

68 2009

Water

Resource and Threat

USA LOS ANGELES RIVER REVITALIZATION; SPONGE PARK IN BROOKLYN; STRATEGIES FOR NEW ORLEANS • **INDIA** SABARMATI RIVERFRONT IN AHMEDABAD • **MOROCCO** FEZ RIVER REHABILITATION • **CHINA** NEW WATER CULTURE FOR TIANJIN • **UK** SUSTAINABLE DEVELOPMENT AND FLOOD-RISK • **NETHERLANDS** ROOM FOR THE RIVER; RIJN-MAAS-SCHELDE DELTA PLAN • **BELGIUM** DE-POLDERING IN BEVEREN NORTH • **GERMANY** COASTAL ADAPTATIONS; DESIGNING TIDAL LANDSCAPES IN THE HAMBURG REGION



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LOS ANGELES RIVER

Revitalization Master Plan



The master plan proposes to transform the concrete-lined Los Angeles River into a green spine in the heart of the city, with restored riparian habitats, improved water quality, and new recreational uses.





The Los Angeles River flows through Los Angeles County, California, from Canoga Park in the west end of the San Fernando Valley, 51 miles (82 kilometers) southeast to its mouth in Long Beach.

The revitalization of the Los Angeles River has been a topic of discussion for more than 20 years. Once the source of life for the city, it was channelized a hundred years ago and armored with concrete lining in the 1930s for flood prevention. As an engineered solution, it has divided the city physically, culturally, and economically. The river is so degraded that few people know it is a river. Yet, it is a vital work of civic infrastructure that has the potential to integrate a divided city.

Los Angeles County has an immense impact on both the regional and global environment as a result of the boundless consumption of resources. Comprising an area of more than 4,000 square miles (10,360 square kilometers) and with a population of almost ten million people it is the 16th largest economy in the world. Los Angeles is a global creative capital. Through its varied portrayals in movies, television, and print, images of the LA River's concrete channel have been indelibly imprinted on people's minds as one of the symbols of the City of Sprawl. Now, the Los Angeles River Revitalization Master Plan provides the opportunity to turn this perception upside down by supplying a blueprint for progressive development.

The regional open space network created by this master plan will bring neighborhoods together by providing trails, parks, and bikeways along the length of the river, and offer access to residents who have been long deprived of recreational opportunities. The master plan will also integrate recreation, habitat conservation, and watershed management. While still retaining its regional flood control use, the river will also be a place for the natural environment to thrive and exist as a resource for the public's enjoyment.

In recent years, special interest groups, the mayor's office, and key city council members started to see a new opportunity. Key leaders – Mayor Antonio Villaraigosa and Councilman Ed Reyes in particular – joined forces with the Department of Water and Power to fund a new visionary and technical proposal for transforming the river into the city's prime asset.

Developed by a team of engineers, landscape architects and urban designers, community activists and specialists, the 20 to 50 year master plan proposes short- and long-term transformations for 32 miles (51.5 kilometers) of this channel. After months of engineering and planning studies, the team verified the need for a park and open space system and acknowledged that opportunities exist – pragmatic and visionary – to completely transform the river into a green, living system, an urban design centerpiece, a source and conveyor of cleaner water, and a catalytic stroke in the reinvestment of existing communities into their city. The plan is founded on a comprehensive analysis that includes transportation infrastructure; land ownership; property jurisdiction; open space types; hydrology; water velocity; groundwater basins; contamination plumes; youth density; zero car households; and pedestrian, bicycle, and equestrian gaps, among many others. From the information gathered at public and client meetings, the city's GIS

The proposed master plan for the Los Angeles River will not only restore the ecology of the river but also the river's identity. Greenways and parks will reconnect the river to the city. Significant government and community commitment help to achieve its realization.

database, related land use, recreation, river and watershed planning efforts, and hydraulic modeling completed by the US Army Corps of Engineers, several issues arose that guided the design decisions of the master plan.

Channel geometry. Nine channel reaches were identified, based on typical cross-sections, and used to design proposed short- and long-term improvements for public access, water quality, and habitat.

Hydraulic considerations. Most river reaches exhibit flow velocities exceeding 20 feet per second – twice as high as feasible to sustain vegetation. Maintaining flood capacity and slowing flows are necessary for ecosystem restoration and ensuring safe public access.

Water quality. About 2,200 storm drains and nine major tributaries currently empty into the river, contributing to the impairment of most reaches.

Ecological function. As a result of channelization, the river's ecological function has been severely degraded. Restoring and reconnecting riparian habitat areas are significant goals for the plan.

Recreation and public access. A majority of residents along the Los Angeles River, especially those in lower-income areas and with high concentrations of children under age 18, live in areas that are park-poor, suggesting important environmental justice concerns.

The removal of concrete allows the sides and bottom of the channel to be naturalized with riparian plantings. Terraced treatment wetlands help to improve the water quality.





A cantilevered greenway trail shades the channel and reduces water temperatures. Transforming the streets that connect industrial, residential or commercial neighborhoods to the river is an essential component in making it a successful park amenity for Angelenos.

Drawing from this analysis phase, four core principles were established. The first, Revitalizing the River, includes goals to renew environmental qualities that can catalyze change in various communities; re-create a continuous habitat corridor; where feasible, remove concrete walls while maintaining flood control; provide for peak flow storage to reduce flow velocity in the channel; and enable safe public access and restore a functional ecosystem.

