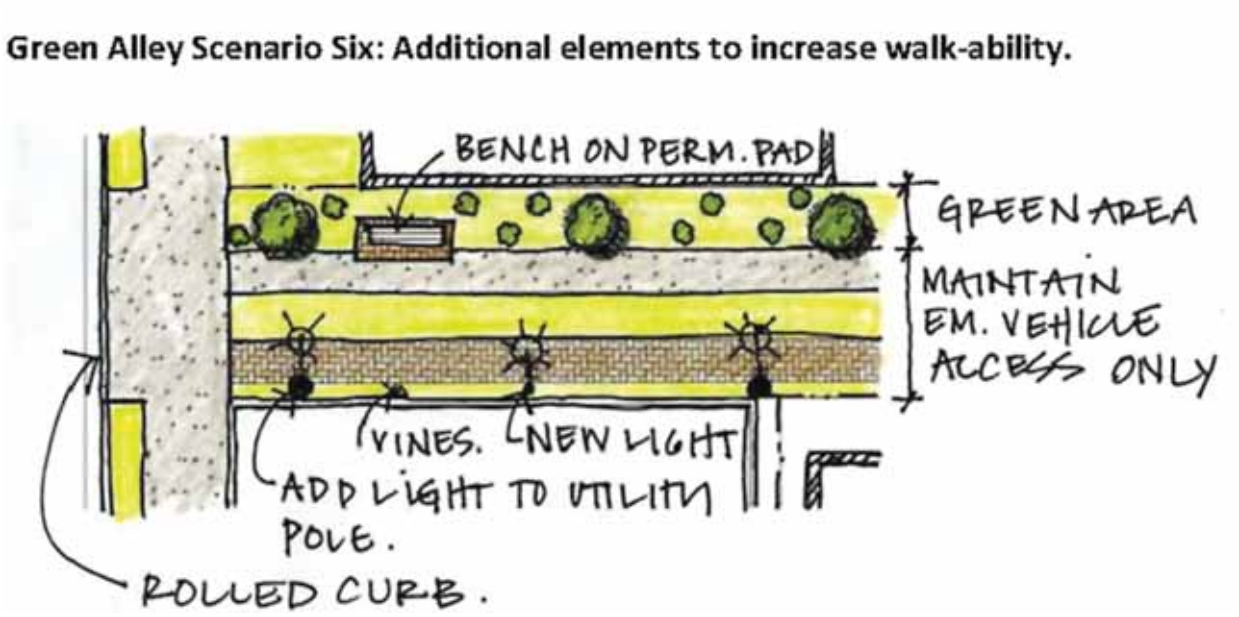
Environmental justice issues have long been especially salient in Los Angeles. Historically, LA's low-income people and communities of color faced not only economic discrimination and social marginalization, but also environmental racism. For example, in the early years of the 20th century, on the east side of Los Angeles, industrialization prompted growth. As more factories were being built, a greater need for low-wage manufacturing workers arose. Some evidence suggests that communities of color—which are typically weak politically—were preferred sites for certain types of polluting facilities, such as toxic storage and disposal. Also, some cities deliberately created housing for minority workers in close proximity to industrial facilities. Not surprisingly, people of color are currently more likely to be exposed to environmental hazards in Los Angeles and face higher rates of lifetime cancer risk.

Public policy played an important role in shaping patterns of environmental injustice. For example, the City of Los Angeles's 1904 zoning code, the first in the nation, protected the affluent, predominantly Anglo Westside from such industrial uses. Higher-density housing, commercial, and industrial activities were allowed to locate by right in the city's eastern and southern areas in which lower-income workers, including people of color, were concentrated. Public park resources, never very generous in a city whose domestic ideal was the single-family home with private backyard, were disproportionately allocated to other parts of town.

Past discrimination in housing and employment, ongoing environmental racism in the siting of industrial and other polluting facilities, and inequitable distribution of parks and other urban services, mean that low-income households and communities of color in Los Angeles are apt to be relegated to "park-poor" neighborhoods. This deficit in parklands is particularly problematic for older, high-density, low-income LA communities where children tend to utilize park resources more intensively than kids in newer, suburban areas, where most housing units have gardens and there are more recreational opportunities in the environment. In addition, urban nature offers more than just amenity value. Rather, soil, trees, and other vegetation provide ecosystem services that reduce ambient heat levels, act as pollutant and carbon dioxide sinks, and absorb polluted urban runoff, thereby helping to mitigate issues of disproportionate exposure to environmental hazards. Therefore, not surprisingly, the issue of parks and recreation is commonly cited as one of the most critical among residents of the city's low-income communities of color.

Patterns of Park-Poverty in the Los Angeles Region

The distribution of park resources is highly uneven across racial/ethnic communities of the city. In a study that defined communities according to their predominant race/ethnic population and then considered local access to park space, John Wilson, Jed Fehrenbach, and



A basic alley redesign scheme, courtesy of Ahbe Landscape Architects.

I found that Latino and Asian-Pacific-Islander neighborhoods had the highest population densities, followed closely by African-Americans; densities in all three types of neighborhoods were two to five times higher than in White-dominated neighborhoods. Latino areas, with two-thirds of a million children, had almost three times as many children, living at five times the density as residents in heavily White areas. Yet those areas with 75% or more Latino population (188 census tracts, with over 770,000 residents) had only 0.6 park acres per 1,000 population, and heavily African-American dominated tracts (11 census tracts with almost 50,000 residents) had 1.7 park acres per 1,000 population. In comparison, heavily White dominated areas (117 census tracts with almost 480,000 residents) enjoyed 31.8 park acres per 1,000 residents.

In another study, Chona Sister, John Wilson, and I employed the "park service area" approach to understand "who's got green?" in the broader southern California region. This approach assumes that every resident utilizes the nearest park at some uniform rate, a broad but generally supportable assumption. This allowed every neighborhood space—and thus every resident—in the region to be "assigned" to his or her closest park, thus delineating a park service area (PSA) and its associated population. The ratio of PSA population to acres of park space is an estimate of potential congestion or "park pressure" for each service area. The National Recreation and Parks Association (NRPA) historically recommended 6 to 10 park acres per 1,000 residents; although a rough measure and no longer officially utilized, this standard captures distributional equity across metropolitan regions. Translated to park pressure, this standard equates to approximately 100 to 167 persons per park acre (or "ppa").

Only 403 PSAs or 24% are within this range or better, leaving 1,271 PSAs or 76% with park pressure levels higher than the recommended standard. In terms of population, only 16% enjoys levels of park access that fall within the NRPA standard. Not surprisingly, PSAs with lower park pressure typically contain larger greenspaces, while high park pressure areas have small parks and high population densities, and are mostly located in the central LA basin. Latinos are more likely located in PSAs with high park pressure, with the proportions of Latinos increasing as park congestion levels increase. The African-American population also exhibits this same trend, although to a less extreme degree. The proportion of Asian-Americans in the region did not exhibit a consistent discernible trend relative to the park pressure classes. Not surprisingly, PSAs with relatively high densities of children tend to have worse park access, as do low income people.

Park space is an important amenity, but recreation programs are also crucial, especially in terms of rates of physical activity, with attendant implications for public health. Recreation activities are not evenly distributed across metropolitan Los Angeles. In a study that I conducted in collaboration with Nicholas Dahmann, Pascale Joassart-Marcelli, Kim Reynolds, and Mike Jerrett, we analyzed data

Subregion	Population	Alley density (alleys per sq mi)	Total alley network (linear miles)	# of park parcels	Total park acreage	Park poverty (persons per park acre)
South	620,818	81.9	239	60	783	793
South Bay	193,052	63.9	88	33	855	226
Metro	1,114,697	28.1	179	120	5,977	188
West	405,128	18.0	118	73	16,497	25
San Fernando	1,367,754	14.2	306	163	15,322	90
All subregions	3,721,063	25.8	930	449	39,434	94

Table 1: Alley density and park poverty, by subregion

on the location and characteristics of recreational course offerings that provided opportunities for moderate-to-vigorous physical activity in cities across the region. We found that recreation programs were profoundly uneven in their distribution, with variations particularly stark with regard to race and ethnicity. Cities with greater proportions of White residents tended to have more opportunities for recreation programs in comparison to those with more Black and Latino residents. Similar variations existed based on fiscal capacity, whereby cities with limited fiscal resources suffer from reduced recreation opportunities. Even when controlling for a variety of socioeconomic and demographic characteristics of cities, these patterns of environmental injustice prevail.

