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A Garden's Many Shades of Green

LIGHTS OUT FOR
THE INCANDESCENT?

KANSAS BREAKS
ITS COAL HABIT

LIQUID ASSETS:
CITIES RENEW RIVERS

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A River Runs Through It

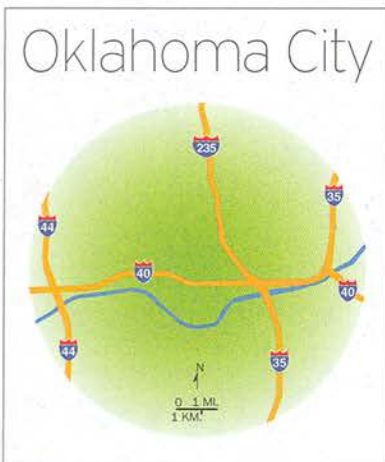
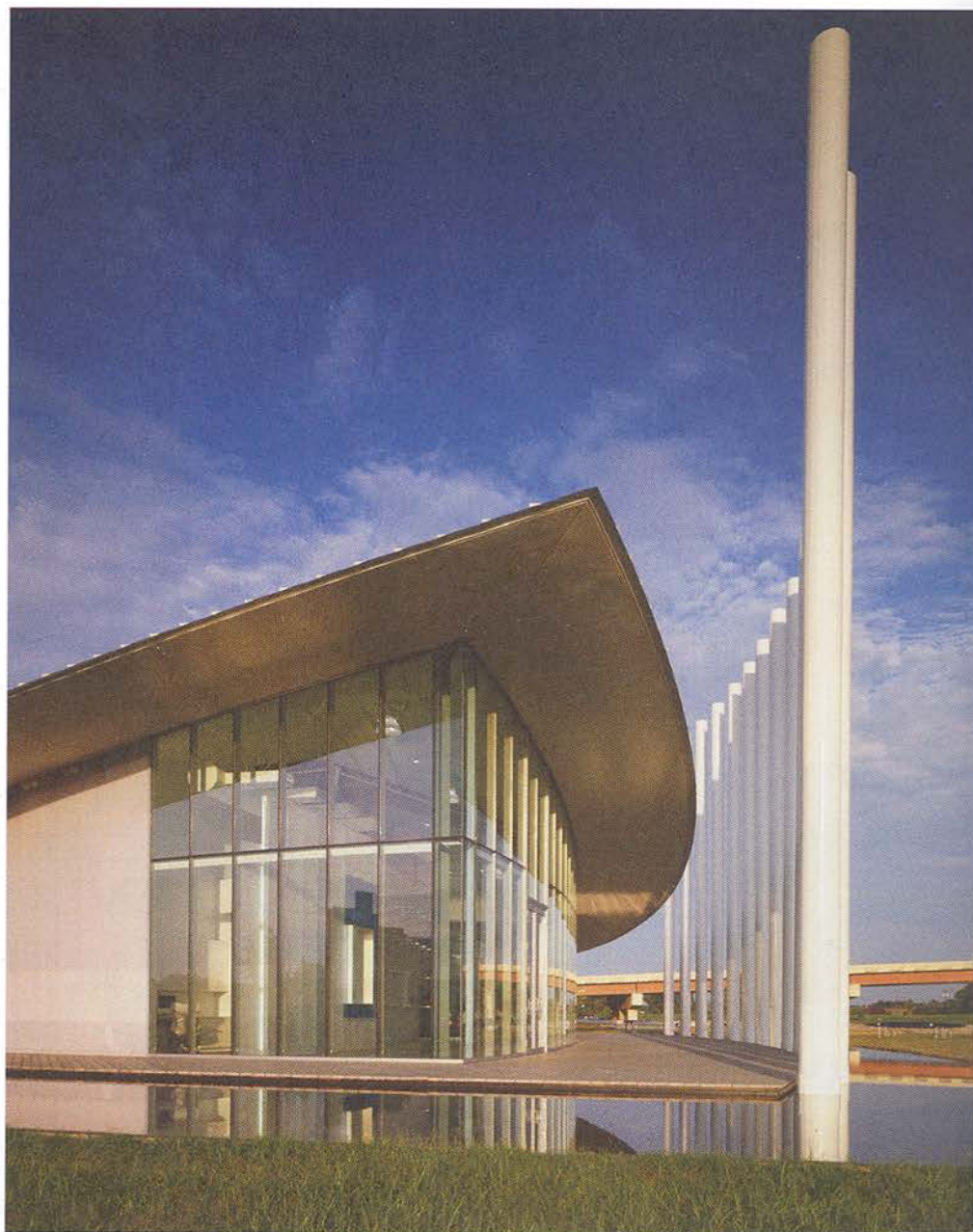
RIVERS ARE STILL THE LIFELINES OF AMERICAN CITIES, BUT IN A NEW AGE OF URBANIZATION, ONCE-CROWDED WATERWAYS BOAST A GREENER COMPLEXION

DAVID SOKOL

RIVERS RUN THROUGH myriad U.S. cities, many of which coalesced around waterways as their cores. Recently, those cities have begun transforming these vital

stretches from industrial working zones and neglected landscapes into pleasantly parklike spaces. Many of these projects place as much emphasis on restoring ecosystems as on providing an urban amenity. For example, whereas the factory-lined Buffalo Bayou in Houston ailed from neglect and persistent subtropical flooding, the South Platte River in Denver suffered at the hands of hundreds of polluters; today, both waterways are places where habitat and recreation coexist, with attractive redevelopment and new construction overlooking the waterways.