Greening the Neighborhoods transforms the river into a green ribbon through the city with green strands that reach into adjacent neighborhoods; creates a network of green connections, bikeways, and pedestrian paths intertwining the river and open spaces; and strengthens the river's identity with new signage, bridges, and gateway entrances. Capturing community opportunities is essential to the successful long-term viability of the plan. The propositions include making the river the focus of activity to foster civic pride; engaging residents in the process; providing opportunities for education and public facilities; and celebrating the river's cultural heritage. Creating Value, the fourth principle, presents possibilities for improving the quality of life of residents; increasing employment, housing and retail space opportunities; creating environmentally-sensitive urban design and land use opportunities and guidelines; and focusing attention on underused areas and disadvantaged communities.

To realize the implementation, examples were necessary that could demonstrate opportunities. From twenty "Community Opportunity Areas", five neighborhoods were chosen and explored in detail for their potential river, water quality, and open space improvements and the appropriate land use changes. For Canoga Park, River Glen, Taylor Yard, Chinatown-Cornfields, and the Downtown Industrial District, selective interventions propose new public spaces, a new river "aesthetic", redevelopment opportunities, a network of green streets that reconnect the neighborhoods to the river, and a layering of ecological improvements in the river bed.

Through these opportunity areas, the plan demonstrates the possibility of removing concrete from and revegetating the river channel and how such modifications can be integrated with comprehensive land use changes. This would create important habitat connectivity and ecosystem restoration, linking the river to large open spaces such as the Santa Monica and Verdugo mountain ranges. In Canoga Park, the plan proposes to create a community park and restore the river's ecological function including naturalization and a ponded area. River improvements include the capture and treatment of stormwater runoffs and the daylighting of Arroyo Calabasas. The River Glen area demonstrates the kinds of improvements possible in an industrial area. As it sits at the confluence of the river and the Verdugo Wash, it showcases the potential of regional-scale water quality treatment facilities and how to significantly augment

In the Chinatown-Cornfields Opportunity Area, a diversion channel provides for water recreation access and creates a habitat island for riparian and upland species. The area presents the most dramatic economic development potential.



ecological function as well as how to provide safe and compatible public access to a natural area park. Taylor Yard offers the opportunity for a large water quality treatment wetland as well as naturalization of the river channel. For Chinatown, the plan proposes a realignment of the river channel to create a naturalized diversion and a riparian island that would allow ponding of water for recreation, as well as a large community park on the opposite shore. An alternative scenario creates a more urban river edge featuring a pond area with promenades and overlooks.

In the Downtown Industrial Area creation of three street-end parks on the east side of the river, connecting the Boyle Heights community and the emerging Arts District to the water's edge with terraces, was the first alternative. The second would offer more urban plazas and promenades along the eastern edge of the river. Both alternatives recommend a ponded area.



A landscaped paseo within the Canoga Park industrial area creates pedestrian and bicycle access to the river.

LOS ANGELES RIVER REVITALIZATION MASTER PLAN,
CALIFORNIA, USA

Client: City of Los Angeles, Department of Public Works,
Bureau of Engineering; City of Los Angeles, City Council's
Ad Hoc Committee on the Los Angeles River
Prime consultant: Tetra Tech Inc. (engineering, project man-
agement, river planning, environmental impact analysis)
Urban design, landscape architecture, river planning: Civitas
Inc.; Mja Lehrer + Associates; Wenk Associates Inc.
Economic analysis: Urban Partners; Asset Strategies
Community involvement: Adán Ortega; The Robert Group;
TLUC; Urban Semillas; David Marquez & Assoc.
Planning: 2005 – 2007
Area: 32 miles (51.5 kilometers) of river corridor and 750
acres (303.5 hectares) of contiguous real estate
Estimated costs of construction for short- and long-term
improvements: 2 billion US dollars

Estimates of economic benefits for these five opportunity areas range from 2.7 to 5.4 billion US dollars in new development, 11,000 to 18,000 new jobs, and a long-term tax revenue increase between 47 and 81 million US dollars annually. While focusing on the five key “Opportunity Areas” the plan develops over 20 design typologies – from parks, promenades, gateways, and bike paths to bridges, multipurpose open spaces, green streets, and off-stream channels – that can be applied along the entire 32-mile study area. Supplemented by a proposed River Improvement Overlay (RIO) district, the master plan creates a model for river related change that can be adapted and applied along most urban river systems.

Community input and public support were vital in shaping the plan. The public and stakeholders were engaged in the planning process through a 50-member City Department Task Force; a 40-member Advisory Committee, representing neighborhood and business groups, and community leaders; a 50-member Stakeholder Committee, representing advocacy organizations; and a Peer Review Committee of urban planning, hydraulic engineering, and real estate experts. The team led 19 interactive public workshops, held in neighborhoods along the river, numerous community events, and a 500-participant youth summit. The team also worked with a large number of city, state, and federal agencies to test every issue and ramification of this transformative project. As with all large-scale planning efforts, realizing change in a tangled web of political, social, and economic realities is the key demonstration of a plan’s viability. The design team researched over 30 governance structures from across the US. This resulted in the development of an innovative three-tiered management structure comprised of new governmental, entrepreneurial, and philanthropic entities that will minimize the historic fragmentation of governance, funding, and river management issues. The design team also created a list of more than 24 potential funding sources from local, state, and national levels.

The final master plan includes recommendations for physical improvements to the river corridor and to the green space network in adjacent neighborhoods; recommendations at a policy level for managing public access and ensuring public health and safety; recommendations for a river governance and management structure; and recommendations for short- and long-term priority projects and potential funding strategies. The project was led by the city’s Bureau of Engineering. Upon plan adoption, the River Project Office was created in the Bureau of Engineering to serve as the central coordination office for the implementation of the plan, including communications regarding the establishment of the three-tiered management structure. Also since its adoption, the master plan has received more than 25 million US dollars from a variety of funding sources. But its biggest contribution has already been seen in a significant and renewed commitment at all levels of government and the community to achieve the revitalization.