Alley Greening as an Environmental Justice Strategy

One innovative strategy starting to gain currency among cities, including Chicago, Baltimore, Vancouver, and Los Angeles, is to "green" long-neglected back alleys to enhance access to urban park and playspace, achieve public health goals, and increase urban sustainability. Alleys are a significant but typically overlooked public infrastructure resource of the urban landscape—they are classic examples of "terrain vague." In the city of Chicago, for example, there are approximately 1,900 miles of alleys, comprising more than 3,500 acres. The city of Los Angeles has an estimated 12,309 alley blocks, a network of more than 930 linear miles, or approximately 1,998 acres, while Baltimore's alley network encompasses over 600 linear miles. This represents a sizable underutilized urban land resource, particularly for those neighborhoods that suffer from park poverty.

Why are alleys so neglected? For more than two thousand years, alleys have been a feature in urban design, serving as spaces for neighbors to interact, as access points for infrastructure services, and for a variety of other purposes. In the U.S., alleys fell into disfavor in the late-nineteenth century, because they were often seen as dangerous, unhealthy places. By the 1930s, federal housing policy officially disallowed alleys, and urban design and municipal services evolved to focus attention on front yards.

But revitalizing alleys as a means to provide social and green infrastructure for urban areas has great potential. Green alleys can provide a variety of ecological services, such as urban rainwater management through runoff filtration, groundwater recharge, heat island reduction, wildlife habitat, and urban forest cover. As safe, attractive, usable social spaces, converted alleys can help renew neighborhoods by fostering increased visibility and use of previously underutilized, feared spaces. And they can provide park and recreational space for park-poor neighborhoods.

A detailed study of alleys in Los Angeles that I conducted with Josh Newell, Mona Seymour, Jennifer Mapes, Kim Reynolds, and Hilary Bradbury, provided the empirical data and policy design necessary to transform alleys into green urban infrastructure. The central question was: What if the city's 930 miles of alleys were transformed from ambiguous

An "active" alley designed for walking and play can transform the urban fabric. Images courtesy of Ahbe Landscape Architects.

spaces into valued places? Alleys are widely but unevenly distributed across the city, with alley density (alleys per square mile) being much higher in older communities in South LA and the South Bay, than in West LA or the San Fernando Valley (see table opposite).

To highlight possibilities, one particularly park-poor, low-income community in South Los Angeles with a dense alley network was studied as a hypothetical planning scenario. (See map opposite opening page of this article.)

A low-income community of almost 60,000 Latino and African-American residents, this part of South Los Angeles is characterized by older single family and multifamily housing. Obesity and related chronic disease rates are high, and so are rates of failure in the State of California body composition test of school children in grades 5–12, highlighting the future health risks facing this community's children and youth.

Park poverty is severe here; the community has just three parks (22 acres), roughly one park acre for every 2,593 persons. Yet this park-starved area is alley rich, with 577 alley segments or 160 alleys per square mile, almost eight times the city average. With 40.12 linear miles, the area of this network is approximately 87.5 acres, or more than four times the community's existing parkland. Converting these alleys into greenspace would dramatically reduce park congestion or "pressure" to roughly 528 people per park acre. Although this is still much higher than the citywide average, and not all alley space could literally become parkland, an alley conversion strategy would still entail a radical reduction in park poverty.

In such contexts, the alley network is a significant untapped public resource. Redesigned in simple, cost-effective ways, safe, clean and green alleys could facilitate walking and informal recreational use via the provision of micro-exercise equipment sites, park benches, swings, and other infrastructure for local residents.

Conclusions

The extent of residual urban land varies widely from city to city. Few studies have systematically considered how such parcels could be aggregated and reconceptualized as green infrastructure that might simultaneously address environmental injustices in the distribution of places to play. Yet the days of expansive single-purpose suburban-style parks and playfields may be over. Environmental designers can create alternative, multi-benefit networks of urban greenspace and, in so doing, promote social and environmental justice in the city. ◉

Housing and Social Sustainability:

a Conversation with Sam Davis, FAIA

Grace S. Kang, SE

Design can strengthen interaction within a community and promote social sustainability. The siting and design of housing are integral to the vitality of our social fabric and can make a positive impact on the social sustainability of the urban environment. In a recent discussion with Sam Davis, FAIA, Professor Emeritus of Architecture at U.C. Berkeley and author of *The Form of Housing*, *The Architecture of Affordable Housing*, and *Designing for the Homeless: Architecture that Works,* Davis described the relationship between housing and social sustainability:

> "Social sustainability is an area unto itself, and it's not mutually exclusive from environmental sustainability. If your intention is to nurture a planet on which people live comfortably, then that means everybody—you can't leave somebody out. That's the underpinning of all sustainability. Social sustainability is characterized by healthy, vibrant communities. They're not polluted, the infrastructure is modern, and we don't have gaping holes or blight. It's an all-encompassing, healthy city. If you have people who are left out, you're not fulfilling the mission. A consideration in this is that, when people leave a city because it's unpleasant or not filling their needs, they leave behind those people who cannot afford to relocate. We no longer have a cross-section of people, a truly integrated, heterogeneous population that makes a place interesting. That's where the housing part comes in—housing for different kinds of people with different kinds of lifestyle at different levels of income, at different points of their lives, with different physical and mental abilities."

Three strategies for housing development have recently been implemented in the Bay Area, each with a different impact on social sustainability:

Canon Barcus Community House, San Francisco, Herman Coliver Locus Architecture, photo by Susie Coliver.

Millennium Tower, San Francisco, Handel Architects, photo © Tim Griffith.

"Top-down" San Francisco

The Millennium Tower is designed to attract high-income residents, those with economic resources. The residents are attracted to amenities that the city offers, and their presence eventually supports jobs in the area. The tower is designed with support functions such as a fitness area, children's playroom, and outdoor terrace, accessible to the occupants only, not the community at large. While it may be that, at this point in time, the building occupants are the primary community, with opportunities for interaction with the surrounding neighborhood only during the business day, nevertheless this is an exclusive, hermetic, vertically-oriented enclave, where community interaction may consist of little more than getting to know the few neighbors on your floor or in the fitness space. It is an example of "top-down" vitalization of an area, the fruits of which may materialize only over time. As long as the services are contained within the building, it is limited in its impact on the surrounding neighborhood.

"Uptown" Oakland

In the 1990s, then-mayor Jerry Brown vowed to bring 10,000 units of housing to downtown Oakland. A substantial number of units has been constructed, and the "uptown" area near the 19th Street BART station has become enlivened with conversions of existing buildings to living units. Along with new restaurants, the recently renovated Fox Theatre has become a venue for entertainment that appeals to a different demographic than that which frequents the Paramount Theatre a few blocks down the street. Not all the housing is "high-end," yet there has been criticism that not enough of it is low-income. To Davis, "This is the beginning of a sustainable model: the type of housing that keeps people in town, supports local businesses, and is accessible to a broad range of people of various incomes."

"Intergenerational" Palo Alto

The Taube Koret Campus for Jewish Life, designed by Steinberg Architects, is located on an eight-acre brownfield site in the midst of an existing mixed residential and industrial area—a transition zone between Stanford University to the west and East Palo Alto. The project has 192 units of senior housing; in addition to continuum-of-care functions such as independent living, assisted living, and skilled nursing, there are fitness and cultural centers as well as an early childhood development center. The combination of programs on site supports an intergenerational community, whose members benefit from each others' presence. The design of the outdoor campus itself promotes connectivity and interaction among the community. The City of Palo Alto has embraced this project as a catalyst for revitalization of the surrounding area.

Low-income housing: segregated or integrated?

> "People choose, when they have the option, housing that fits their needs—whether there's a school, or a church, or a job nearby. So, in a way, they've self-selected. But those with low income have limited options, and the homeless have even fewer. We have to provide them options in a reasonable way. Some people would like to see the homeless 'out-of-sight, out-of-mind,' so sites like surplus military property such as Hamilton Air Force Base may be selected, effectively putting them in a remote part of town. Some people in the homeless service community think that's a good thing—it gets them in a protected environment, they don't have to deal with mean streets, they can be focused on getting the support services and employment and education they need. I don't see it that way. I think re-integration into the community is the best approach. The problems with the non-integrated model are that there are typically fewer jobs outside the urban core, there's limited or no transportation access, and there are no social services other than those provided within the development. I don't

above top, Canon Barcus Community House, San Francisco, Herman Coliver Locus Architecture, photo by Sharon Risedorph.
above bottom, Taube-Koret Center for Jewish Life, Steinberg Architects; photo © Tim Griffith.

think that's a sustainable model."