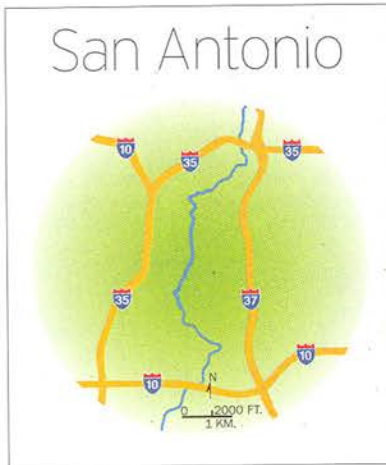
The most extreme makeovers of downtown rivers have gone hand in scalpel with several concurrent phenomena: Shipping networks' shift from water-borne transporta-



↑ Oklahoma City's re-engineering of a seven-mile stretch of the North Canadian River has transformed it into

a rower's paradise, epitomized by the construction of the Chesapeake Boathouse (above).

San Antonio



undoing the work of the U.S. Army Corps of Engineers, which, in the 1940s and 1950s, formulaically stemmed flood threats by channelizing rivers. What were riparian environments had been turned into ugly, trapezoidal-shaped concrete drainage ditches.

Restorations in Oklahoma City, San Antonio, and Los Angeles are either recently completed or in the works. These projects' designers and engineers are dealing with the Corps of Engineers' former one-size-fits-all approach by tailoring their responses to the peculiarities of site and the value systems of each community. While their responses may be different, all are achieving a happy medium between the riparian milieu and the paved-over.

At the turn of the 20th century, the stretch of the North Canadian River running through Oklahoma City could have been plucked from a Currier & Ives print. But the river's high volume of water could easily overcome its oxbows and flood the area. Several significant flood events beginning in the 1920s destroyed property as well as life, and by the 1950s, with two bond issues passed, the city brought in the U.S. Army Corps of Engineers to prevent further losses.

The fix was dramatic. The naturally meandering stream with trees lining its shore had become a rock-lined drainage ditch with only a trickle of a pilot channel running down its middle. "It was the only river in the United States that had to be mowed three times a year," recalls Pat Downes, an independent consultant and director of development for the Oklahoma City Riverfront Redevelopment Authority. He adds, "In essence it solved one problem but created a blight that was equally serious in terms of economic development: The area repulsed people. And because the river bisects Oklahoma City, it represented a social barrier between north and south." After a series of river master plans, a scheme was approved in 1991 that would reconcile the historic complexion of the river to its modern reality.

With financing from a penny sales tax that funded eight other major projects in Oklahoma City, the revamping of the North Canadian River—its seven-mile target stretch officially renamed the Oklahoma River—was tackled by the engineers of Triad Design Group. They executed a clever plan to revive the scenery without altering the flood capacity of the existing channel. Three low-water dams capture the river's water in a trio of lakes, each between two and two-and-a-half miles long. The \$54-million project was effectively completed in December 2004, although the city continues to refine its work. For example, it recently purchased a fleet of three 49-passenger river cruisers that connect the Area Hospitality Corridor just north of Will Rogers Airport to a downtown trolley node, where tourists and commuters seeking an alternative to driving Interstate 40 can quickly shuttle to popular Bricktown or Oklahoma City's central business district.

Moreover, private developers are now building on

No armoring was deployed in the original channelization of the San Antonio River. Even so, removing rubble and creating a more natural flow of water requires a tremendous effort.



the success of the river revitalization. Downes reports that completed and forthcoming investments exceed \$700 million in value, highlights of which include a Native American museum and a Dell campus constructed atop remediated landfill. On the opposite side of the spectrum, local faunas have been doing some redeveloping of their own: For instance, beavers, which citizens never thought would repopulate the Oklahoma River, have claimed some of the 6,000 new trees planted in three ecosystem restoration projects undertaken by the Corps of Engineers.

You wouldn't expect San Antonio to fall prey to the channelization urge. However, when plans for forcing the city's namesake river into submission were published in 1926, the local Conservation Society protested, and the famous San Antonio River Walk was established as a result. But a series of floods resulted in a 1954 Corps of Engineer channelization project south of downtown and a city-overseen equivalent on the north side. These straightening efforts were originally completed as cheaply as possible, with no concrete reinforcement of the earthen channels. Since the 1960s, the city has had to dump rubble into the unstable eyesores to prevent further erosion.