Integration includes programs that serve the community

"The homeless and very low income populations are themselves not heterogeneous. People are homeless for all kinds of reasons. Some have mental or physical disabilities, some just cannot make enough income. So, we need solutions that are as varied as the population and their needs. For example, homeless and low income parents, typically women, have specific needs: they may have a job, maybe they have more than one job, or they need to get to the job, they need a car or transportation. Where are their kids going to school? Where are the kids after school while the parent is still working? All these are needs that should be addressed."

In *Designing for the Homeless: Architecture that Works*, Davis shows an example of the Canon Barcus Community House in San Francisco, designed by Herman Coliver Locus Architecture. Of it, he says,

"There are many communities in that building. There's a play area and daycare, so that when the kids come home from school they go to the daycare on that site, so the parents have some level of confidence, some peace of mind, that the kids are near the home. That's a perfect example. Another one is that the social services for the homeless families that live there have an entrance through the building, and there is also an entrance from the street. Here's a way to connect the people that aren't living there with the needs of others in the community that may overlap. To me, that's what really helps knit the community together. The architectural aspect of that is that the social services are at street-level, similar to commercial space, a ground floor use that has some visibility and interaction during the day, that's not a blank wall, that fits in with the city."

Integration and vibrancy

Housing can be designed to foster and nurture our social interactions with each other. In these interactions, we may learn to appreciate the diversity of our community. The value of design is to build on the foundations of civility. Davis observes,

"It's tough. I've been around the homeless a lot, so I know it can be very intimidating, very tough, which is why I think we need to get them off the street into good housing. But there are still going to be people of low income around, and for the most part good cities are like that. The 'membrane' of civility is incredibly delicate, and it does not take much to pierce it, whether it's road rage or intolerance of someone who does not resemble you. I think we need to do the kinds of low-income housing that Herman & Coliver, David Baker, and Leddy Maytum Stacy are starting to do in San Francisco. Unfortunately, it's just a drop in the bucket, yet it is needed in addition to the 'vertical neighborhoods,' in order to diversify the community. Good housing is critical to social sustainability, which supports a vibrant community with a broad range of demographic and economic strata." ◉


Metro

Architects in Transportation

Noam Maitless, AIA, LEED AP

Architects must manage their work in increasingly complex professional and creative environments. This situation has been fueled by the economic downturn, certainly. Yet, while the practice of architecture has contracted in the traditional sense, the range of opportunities available to architects to build and shape the urban environment has expanded.

This distinction is critical in transportation. I have worked on both sides of the table in transportation—both as part of the design team working with various transit agencies, and more recently consulting to the Los Angeles Metropolitan Transportation Authority (Metro). Over the course of the last fifteen years, I've come to recognize that opportunities for this kind of expanded practice are particularly relevant and necessary.

Necessary, in the sense that transportation work is so complex, expensive, and resource-intensive that it often takes the unique discipline architects possess to even approach the work strategically. For example, Measure R, recently passed in Los Angeles County, provides for nearly $40 billion for traffic relief and transit upgrades throughout the county over the next thirty years. Measure R will help fund dozens of countywide and local transit projects, create more than 210,000 new jobs and help jump-start the regional economy with additional tens of billions of dollars in economic activity. Additionally, local officials and Metro are promoting the 30/10 Initiative, a plan to accelerate financing for key projects and complete work that might otherwise take thirty years, in ten. Compounding the technical challenges that this kind of construction boom will create are the interface with existing financial, community development, and design initiatives: myriad local projects and programs, community advocacy groups, local, regional, and national political considerations, Federal and State oversight, Light Rail construction authorities, and other billion-dollar projects like the California High Speed Rail program and the American Recovery and Reinvestment Act, to name a few.

Architects' distinctive training is relevant in this environment, because the need is great, the

"Más Transit," 1st Place Winner, Professional Category, A New Infrastructure, by Jacob M. Brostoff, Joshua G. Stein, Jaclyn Thomforde, and Aaron Whelton.

time in which to make difficult and important choices is relatively short, and the decisions many communities make now in relation to transportation will affect their sustainable growth for generations. This landscape would seem the natural domain of architects.

At Metro, architects already play key roles in the planning and execution of the agency's work. Externally, a phalanx of planning and design consultants takes on studies, reports, urban design, and architectural work, most often as sub-consultants to larger engineering firms and design/build contractors, but also as prime contractors. Given the way many public procurements are structured, architects may also find sub-consultant positions under firms that might normally be subs to architects, such as environmental planners, facility planners, even graphic designers. A willingness to collaborate without controlling the whole process can be frustrating in some ways, but it can also be rewarding for an agile firm working in a promiscuous world of consulting and sub-consulting.

Architects are heavily represented in planning and engineering within Metro, but also lead in less traditional areas like environmental graphics and public art. There are key benefits to the agency in having many architects on both sides of the table. A shared professional culture allows architects to better understand each other as project issues are addressed. Strategic thinking allows for a more productive analysis of the issues at hand and the potential impact of other knock-on effects. Finally, a firm grounding in technical knowledge makes for more informed negotiation. Value engineering meetings are inevitably more grueling with so much information and with vocal advocates at hand, yet this common language is important when considering billion-dollar projects that have a 50- to 100-year operational life and will fundamentally affect the lives of millions.

While the potential impact of the work of architects in transportation may be profound, other aspects of professional practice are worth watching and can have an important influence on architects working within this typology. For example, in March of 2009, SCI-Arc and *The Architect's Newspaper* jointly sponsored an ideas competition, "A New Infrastructure: Innovative Transit Solutions for LA/2009." The images and ideas presented at a special roundtable at Metro had a palpable effect on the architects at the agency, if not directly, then in reinvigorating the dialogue and lending perspective to the countless ways in which transportation planning and design influence urban life.

Other proposals—some speculative, others through city or community initiatives—keep the ideas flowing, for the firms that propose them, for the advocates who lobby and agitate for them, and for those within transit agencies with the power to help make them a reality. Currently in Los Angeles are three or four serious proposals to deck over freeways with new city parks. Whether they all move forward or none do, these are excellent catalysts that invite architects to rethink the material place of transportation in the city, not just the logistical place of transit in an urban environment.

Proposals like these mesh well with cur-

rent Metro initiatives to reconfigure traffic and transportation patterns in 21st century Los Angeles. Competitions reveal connections that may be explored further in professional settings. Resonances remain and may eventually become realities. Just as the Más Transit concept—the winning entry in "The New Infrastructure"—proposes overlaying a new high-speed rail infrastructure over the city of Los Angeles, so too are current planners wrestling with the challenges of overlaying a new high-speed rail station (the equivalent of a small airport) over the existing grid of Downtown L.A., to create a kind of super-inter-modal amalgam with historic Union Station. Like San Francisco's planned Transbay Terminal, these are once-in-a-lifetime commissions, but they are also emblematic of transportation's increasing influence on architecture and urbanism.

Designer, animator, and carless Angeleno, Fred Camino, writing at the Metro blog (thesource.metro.net), recently asked if the recession would have hurt as bad if we didn't live in such sprawl. This question is as relevant to Los Angeles as it is to the Bay Area, Sacramento, and everywhere speculation has fueled unsustainable growth. For those who still commute from Tracy to San Francisco or San Diego to Irvine or Pasadena to Santa Monica, transportation is a daily struggle. Remediating urban sprawl and shaping the built environment are both very much on the minds of architects at Metro. Both public and private transportation needs are under continual consideration there, as they probably are in other transportation circles. Solutions may not always be perfect, but each new corridor, each new initiative helps. And, in the end, each new project can bring unprecedented opportunities for architects to reshape the city.