In 1998, a variety of government and private partners agreed to revitalize these northern and southern portions of the San Antonio River; the \$216.6 million project, first launched by SWA Group, also includes improvements to the original River Walk area. While the four-mile-long northern component, known as Museum Reach, effectively will be sculpted into a park not unlike the shores of the Oklahoma River, the southern Mission Reach will be revitalized with the naturalist technique of "fluvial geomorphology." The term officially refers to a careful



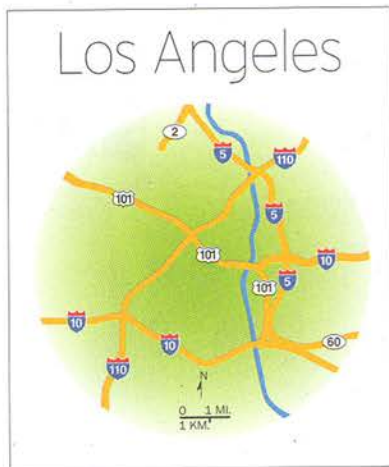
« A tall retaining wall like the one proposed here, though it allows for recreational activities to take place along the shore, ignores a riverbank's own gradient. This feature illustrates how the two sides—the public and the Corps—are facing off in the San Antonio project.

method by which riverbanks are reinforced with geotextiles, and their contours, gradients, and plantings are reconceived to evoke a natural riparian environment. But it also implies a careful negotiation between the agendas of humans and Mother Nature. Noting the Corps of Engineers now embraces a purist approach to ecosystem restoration, Alamo Architects' Irby Hightower, who co-chairs the San Antonio River Oversight Committee, says, "What we believe people are interested in is something that looks like a natural river, and the Corps is interested in something that functions like a natural river. Those two aren't exactly the same."

With master planning under way by Jacobs Carter Burgess, Mission Reach should ultimately appeal to both parties. While the Corps of Engineers is not opposed to having canoes in the river or bicycles running alongside it, Hightower says, it has expressed concern about the shoreline gradient or retaining walls that either activity would require. "We're trying to balance pristineness with access to



« Architectural elements like bridges evoke the historic namesake buildings located within proximity of the Mission Reach of the San Antonio River.



the area. To really accomplish an ecosystem restoration of the San Antonio River would require rebuilding every bridge and displacing a lot of people.”

If resurrecting an entire floodplain is impossible in an area of dense population, what does that portend for the revitalization of the Los Angeles River, whose right-of-way occasionally measures just footsteps?

Acting chief deputy city engineer Deborah Weintraub, AIA, concedes, “We don’t have the land to spread the river out to its original route.” But that doesn’t mean the river has to remain the desolate swath of concrete memorialized by films like *Terminator 2*. “We will have the opportunity to create habitat while still maintaining flood-control protection,” she says, pointing out that moves like terracing can foster communities of plants and animals as they spring back into prosperity.

Indeed, the entire year-old plan carefully negotiates natural history and the exigencies of contemporary life. Most of the armoring of the Corps of Engineers’ original channelization will remain, for example, but new flow diversions will assist in flood storage. Even the plant palette, borrowed from the county-authored Los Angeles River Master Plan of 1996, features a hybrid of original and transplanted species. “The river once was oriented to flooding and the species collected along the river were accustomed to being dry in

» Over time, a typical rectangular channel can be converted into a people-friendly riverfront with terraced access on both sides and a riparian corridor at the channel bottom.





▲ In a long-term vision for the Los Angeles River, a proposed secondary channel in the Chinatown-Cornfields area would separate rail from public occupiable areas, making for an active waterfront.

The revitalization master plan capitalizes on the city's strengths, linking the Los Angeles River to the extensive trail and open-space network already in existence at the Arroyo Seco. ▼

deep sand, flooded, wiped out, and then reseeded. That's not really possible in the controlled situation we have today," says Civitas' Mark Johnson.

To expand its reach, the plan also aspires to extend green fingers into the river's surrounding communities, with easements and recreation areas that would create an entire river zone. "There's been a lot of work that shows if you have good park design, you get private-sector development that wouldn't have happened otherwise," Weintraub says. And besides greening the river interior, the master plan will expand its influence: The scheme champions eco-industrial parks, clusters of businesses in which one company's waste stream is another's raw material, thereby minimizing the waste that's hauled off-site. It is also proposed that these zones deploy ecological strategies, such as biofiltration, and the city is now considering an ordinance that would establish green-design criteria that closely mirror LEED standards for new development around the river. So although the Los Angeles River Rehabilitation Master Plan, with 240 projects, may take 50 years to fully realize, already its visionaries are securing a greener future for the city. ◀



Sokol is a New York-based writer and editor. He contributes regularly to *Azure*, *Interior Design*, *Metropolis*, and *Plenty*.