In a decade or so, Reyner Banham might no longer recognize the "4th ecology" of Los Angeles, the freeways; instead, he might find something equally artificial, but much more sustainable, more deliberate. As infrastructure is improved, new opportunities will present themselves for design, at local, regional, and even larger scales—hard-working, interconnected responses to design challenges of ever-increasing nuance and complexity, tied to the framework of transportation. ◉

The High Speed Rail Debate: Architects as Scale Bridgers

Tim Culvahouse, FAIA

"From an efficiency point of view, transportation takes 18% of the household budget, causes 40% of the greenhouse gas emissions in the Bay Area, consumes at least 10% of the land use with roads, highways, and parking spaces at work places, home, and shopping. At some tipping point, transportation begins to divide more than it brings people together. At some tipping point, our automobile culture takes away more freedoms than it brings.

"The unintended social consequences are huge: children who don't have the freedom to walk down the street for a pick-up game but have to have play dates, seniors who are trapped in their homes unable to drive, childhood obesity..."

Former Palo Alto Mayor Yoriko Kishimoto offered these observations at a recent discussion at Palo Alto-based design firm IDEO. Unable to attend the event, I asked to speak with Kishimoto about transportation issues, and she generously provided an account of smart growth advocacy, by others as well as herself, in the Peninsula cities. While the promotion of walking, cycling, and public transportation—the scale of which can be readily grasped—are all essential components of her long-term vision, the elephant in the room is the proposed High Speed Rail route from San Jose to San Francisco. Its scale is far less easy for the average person to grasp, and it has the potential to be dramatically divisive, hardening the already frequently impenetrable barrier of the Caltrain corridor as it passes through Palo Alto, Menlo Park, Atherton, Burlingame, and Belmont, which have come together as the Peninsula Cities Consortium to address the issue.

While highlights of the debate over the Peninsula corridor are well covered in area newspapers, Kishimoto introduced me to a promising public participation process being employed to sort through the problems. The process, in which many architects are playing key roles, is well documented online, so I will merely offer an overview here.

The Peninsula Rail Program, a partnership between Caltrain and the California High Speed Rail Authority charged with implementing high-speed rail service from San Jose to San Francisco as well as a Caltrain modernization program, is proposing to utilize a process known as "Context Sensitive Solutions" (CSS) to incorporate public input into decision-making. According to Bruce Fukuji, CSS Program Manger for the Peninsula Rail Program, the CSS process "supports communities to achieve feasible, context-sensitive solutions for the project" and "utilizes urban design to shape transit system design to enhance community life and support walkable, bikeable, transit-friendly environments." The process began with a High Speed Rail Design workshop supported by the

Consortium and hosted by the City of Palo Alto on 4 November 2009, followed in January by a San Jose Diridon Station Area Community Meeting and, in March and April, meetings of the Technical Working Group (city, county, and other agency managers, planners, and engineers) and the Policy Maker Working Group (mayors, council members, and other representatives of the affected cities), with an additional sixteen community workshops held between 15 April and 16 June 2010. The entirety of this process precedes the drafting of an Environmental Impact Report.

Of particular note for architects—because it involved the leadership and participation of many architects—was the kick-off HSR Design Workshop held last November. Following introductory remarks from Palo Alto Mayor Peter Drekmeier, Menlo Park Mayor Rich Cline, and Palo Alto City Manager Jim Keene, workshop organizer Brian Steen introduced a series of presentations by technical experts on transportation, tunneling, geotechnical engineering, historic resources, trains, finance, and public art. The morning session concluded with remarks by architect Donlyn Lyndon, FAIA, on elements of the fabric of place that "gather meanings and serve as anchors of identity—anchors sufficient to allow continuing transformation around them." Urban designer John Kriken of SOM and landscape architect Walter Hood also addressed the gathering.

Nine afternoon work groups, each focused on an eight-mile segment of the HSR route between Atherton and Palo Alto, were coordinated by architect Clare Malone Prichard; architect Henry Riggs; landscape architect Chuck Kinney and architect Bob Peterson; landscape architect Andrea Lucas; architect Ken Kornberg and landscape architect Willett Moss; architect and developer Kathy Schmidt; architect Grace Lee and landscape architect Gary Laymon; architect Randy Popp and project manager Maryanne Welton; and urban planner Virginia Warheit.

In addition to the work group leaders, a number of other architects participated in the generation of design alternatives for the rail corridor, including Henry Riggs of Menlo Park and Judith Wasserman, David Solnick, and Martin Bernstein of Palo Alto. Architect Tony Carrasco, also of Palo Alto and a participant in the charette, has generously directed me to a wealth of documentation of the event, much of which can be found at the links below.

The HSR Design Workshop is an exemplary instance of architects mediating what, to the average citizen, can be an incomprehensible gap between the scale of infrastructural development and the scale of everyday experience. ◉

San Jose Mercury News: http://www.mercurynews.com/california-high-speed-rail
Peninsula Rail Program: http://www.caltrain.com/peninsularailprogram.html
Peninsula Cities Consortium: http://www.peninsularail.com
California High Speed Rail Authority: http://www.cahighspeedrail.ca.gov
Documentation of the November CSS Workshop: http://www.peninsularail.com/main/Design_Workshop/page45.htm
http://www.caltrain.com/pdf/peninsularailprogram/csstoolkit/CSS3_003_Nov2009WorkshopSummary_20100401.pdf

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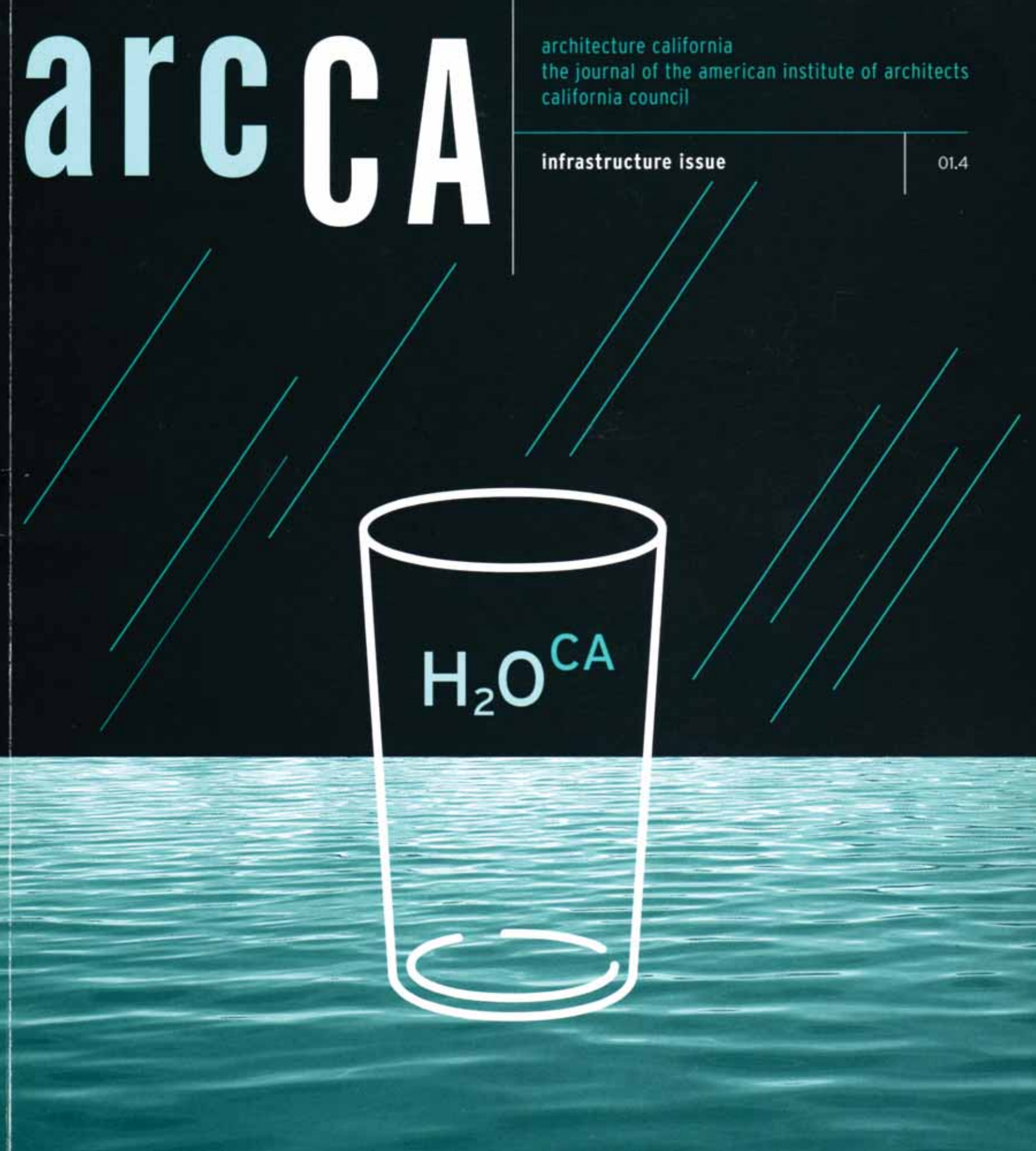


Water:

Reordering the Paradigm

arcCA Interviews Bill Wilson

Kenneth Caldwell

Bill Wilson is a jack-of-all-trades water guy, an environmental engineer, water resources advocate, and finance and development consultant. Kenneth Caldwell met with him in Oakland to figure out what he really does. You can find him at billwilsonwater@gmail.com.

Cover of **arcCA** 01.4 (fourth quarter, 2001), design by Bob Aufuldish.

arcCA: In terms of sustainability, I usually hear people talking about energy usage and building materials rather than about water. Why is that?

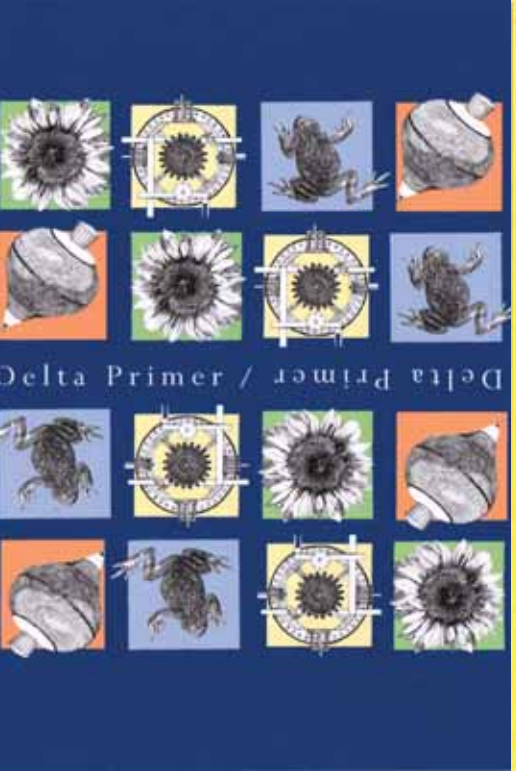
Wilson: There's been a lot of attention to cradle-to-grave materials, non-toxic building materials, window efficiency, energy efficiency, insulation. But when it comes down to the basics, like plumbing and stormwater runoff, it's pretty much been a traditional pattern. For about $2.40 per 100 cubic feet, we can have pristine water from Hetch Hetchy. We use it once and throw it away.

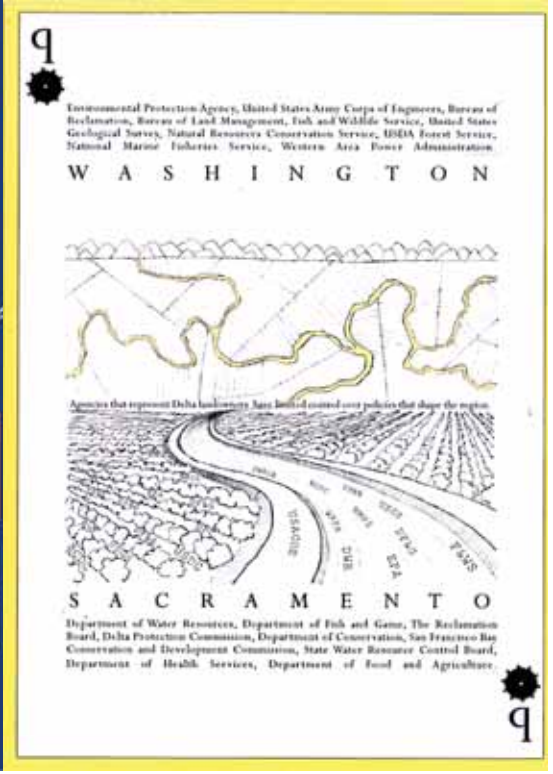
arcCA: The cost of water has been negligible in terms of the typical development model of looking at upfront costs and return on investment. It reminds me of fossil fuels for the last half century.

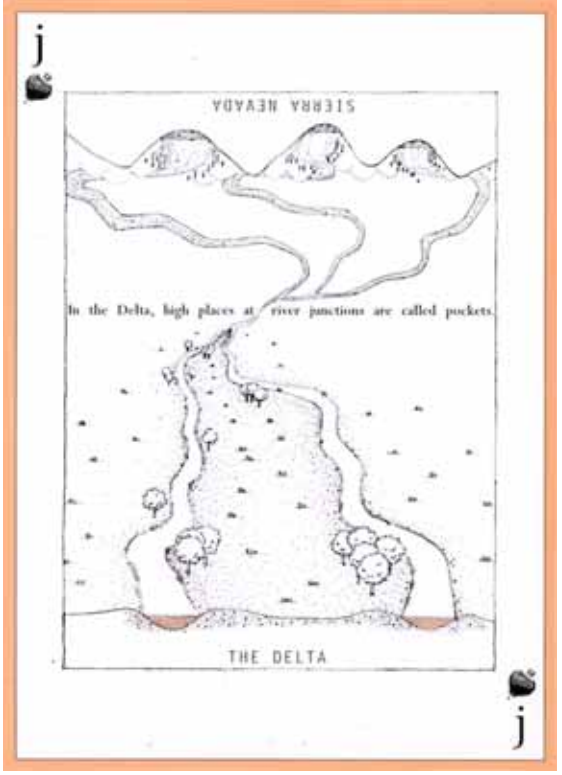
Wilson: Yes. Water doesn't really model as a return on investment item when you're doing a project. But if you have a water limitation on your project, then it probably won't happen. For instance, take a redevelopment project in a major urban or suburban area, where you are increasing density, as most planners advocate. Yet the sewer system is set up for a much lower density, and that means a few miles of sewer lines are going to have to be replaced. That has a huge impact on development.

Most projects try to get rid of rainwater and wastewater and hand it off to a centralized public system. These models don't really respond well to capital costing, but if you don't have them solved, you are really in trouble. The cost of water is cheap, but the cost of no water is really expensive.

Water in environmental engineering is actually a matter of strategic planning, but it's not trying to fit into this upfront capital cost, five-year return on investment, bean-counter approach that we've been conditioned to.







arcCA: I think there is some public awareness about water, but it's still not like fuel or the materials we hear so much about. They are tactile and visible. Water is almost invisible.

Wilson: I think the general public is becoming more aware of the problem and doesn't want to use water once and throw it into the ocean. But the actual codes and requirements for building and for development projects work against water resource efficiency, although that is starting to change. Here in California, we just got a new, user-friendly graywater code. We are confronted with many of the same policy issues over rainwater harvesting.

arcCA: When did you first figure out that there was a huge problem?

Wilson: I was working on a coral reef project down in Jamaica in the late 1980s, and I witnessed the entire coral ecosystem around most of the island of Jamaica turning into an algae-dominated system. I discovered that it was probably mostly due to nutrient pollution from unrestricted wastewater discharges. Since then, I have been focused on wastewater treatment plant design, financing of wastewater treatment plants, and decentralized wastewater recycling. My motto is, "Get all this sewage out of the ocean and onto the land where it belongs." Because land-based systems, aside from needing water and nutrients, are uniquely equipped to deal with the impacts of wastewater applications, whereas marine ecosystems are very delicate in regard to pollution or nutrient upsets.

arcCA: So you observe too much of a kind of algae, you do research on the plankton in the waters disrupting the food chain, you figure out how many waste treatment plants need overhauling, and then you plan for them?

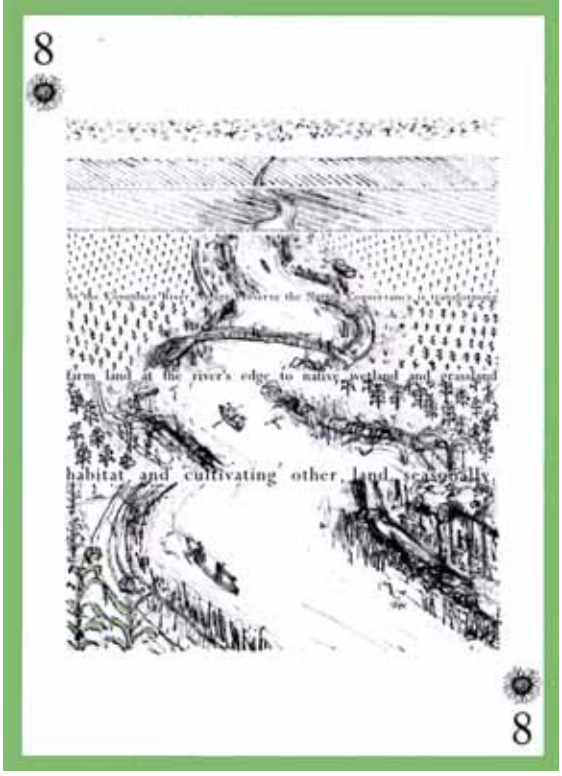
Wilson: Yes, and that requires a process solution. Our wastewater collection systems are overly centralized. And part of that is because the model was for centralization. But once you've got all the wastewater from a whole area, say the entire L.A. basin, being treated at the beach, and you need recycled water ten miles inland, how do you get it back there? A lot of energy gets expended, and there's the cost of putting in a whole new pipeline back to where it started.

arcCA: So you're advocating smaller, decentralized wastewater treatment plants?

Wilson: That's where it fits into the work of architects. For instance, it's now possible to develop wastewater recycling plants inside major buildings and on campuses.

arcCA: Do these on-site systems exist?

Wilson: Yes. There are now about twenty high-rise buildings between New York and Boston that recycle their own wastewater. They use it for toilet flushing, HVAC systems, cooling tower make-up water, fire protection and irrigation of podium landscaping. There are several buildings that do the same thing with stormwater runoff, like the new Bank of America building in Manhattan. I was just involved in the design of a cistern for the new Cathedral Civic Medical Center in San Francisco, which SmithGroup is designing.



left and above: Jane Wolff, *Delta Primer Playing Cards*, William Stout Publishing, 2003

It's now possible to develop wastewater recycling plants inside major buildings and on campuses. That's where wastewater treatment fits into the work of architects.

arcCA: Are the municipalities listening?

Wilson: It's difficult for them, because most decision-makers in municipalities don't understand wastewater. They've been used to turning it over to their consultants. That's been the business model, which was formed on the federal government paying for everything. To replace that lack of funding, there have been state revolving funds and then bonding. Now these towns don't have any bonding capability. Or, if they did, it would preclude all their other needs for the next thirty years.

The wastewater treatment engineering profession is very conservative. You are apt to get yesterday's plant. Or you'll get tomorrow's plant, but it's very energy inefficient or very capital intensive. In a lot of cases, municipalities pass on the expense, including side effects, to the ratepayers. When the ratepayers find out about it, they're usually not too happy.

arcCA: You have to change the operational model and the business model?

Wilson: Yes. Twenty years ago, I could see that the business model wasn't going to work in the absence of federal funding. Some possibilities for alternative financing include privately issued tax-free municipal bonds and the tax-free municipal lease. You take the existing rate structure, the staffing for the municipality, their current operating expenses, the various funding options, and the costs for those funding options over time, and you compare the various scenarios until you find one that optimizes revenue return to the municipality, minimizes the cost, and maximizes the protection of the rates. Then you can project that out in a fifteen- to thirty-year curve against projected cost of living increase and things like that. This approach gives the municipality good options and leaves them in control. They're not at the mercy of a typical privatization, where they lose control of their municipal infrastructure and the rates.

arcCA: Are you encouraged?

Wilson: Codes and building standards are starting to adjust, slowly but surely. Even some of the regulatory requirements are now starting to reflect this need for nutrient removal in wastewater treatment and stormwater mitigation. The next big thing is going to be endocrine disruptors and pharmaceuticals and chemicals that go right through a conventional wastewater treatment plant.

arcCA: But what about the economic collapse?

Wilson: The result is that municipalities are looking for innovation. At the state level, places like Pennsylvania and New York see that the old model doesn't work and endorse the models I discussed as a viable option for meeting their requirements, especially in areas like the Chesapeake Bay watershed, where municipal plants that discharge into rivers are under a lot of pressure. Or in South Florida, where they have to protect coral reef ecosystems. Our proposals for water treatment plants have innovative core processes, low maintenance, efficient operation, are cost effective to build, and include rational financing schemes. But the point is, you have to look at water—where it comes from, how it is used, and where it goes—as an interdependent system. ◉

Water is Energy

Pauline Souza, AIA, LEED AP

City of Watsonville Water Resources Center, WRNS Studio, all photos by Bruce Damonte.

Water is one of the most precious resources we have, and we have to be mindful of its use. Although the world is 70 percent water, 97 percent of that is salt water, and 1.5 percent of the remaining amount is locked up in glaciers and polar ice caps. Currently, 1.1 billion people lack access to fresh water, and 2.4 billion lack adequate sanitation. Meanwhile, Americans extract 3,700 billion gallons of water per year—more than what is returned to the natural system.

In the United States, we use almost half of those gallons for thermoelectric power generation. Agricultural irrigation consumes another third. Water use in and around buildings accounts for about 47 billion gallons per day, or 12 percent. Likewise, 70 percent of the cost of water is tied to cleaning and transporting it, both of which require a significant amount of energy. Architects may not generally have much influence over the agriculture industry, but we have a significant role to play—not just in reducing that 12 percent of water used in buildings and their landscaping, but also in cutting energy use and in the process saving even more water. Especially in a state like California, where climate change threatens to worsen droughts, growing populations compete with farms for water resources, and the aging infrastructure is having trouble keeping up, every drop counts.

Like most architecture firms, WRNS Studio has known for a long time that water is a critical resource that needs more attention. Designing the City of Watsonville Water Resources Center recently in Watsonville, California, however, made us even more aware of the facts—and

the urgent need to find better solutions in designing and constructing buildings to conserve water.

The Pajaro Valley's Water Crisis

The Pajaro Valley encompasses all of Santa Cruz, Monterey, and San Benito counties—79,600 acres, including agricultural land and the growing city of Watsonville. The valley's agricultural economy produces $530 million in annual revenue but also consumes 85% of the county's water. And 95% of that water is pumped from aquifers. Pajaro Valley currently pumps 69,000 acre-feet per year. That number is expected to increase to 80,000 acre-feet per year within the next three decades.

The combination of excessive pumping and severe drought conditions has led to salt water intrusion into the aquifers, which are below sea level and continue to pull water from the Pacific Ocean inland. To halt seawater intrusion, the water supply for agriculture would have to be restricted to 12,200 acre-feet/year—an 80 percent reduction, at an annual loss of $372 million to the economy.

Studies showed that one way to resolve this situation was to treat and recycle wastewater. So the City of Watsonville built a water recycling plant next to the city's water treatment plant, providing recycled water to farmers throughout the coastal areas of southern Santa Cruz and northern Monterey counties. The wastewater treatment plant recharges the region's aquifer with 4,000 acre-feet of water for irrigation annually and significantly reduces wastewater discharges into the Monterey Bay National Marine Sanctuary.

The City of Watsonville hired us to design the water resources center as a functional, educational, and visual extension of the water recycling plant it supports, consolidating three different city and county water departments into a workspace that would allow collaboration on issues of water management, conservation, and quality in the Pajaro Valley. The program included administrative offices, a regional command center, and a water quality lab. In addition, the building, its systems, and its surrounding land are intended to educate the public through exhibition and guided tours on the issues of water, energy management, and air quality.

Telling the Story of Water

The building's architecture teaches in a variety of ways. The conference rooms were designed with community use in mind, and the facility hosts frequent tours for schoolchildren. The water resource center's systems and controls are all visible, and almost every component of the building has a water-related story behind it.

Rather than channeling rainwater invisibly into a gutter system, the building allows rain to flow off of the roof, down rain chains, and into swales, where it is carried to retention basins, detained, and treated prior to infiltrating the groundwater system. This strategy makes the intersection of buildings and water explicit.

The water feature relies entirely on recycled water. During California's dry season, the native landscaping selected for the project doesn't look as lush as it does in the rainy sea-

son. While another client may have objected to these aspects on aesthetic grounds, our clients embraced them because they tell the truth about our particular climate. Working on this project really drove home for us how much the standard approach to design tends to conceal the natural processes of water and climate.

Placing Water at the Center

In initial discussions with the client, we decided that all design decisions had to tie back to water use. Whenever possible, the building and its landscaping reveal an underlying focus on water as a finite, invaluable resource. Because our clients were motivated to save water as much as possible, they pushed us to rethink our assumptions and dig deeper. That meant applying an unusual level of scrutiny to the design. Some things were obvious. The radiant floor is a closed-loop system, using the same water to heat and cool the building. The facility has low-flow faucets and showers.

But beyond those measures, for each material that we considered, we asked, "Where does it come from? How is it made? How much energy and water does it take to make it? Can we live without it?" Because our clients are steeped in the technical aspects of water, they could provide extensive information about the composition of water, water quality, and the costs of water, which informed the decisions of our mechanical and plumbing engineers. The structural engineer identified ways to construct the building with fewer materials. By reducing the amount of wood by 50% compared to a conventional structural solution, we saved on the water and energy required to produce that wood. The wood, which comes from California redwood trees owned by the city and slated for fire hazard clearance, was custom milled eight miles from the project site and incorporated into the building's rain screen cladding system.

Staying true to the larger mission—raising consciousness about the whole process of water—has changed the way we work. While we incorporated water conservation on past projects, we now approach each new project with water as one of the defining issues for the site and the building. We ask ourselves, "Where does it flow or land on the site? How will it re-enter the ecosystem? Where can we conserve and recycle?"

Pajaro Valley's aquifer was drained because California consumes water in a way that isn't sustainable. The water recycling plant and the water resources center are trying to raise awareness not just about recycled water, but also about the ways we live. After all, the cost to bring in recycled water is higher than the cost of drawing on the aquifer. When we all use water more resourcefully, recycling won't be necessary. Architects have a key role to play in telling this story. ◉

CALGreen: a Commentary

Loren K. Aiton, LEED AP

Have you been undecided about whether to jump into the world of green building? Have you been concerned about additional project costs, owner acceptance, personal time, and the expense of learning green building concepts? Have the complexities of processing a LEED®, CHPS, or Green Globes® project delayed your entry? With the adoption of the new *CALGreen 2010 Green Building Standards Code,* the State of California has made the decision for you. The new code is going to require green building measures for all new buildings. For those who have been involved in green building for some time, the new building code provisions will not be surprising. But they will change the way design and construction is practiced in California—most have argued for the better, though not everyone fully agrees.

If you are unfamiliar with the new code, it is the result of a directive from the Governor to the California Building Standards Commission (CBSC) to comply with the requirements of AB32 (Global Warming Solutions Act) and Executive Orders S-06-08 and S-20-04, both of which seek to provide for more sustainable building practices, reduce water use, reduce grid electric power consumption by buildings, and reduce green house gas emissions. While these two executive orders were directed at State-owned facilities, it was clear that they would be extended to private sector construction. AB32 requires reduction of green house gas emissions to 1990 levels by 2020, about a 25% reduction from current levels. The CBSC undertook an extensive process in developing the new code by partnering with a number of State agencies, task groups, and industry focus groups. It also studied existing, voluntary, green building rating systems including CHPS, LEED®, ASHRAE 189P, and Build-it-Green, among others. The new *CALGreen Code* represents a major revision of the 2008 *California Green Building Standards Code,* most of whose provisions were voluntary. Significant new standards affecting design, construction, and cost are present in the new code.

Photography by Ragina Johnson.

All of this comes with some criticism. Much has already been published about how *CAL-*

Green compares to existing third party green building rating systems. I believe no one is entirely happy with it. Even as the code was being printed into law, the California State Chamber of Commerce and the oil industry, among others, are seeking to delay AB32 implementation until the economy recovers significantly. While this effort against AB32 does not change the implementation of the new code, it may affect the thinking of many in the construction industry that, with a very weak building market, now is not the time to significantly raise the requirements and expense for new building projects.

There are other organizations and individuals who do not believe that the code goes far enough toward making buildings more sustainable or that it is confusing in the way it is written and how it will be enforced. Criticisms have risen from some sectors of the existing green building industry and communities who feel that it will fall short of specific earth-friendly goals, including the AIA's 2030 Challenge. These criticisms focus on five areas:

Is It Stringent Enough?

The new code was criticized for not being stringent enough to make a difference in climate change efforts. The CBSC has responded by pointing out that the California Air Resources Board estimates that the mandatory provisions of the new code will reduce green house gas emissions by 3 million metric tons in 2020. However, the mandatory requirement is only to meet the existing CEC minimum standards. The code states that green buildings should seek to achieve savings of 15% below this minimum standard, but at this time doing so is still voluntary. As an example of greater performance requirements, LEED® requires a minimum of 10% better performance than the current energy standards.

Do Jurisdictions Have the Requisite Expertise?

The next criticism suggests that State and local jurisdictions do not have the technical expertise to verify whether builders are in compliance. In response, the CBSC says they will utilize the long-standing enforcement infrastructure that is used to enforce other building codes. In addition, they state that, unlike most private green building programs, the new code requires inspection in the field to ensure compliance, and property owners will not have to pay additional fees for certification.

Having practiced as a LEED AP and Green Building Professional for the last seven years, it is clear to me that some local building officials will lack the technical expertise to enforce many of the new mandatory standards. The CBSC has indicated the intent to educate local code officials before the code goes into effect in January 2011. Yet, while it is currently conducting introductory workshops statewide, it has not developed a clear plan for the training of local officials. I foresee uneven enforcement for the next several years. Many smaller building departments contract with private-sector plan checkers to review submissions for which they lack the technical expertise or have insufficient staffing to check. There is a potential market for these same agencies to hire private-sector reviewers to assist with the review of the

new green building standards.

It is true that the code will not require additional fees for building certification. However, in the context of overall cost, fees for LEED® certification are typically less than 0.1% of the total construction budget.

Will There Be Confusion In the Marketplace?

Another criticism of the new code is that the CALGreen label and the tier structure will create market confusion with other third-party verification systems. The State counters this statement by pointing out that the CALGreen moniker was established to distinguish the *Green Building Standards Code* from other building codes. The tier structure was established to provide local jurisdictions with tools for creating additional standards to provide market continuity.

The CALGreen 2010 Green Building Standards Code is simply another section in the overall Title 24 building code. It creates additional minimum standards for building compliance. The tier structure, located in the voluntary portion of the code, outlines a group of standardized green building electives that local jurisdictions can choose from if they desire to establish local standards greater than the mandatory provisions. This program looks very similar to the LEED® Bookshelf developed by USGBC, wherein specific credits are the same across multiple rating systems to create continuity in the application of the credit. The tier structure should be viewed as a laundry list of specific measures that communities can use to establish local standards.

Will There Be Conflicts with Existing Municipal Green Building Programs?

It has been argued that the new code will significantly impact some California cities that already have their own green building programs. In an interview for the *USGBC News*, an information section on the organization's website, Dave Walls, the Executive Director of California's Building Standards Commission, points out that, "California is a very large and diverse state, and there will be a number of jurisdictions that choose to not go beyond minimum code."

Many cities have already adopted standards for public and private construction, including requirements for LEED® Certification, that exceed the *CALGreen* mandatory provisions. Currently, even the State requires LEED® Silver Certification for all new State projects in excess of 10,000 square feet.

How Will Contractor Means and Methods Be Handled?

Some of the mandatory provisions include measures that go beyond simple building requirements and cover areas of contractor means and methods. One example is Section 5.408, "Construction Waste Reduction, Disposal and Recycling." The code requires development of a plan for reduction of construction waste and diversion of waste to recycling. Contractor means and methods are typically areas that architects have avoided so as to limit liability. Yet, traditionally, the courts have held that the contractor is not an expert on the building code. Since this new code contains several sec-

tions that will affect means and methods, it will be incumbent on architects and engineers to find ways to include provisions in their specifications to direct the contractor to required activities while leaving them free to determine their own method of achieving the standards. Dave Walls indicated that the CBSC is aware of these aspects of the code and is working to develop documentation and direction to clarify how these measures will be handled.

Looking Ahead, Getting Prepared

The *CALGreen* code significantly raises basic building standards to a greener level. While the new code was not designed to achieve certification in any of the third-party green building certification systems, those who have been active in the development of projects seeking LEED® Certification will find that many additional credits and prerequisites are now a part of the building code.

I recommend that you obtain a copy of the *CALGreen 2010 Green Building Standards Code* and begin reviewing it now. A prepublication draft can be downloaded from the CBSC's website. Also, the CBSC is currently conducting introductory programs around the state. There is, as well, an intra-organizational effort bringing together the AIACC, the USGBC Northern California Chapter, and Build It Green, among others. Together, they are developing educational tools for outreach to local officials and construction professionals that will assist in implementing the new code requirements. ◉

AIA Santa Clara Valley Lifetime Achievement Award Stanford University

Lorry I. Lokey *Stanford Daily* Building, Cody Anderson Wasney, photo by Achille Bigliardi.

In 1949, Lewis Mumford wrote of the Stanford University campus, "The original conception of the University and its surroundings was the work of the most mature and effective mind America has so far produced." He was referring to Frederick Law Olmsted, author of the original campus plan. Often described as "grandly conceived," the Stanford campus has been "grandly stewarded" across the decades. For its dedicated stewardship and exceptional commitment to architecture, the AIA Santa Clara Valley Chapter recognizes Stanford University with the Lifetime Achievement Award.

A great research institution understands the continuing roles that architecture and landscape play in drawing out the latent potential in students, researchers, and faculty to achieve great things. As stewards of the campus, the planners have commissioned buildings that inspire and encourage collaboration, innovation, and discovery, and have leveraged opportunities to celebrate open landscape and views to the foothills to encourage those at Stanford to take moments to pause for reflection.

The Stanford campus derives much of its value from the physical juxtaposition of opposites. The original stone Quadrangle, representing the height of culture and order, set in the midst of un-manicured fields, established this dramatic tension. In recent decades, the University has renewed its commitment to the principles that were promoted in the original Olmsted Plan and the original architecture of the Main Quad:

Responsible Development
Stanford has continued to develop in a compact manner to avoid sprawling into the foothills, has promoted the design and implementation of transportation linkages to reduce single occupancy vehicles, and has developed long-term strategies for habitat conservation.

Symbiotic Relationship of Architecture and Landscape
Stanford has focused energy on designing landscape and connective elements that enhance the architecture and the making of place.

Leadership in Sustainable Practices
Stanford continues to promote best practices in sustainable building and design. It is one of just twenty-six schools (out of 332) to achieve the highest grade of "A-" on the new College Sustainability Report Card 2010.

Commitment to Quality Design
Stanford has invested in and promoted quality architecture from both regional and world-renowned architects. ◉

opposite top: Cantor Center, Polshek Partnership/SWA, photo by Richard Barnes.
above, left, Lorry I. Lokey Laboratory, Ellenzweig Associates/ Dowler Gruman Associates/Sebastian Associates, photo courtesy of Stanford University.
above, right, Clark Center, Perkins+Will with Foster & Partners, photo by Robert Canfield.

above top, Li Ka Shing Learning & Knowledge Center (School of Medicine), NBBJ, photo by Bruce Damonte; above bottom, Paul Allen Building, Antoine Predock, photo by Timothy Hursley.

... and Counting

David Meckel, FAIA

California as of 2008
36,756,666 people
13,393,878 housing units
155,959 square miles
www.quickfacts.census.gov

California by 2025
Will gain between 7 and 11 million new residents.
Latinos will be the largest racial group.
The number of seniors will double.
Inland areas will grow faster than coastal areas.
www.ca2025.org

California and Global Warming
Summers will become warmer.
Demand for water will increase.
Changes in precipitation, not temperature, will have the greatest impact.
Alfalfa, cotton, and grapes will be too water-intensive to be profitable.
Rising sea level will invade irrigation fed by groundwater in many places.
http://earthguide.ucsd.edu

A Fine California Futurist
Peter Schwartz (b. 1946) is a futurist, author, and co-founder of Global Business Network, a corporate strategy firm based in San Francisco. His first book, *The Art of the Long View* (Doubleday 1991), is considered by many to be the seminal publication on scenario planning.
http://en.wikipedia.org

Future Train
Projected schedule for California High-Speed Rail:
2009 public scoping meetings
2010 route options published
procurement process begins
2011 federal deadline for environmental review
finalize design build contracts
2012 federal deadline for construction start
2016 testing trains on tracks begins
2017 federal deadline to complete construction
2019 passenger service begins on regional segments
2020 passenger service begins between SF and Anaheim
www.cahighspeedrail.ca.gov

California Transportation Policies
1967 California Air Resources Board created
1990 Low-Emission Vehicle program (LEV I)
Zero Emission Vehicle mandate (ZEV)
1998 Low-Emission Vehicle program (LEV II)
Transitional Low-Emission Vehicle program (TLEV)
Ultra Low-Emission Vehicle program (ULEV)
Super Low-Emission Vehicle program (SULEV)
Partial Zero-Emission Vehicle program (PZEV)
Advanced Technology Partial Zero-Emission Vehicles (AT-PZEV)
2002 Clean Cars Law
2006 California Global Solutions Warming Act
2009 Low-Carbon Fuel Standard
www.next10.org

Change Observer
"It turns out that it takes 30 years for a new idea to seep into the culture. Technology does not drive change. It is our collective response to the options and opportunities presented by technology that drives change." —Paul Saffo, futurist
www.saffo.com

Booking the Future
A few books with visions for California's future:
Mike Davis, *City of Quartz: Excavating the Future in Los Angeles* (Verso, 1990)
Mark Baldassare, *California in the New Millennium: The Changing Social and Political Landscape* (UC Press, 2000)
James Flanigan, *Smile, Southern California, You're the Center of the Universe: The Economy and People of a Global Region* (Stanford, 2009)
http://library.cca.edu

Futuristas
"When it comes to the future, there are three kinds of people. Those who let it happen. Those who make it happen. And those who wonder what happened."
—John M. Richardson, Jr.
www.american.edu

Photo ©Tim Griffith.

Quiet Contrasts for the Landmark Oakland Museum

From the aspirations of California's first settlers to the rise of its iconic industries—motion pictures, aerospace, and information technology—California's history is steeped in the promise of the future. The Oakland Museum of California, as an institution and a work of architecture, captures a particular moment in this history. The landmark complex, designed by Kevin Roche of Kevin Roche John Dinkeloo and Associates and completed in 1969, embodied the public consciousness of the time. In imagining an institution that would unite the city's independent collections of art, history, and natural sciences, the museum's original champions also saw a place that could bring Oakland together.

Unprecedented in its merging of architecture and landscape and its interconnected assembly of indoor and outdoor spaces, the cast-concrete museum signaled a civic and social purpose beyond unifying the museum's collections. Roche, working with landscape architects Dan Kiley and Geraldine Knight-Scott, layered the three galleries with intimate landscapes and devoted nearly half of the museum's four-block site to a secluded yet public courtyard. Although the museum took a firm stance toward the city, multiple entries and a series of open-air stairways, walkways, and terraces scaled the building's topography and invited the community to explore its gardens and galleries.

Over time, ad hoc responses to security concerns, weather, and expanding programs encroached on Roche's vision, and in 1999, the museum began planning for a renovation and expansion—just completed by Mark Cavagnero Associates—that would restore the building's original clarity and strengthen its presence.

Two courtyards at the top level, unused for decades, have been enclosed to create new galleries capable of housing larger artworks. A series of new canopies frames the museum's main entrance and unifies the stairs and walkways into a central lobby—still open-air and daylit, yet protected. The lightweight, glass and stainless steel enclosures contrast with the mass of the concrete structure, while their pure forms complement the original building's simplicity. The steel's soft luminosity merges with and counters the concrete's changing presence in the shifting daylight. Bold environmental graphics, designed by SOM's graphic design studio, mark the renewed museum's place within the city and the 21st Century.

Each gesture is small relative to the building's monumental scale, yet through their precision and consistency in form and materiality, their cumulative presence enlivens the powerful structure. ◉